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A corpus-based description of Kakabe, a Western Mande language: prosody in grammar

Alexandra Vydrina

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A corpus-based description of Kakabe, a Western Mande language: prosody in grammar

Volume I

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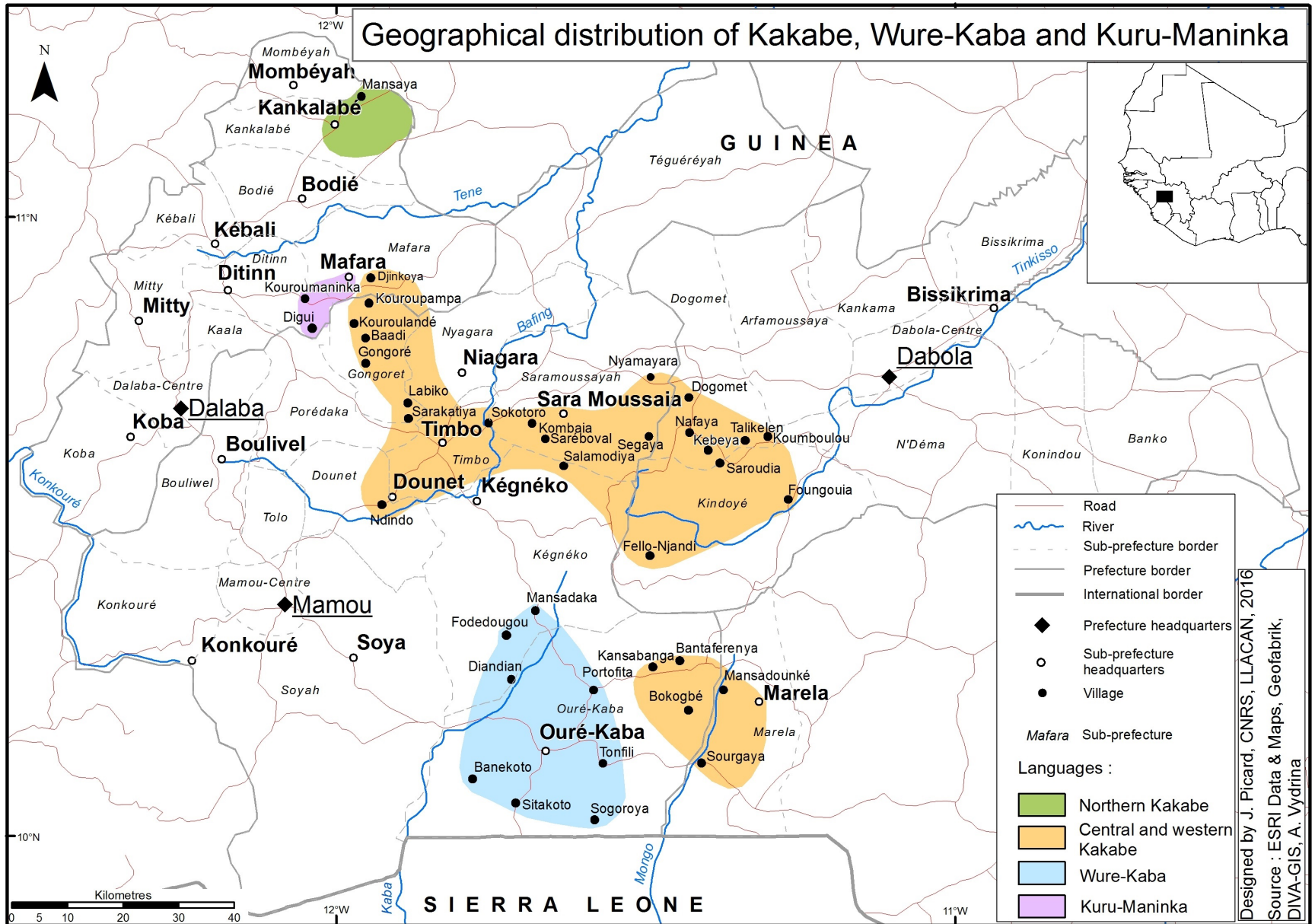
Abbreviations and conventions

ART	referential article
ASR.F	assertion focus
BNF	benefactive
BT	IP-final boundary tone
C	consonant
CA	Conversation Analysis
CAUS	causative
CJ	conjoint form
CK	Central Kakabe
COND	conditional
DISC	discourse particle
DJ	disjoint form
DO	direct object
EPC	existential possession construction
EpV	epenthetic vowel
FinR	IP-final pitch rise
FTL	Final Tone Leveling

H	high tone
HS	High separator tone
ICM	identity or class-membership statement
IDENT	identification copula
IDEO	ideophone
INTERR	interrogative
INTR	intransitive
INTSF	intensifier
IO	indirect object
IP	intonation phrase
IPC	identificational possession construction
L	low tone
LG	Long form of personal pronoun
LWA	loanword adaptation
MTL	Medial Tone Leveling
N	homorganic nasal consonant
N	homorganic nasal
NCC	Negative continuation construction
NEG	negation
NESS	necessity modal marker
NK	Northern Kakabe
NP	noun phrase
OCP	Obligatory Contour Principle

OF	operator focus
OPF	Operator Focus
ORDIN	ordinal number
p.c.	personal communication
PERS	person
PFV	perfective
PFV.OF	perfective with inherent operator focus
PhP	phonological phrase
PI	polarity item
PI.DTM	Polarity item determiner
PL	plural
POSS	possession linker
POT	potential
PRED	semantic predicate (in identity statement)
PST	past
PST.PS	past-tense marker in post-subject position
PW	prosodic word
Q	question word
R	LH tone linked to one mora
REF	the category of refractive or repeated action
resp.	respectful register
Sbj	subject
SBJV	subjunctive

SG	singular
sp.	special type of
SR	surface level of phonological representation
ST	Situation Time
TBU	Tone-bearing unit
TCU	Turn-constructional unit
ToBI	system of transcription Tone and Break indices
TR	transitive
TT	Topic Time
UNIV	universal quantifier
UR	underlying level of phonological representation
UT	Utterance Time
V	verb (in the dicussion of syntax)
V	vowel (in the dicussion of phonology)
VERB.PL	verbal plurality
WK	Western Kakabe



Chapter 1

Introduction

1.1 Outline of the main topics

This thesis investigates various aspects of phonology and grammar in Kakabe, a hitherto undescribed Mande language. The aim of the study is to provide a unified account of the segmental phonology, the tonal system and the intonational patterns of Kakabe, accompanied by a short grammatical description of the language. In offering a grammatical sketch and a thorough phonological description, this thesis increases the knowledge on little-known Mande languages. Even for those Mande languages that have been described, detailed accounts of tonal, and, especially, intonational phenomena are difficult to come by. Apart from increasing the knowledge in the domain of Mande studies, this research project is intended as a contribution to phonological theory, in particular, the typology of tonal and intonational systems. Sentence-level prosody in languages with lexical tones is a domain which has received very little attention until recently and one of the aims of the present study is to contribute to filling this gap. Finally, the analysis of the various aspects of the Kakabe pragmatics, morphology and syntax, may be of interest for the typological studies of these domains.

1.1.1 Phonological processes in speech

The present study is oriented towards the description of phonological phenomena in natural discourse. Many of the processes which are analyzed in this thesis have a probabilistic rather than a categorical nature, therefore the only way to account for them was to investigate the distribution of the linguistic forms in real speech. I have tried to follow the model of description “in which predictable patterns are not separated from representation, where lexicon and

grammar are interwoven as are the specific and the general” (Bybee 2007: 7). Following Ohala (1993) I pay particular attention to the distinction between “real-time” and fossilized phonological processes.

1.1.2 Lexical tone and tonal operations

The central topic within the autosegmental phonology approach (Goldsmith 1976), which is adopted here, is the association between the elements of the tonal and the segmental tiers. Tones end up being linked to prosodic units, situated at the bottom of the prosodic hierarchy, to moras or to syllables depending on the type of the language. Apart from that, the phonological realization of tones can depend on a large number of tonal processes, which are sensitive to the boundaries of prosodic units occupying different positions in the prosodic hierarchy.

Pitch distinctions can be used in a variety of ways, both in terms of the meanings and functions that they convey, and in how they are organized with respect to metrical units of the language. Pitch distinctions can be specified for each or several syllables of the word, only for one, namely, the accented syllable, or, finally, there may be one intonation pattern for the whole utterance. According to the commonly accepted definition of Hyman (2006: 229), tone languages are characterized by the use of pitch distinctions in the expression of lexical meaning. Within the class of tone languages, the use of pitch oppositions for lexical or grammatical distinctions can be organized in a large variety of ways. In some languages, such as Mandarin Chinese, lexical tones are assigned to most syllables. In other tonal languages, it is common for syllables to remain unspecified for tone at the lexical level and to be assigned tone by the application of tonal processes.

Kakabe belongs to the latter category. In general, the distance between underlying and surface tones is rather important in Kakabe. The tonology of this language features such processes as H tone insertion due to OCP, floating L, optional deletion of tones of personal pronouns, shift of H tone to the following L-toned syllable etc. Tonal morphology is not very rich, though. One of the few processes that can be attributed to this category is the tonal compounding, whereby in a complex NP, the tones of all but the first element are deleted.

The present study provides a thorough account of the realization of tonal processes. The investigation is based mostly on the analysis of data from a corpus of natural texts which makes it possible to account for the patterns of variation of these processes.

1.1.3 Tone and intonation

It is commonly accepted that tone and intonation are not mutually exclusive, but in tone languages intonation is often minimized or non-existent (Cruttenden 1997, Arvaniti 2017; Michaud 2005; 2008; 2017; Michaud & Vaissière 2015). Certain functions of the “intonational” domain can be taken up by other modules of the language: by segmental morphology, by lexical tone or by syntax.

When the distinctions between types of illocutionary force can be rendered by tones which are realized at the edges of prosodic elements, they are usually treated as intonational phenomena (Gussenhoven 2007a; Ladd 2008; Pierrehumbert 1980). At the same time, the cases discussed in these works concern languages with either no lexical tones, as English, German, or languages where the lexical tone distinction is restricted to the stressed syllable, e.g. Swedish and Japanese. In languages such as Kakabe, tone is (primarily) lexical and grammatical: even though, in Kakabe the tonal contrasts are also limited within a morpheme, yet, its tonology is different from the cases like Swedish and Japanese since the tonal oppositions are not restricted to one culminative syllable within a prosodic word. As shown in Chapter 6, the boundary tones in Kakabe display the same phonological behavior as lexical tones.

Another consideration relevant for the discussion about whether the boundary tones should be treated as lexical tones or as intonation is the fact that the distinctions between types of illocutionary force can be rendered by segmental particles (final, or not as the clitics in Wackernagel position), and are usually described within morphology or syntax, e.g. the clitic *li* in Russian. In other words, in the same way as lexical and grammatical meanings can be expressed either through segments or through tones, sentence-level meanings can be expressed by intonational operations, but also by segmental morphemes or by tones.

1.1.4 Focus in the large sense and its expression in Kakabe

One of the main topic of the present study, in particular in the chapters on suprasegmental phonology and in the grammar sketch, is the expression of information structure categories.

I show the necessity to treat contrastive and information constituent focus in relation to a larger domain of focus-related phenomena. I follow the approach in which focus is understood as a larger category than contrastive and information focus. Focus can be viewed as a “multifunctional” category (Hovarth 1986; Giannakidou 2011) targeted by different focus-related categories: information and contrastive foci, interrogative phrases, polarity items, etc. The common base of these categories is the set of alternatives, triggered by the element in

focus and which makes the latter the informational center of the utterance.

In this framework, interrogative phrases are viewed as inherently focused, since they also give rise to alternatives. This approach is supported by the ever growing amount of empirical evidence. Many authors have observed that there is a close typological link between the grammar of question formation and the grammar of focusing (Eckardt 2007): focus and question constituents sharing a common position, e.g. in Hungarian (Hovarth 1986); focus and questions sharing a common particle, e.g. (Miriungi 2005); focus and questions sharing a common prosody (Haida 2007).

In Kakabe the affinity between constituent focus and question phrases surfaces in a number of aspects. The particle *lè*, apart from marking constituent focus, in certain cases accompanies interrogative words (2.6.2.5). Apart from that, interrogative phrases (with or without *lè*) display the same distributional patterns as focused constituents in identificational constructions (2.3.1).

Another category which belongs to focus in the larger sense, is the category of polarity items. In contrast to the constituent (contrast or information) focus that gives rise to unstructured sets of alternatives, polarity items trigger hierarchically organized sets of alternatives (Krifka 1995; Hoeksma 2012; Haspelmath 1997; Horn 2000). I argue that in Kakabe polarity items are marked by intonational pitch rise (6.5.3), which is also associated with assertion focus.

Apart from the types of focus mentioned above, predicative focus plays a central role in the system of grammatical markers of Kakabe, being an integral part of predication markers along with aspect and polarity (2.2).

1.1.5 Language-internal and family-internal variation

Throughout the thesis, I discuss patterns of dialectal variation which in some cases yield hypotheses about the diachronic development. One of the examples is the distribution of the reduced allomorph of the perfective auxiliary *báti*. The reduction of the second syllable is accompanied by total assimilation in Central and Western Kakabe, and only by partial assimilation in Northern Kakabe. The analysis of the frequency distribution of the allomorphs in different phonological contexts suggest a particular scenario of how the assimilation could have evolved from partial to general (4.5).

Apart from that, certain phenomena are described in the perspective of their realization across Mande languages. For example, I analyze the emergence of the non-segmental L marker of referentiality. In a number of Western Mande languages, the marking of the referen-

tial status reflects various stages of phonetic erosion, where the starting point is the syllable of a demonstrative and the most advance stage is the floating L without any segmental manifestation. The comparison of the data of these languages shows that L tone recurrently displays the tendency to shift to the right when the syllable to which it is originally linked is already associated with a H tone (5.9.1).

1.1.6 Language contact and core vs. periphery organization of the lexicon

Apart from the dialectal variation, another important issue for the understanding of phonological system is the organization of the lexicon with respect to the nativization of foreign lexemes. Using the model of the ‘core-periphery’ organization of the lexicon (Itô & Mester 1995; Chitoran 2002; Friesner 2009), the lexicon of Kakabe is organized into the following strata:

- (1.1) *native core vocabulary*: Mokole vocabulary, including nativized ancient Arabic loans
foreign assimilated vocabulary: Pular loans
foreign non-assimilated vocabulary: recent French and Pular loans

The stratum defines the level of phonological constraints which must be respected:

The issue of the nativization of loanwords has been discussed in terms of a ‘core-periphery’ organization of the lexicon. Such a model suggests that peripheral lexical items may be exceptional with regard to certain constraints of the recipient language. The typical path for a foreign borrowing is thus to enter the language in the periphery and then optionally become fully or partially nativized, usually by changing its surface form to obey the previously violated constraints (Friesner 2009: 115).

Throughout the chapters on segmental phonology I discuss the processes which are sensitive to the core-periphery stratification of the lexicon. A special section is dedicated to its description in Chapter 3(3.4).

1.1.7 Structure of the thesis

The first volume of the thesis consists of a grammar sketch (Chapter 2) and two parts, describing segmental and suprasegmental phonology, respectively. In Part I, Chapter 3 is dedicated to the description of the segmental phonological contrasts engaged at the underlying level. It also includes the description of phonotactic constraints (Section 3.3) and specific phonotactic patterns that are attested in loanwords (Section 3.4). Chapter 4 gives an account of the rules of segmental phonological realization. In Part II, I discuss tones and other prosodic phenomena. Chapter 5 is dedicated to the analysis of tonal representation, including the underlying representation and the rules of phonological tone realization. Chapter 6 discusses the realization of sentence-level prosody involving tonal patterns and intonational processes.

1.2 Data and methodology

The main data source for the current study is the Kakabe corpus consisting of natural texts that I gathered in the course of my fieldtrips. The observation of continuous natural speech was complemented by elicitation.

1.2.1 Kakabe corpus

The lists of the texts with some additional information is represented in Appendix C.

A considerable part of the corpus consists of natural conversations between the inhabitants of the villages, where, on the average, from three to six speakers are involved. The monologues include procedural texts, historical and personal narratives.

All the texts in my corpus are transcribed and glossed. Their total duration is more than twelve hours. The texts recorded in 2013 and 2015 are time-aligned with audio and video with the ELAN software. They are available online at the website of Endangered Languages Archive at SOAS¹. The texts recorded from 2008 to 2011 are glossed in Toolbox and have audio files corresponding to them, but are not yet available online.

1.2.2 Fieldwork and contributors

In the course of my research project I have worked in a considerable number of villages where Kakabe is spoken. In every fieldtrip I had one main consultant for each dialect with whom I

1. <https://elar.soas.ac.uk/Collection/MPI43300>

conducted most part of the elicitation and the transcription of texts. In 2008, while I was still a BA student, I worked on Central Kakabe staying at Sokotoro village and working with Alfa Bakar Doumbouya as my main consultant.

In the three following fieldtrips, in 2009, 2011 and 2012, I changed my object of research to Central Kakabe, working in the first fieldtrip with Samba Nyouma Keïta and in the second and third fieldtrips with Mammadou Condé as main consultants.

In the fieldtrip of 2013-2014 I collected data on all three dialects of Kakabe. I made a dialectal survey and stayed at different villages all over the area where Kakabe is spoken. The aim was to collect the information on the dialectal distribution of Kakabe, make estimation of the total amount of speakers and to continue the gathering of texts for the Kakabe corpus. In the course of this survey I collected data on Northern, Western and Central Kakabe. I also made records of Kuru-Maninka and Wure-Kaba, which are linguistically close to the preceding three varieties, see the discussion in Section 1.3.2. The data of Kuru-Maninka and Wure-Kaba are not analyzed in the present study, but they are available at Endangered Languages Archive and part of it is transcribed.

The almost exhaustive list of Kakabe speakers who contributed to the current research project is given in Appendix B. Below I give the names of my main consultants by year of work and the dialect:

- Central Kakabe:
 - Alfa Bakar Doumbouya from the Sokotoro village in 2008;
 - Ansoumane Camara from the Dogomet village in 2013 and 2015.
- Western Kakabe:
 - Amadou Maka from the Kouroupampa village in 2013.
- Northern Kakabe:
 - Samba Nyouma Keïta from the Mansaya village in 2009;
 - Mammadou Condé from the Mansaya village in 2011 and 2012.

These were the main consultants for the elicitation sessions as well as for the transcription of texts. At the same time, when it was important to observe the variation across speakers, I carried out elicitation with a bigger number of consultants.

1.2.3 Workflow

1.2.3.1 Recording

Most of the recordings I did (especially in 2013 and 2014) consist of conversations among groups of inhabitant of the villages where I stayed. Many of them were organized by one person, who took the lead in animating the conversation. For example, in the Nyamayara village (Central Kakabe area), Mammadou Camara organized the people who were around in several groups (he is in light brown shirt on the photograph in 1.1) . He led conversation with school children about their school life (text Nr. 1 in Appendix C), with young women about their work in the kitchen garden, rearing children and the work of their husbands (text Nr. 1 in Appendix C), with small children about the games that they play in the bush (text Nr. 17), etc.

The recordings were done with a videocamera (Panasonic HC X920) and an external microphone of the type “Shotgun”(Audiotechnica Line and gradient Condenser AT897)² plugged to it, as can be seen on the photograph on Figure 1.1. The Shotgun microphone is highly efficient in eliminating the surrounding noise, and it allowed to obtain a rather good quality of sound even in situations where many speakers were present, as in the recording in the Kouroupampa village illustrated by the photograph on Figure 1.2 below.

2. I ended up recording in most situations with this mono microphone, and only rarely used the stereo microphone (Audiotehcnica cardoid AT8022), since the latter makes it possible to focus on the speech of one person but unfortunately records also all the surrounding noise.



Figure 1.1: Recording in the Nyamayara village (Central Kakabe), see text Nr. 1 in Appendix C.

In the Western Kakabe villages the role of the animator of the conversation was, in most situations, assumed by Amadou Maka from Kouroupampa village (he can be seen squatting in front of the group of man on the photograph in 1.2 below). He led conversations in the Kouroupampa, Laboko and Djinkoya villages (texts Nr. 32-39 in Appendix C). I recorded his discussions with carpenters showing their work (text Nr. 32), with smiths in the smithy in Kouroupampa (text Nr. 32) and then in Labiko (text Nr. 38) and with groups or elders about their work, their relations with the neighboring villages, about the colonial times, etc.

Lastly, in the Northern Kakabe villages, the conversations were led by Samba Nyouma Keïta, former teacher at the local primary school.



Figure 1.2: Recording in the Kouroupampa village (Western Kakabe), see text Nr. 34 in Appendix C.

After each recording I took down the names of the speakers and their year of birth. The metadata was afterwards recorded in Arbil format.

1.2.3.2 Data processing

The transcription was done with one main consultant (see 1.2.2 above). Before proceeding to the transcription session, I segmented the audio files in ELAN, aiming at the correspondence of each segment to an intonation phrase. During the common work with the consultant, first, we listened to and watched the whole conversation or monologue (or to a big section of it) and then to each of the prepared segments. We discussed the appropriate transcription and the meaning and I noted it down directly in ELAN³. The process of transcription was accompanied

3. Unfortunately, I didn't succeed in training any of my main consultants to write in Kakabe in a consistent way.

by elements of elicitation and by the work on the dictionary, when new lexemes or unknown markers or constructions appeared in the text.

The ELAN transcription was imported to Toolbox to be (semi-)automatically glossed with the lexical database, which I have been compiling in Toolbox starting from my first fieldtrip. This lexical database currently consists of 3400 entries and it was the basis of the dictionary, presented as the second volume of the thesis and published in an earlier version in Vydrina (2015). When the glossing of the texts was done, they were re-imported in ELAN. I started recording video and using ELAN since the 2013 fieldtrip. Before that, from 2008 to 2011, I recorded only audio and did the glossing and the transcription only in Toolbox, without time-aligning the transcription with audio in ELAN. The texts without time alignment constitute one third of the corpus.

For corpus queries I used mainly ELAN-Corpa, the search tool developed by Ch. Chanard, Design Engineer at LLACAN research unit⁴. ELAN-Corpa is faster, as compared to ELAN, in processing queries across a big number of ELAN files (26 in my case). An example of such queries is illustrated in Figure 1.3 below.

4. This search tool was developed for the ANR projects CorTypo (<http://cortypo.huma-num.fr/index.html>) and CorpaAfroAs (<http://corpafroas.tge-adonis.fr/index.html>)

Search Domain
26 file(s)

Concordances and Lists
List of tier type: mot
order: alphabetically by frequency
Concordances in: mot
Context length (chars): 50

Search
case sensitive | regular expression
Minimal duration (ms): 0 | Maximal duration (ms):
OT(trouble) & mot=. < tx=.]{ rx=1 & ge=1 & mot=1}[rx=pm|cop & ge=NEG & mot=.]
Left Context: ^n\$ | Target: pm|cop | Right Context: Tier Type: rx
Fully aligned | Fully aligned
NOT(trouble) | Target: NEG | Right Context: Tier Type: ge
Fully aligned | Fully aligned
. | Target: . | Right Context: Tier Type: mot
Inside |
. | Right Context: Tier Type: tx

Figure 1.3: ELAN-Corpa query tool developed by Ch. Chanard.

1.2.4 Elicitation

As has been said above, observations from continuous speech were the main source of the thesis. Nevertheless, not all needed combinations of elements can be found in texts, therefore systematic elicitation was also necessary. It was the only way to complement the lexicon. First, the absence of an item in the corpus does not imply its absence in the language. Second, even if the word occurs in the corpus, its occurrence is often not sufficient to establish its grammatical properties and semantics.

In the phonological part of my research I recorded the pronunciation of various lexical and grammatical morphemes in a series of contexts. For example, the pronunciation of personal pronouns was recorded in the following contexts: in possessor position juxtaposed to the head noun or separated from it by the possessor linker, in direct object position, in subject position, etc.

I used the Tense-Mood-Aspect Questionnaire of Dahl (1985) in a version adapted to the local settings, as well as a number of other questionnaires: on adverbial clause (Hengeveld 1991)⁵ relative clauses, quantifiers and distributivity of S. Tatevosov, the expression of exclamation etc. I developed a questionnaire with which I analyzed the use of a specialized reflexive pronoun (2.6.1.4), in order to estimate the possibility of its use depending on the type of the subordinate clause and on the predicate of the main clause.

In order to examine the interaction between the lexical meaning of the verbs and various grammatical categories such as aspect, modality, transitivity, verbal plurality etc., I compiled a database of 200 verbs for Northern Kakabe and a database of 220 verbs for Central Kakabe. Each verbal lexeme was tested for its compatibility with the markers of verbal plurality, causative, and I analyzed how the interpretation of aspectual markers changes across the verbal lexemes.

1.3 Kakabe and its speakers

This section provides some information about the social reality standing behind what is referred to as “Kakabe” in this research.

It is not a common practice among linguists describing African languages to dwell on the problematic character of the term “language”, see Lüpke & Storch (2013) about it:

Just as there are no fixed languages or fixed linguistic identities, there is no fixed alignment of linguistic practice with ethnically or otherwise construed aspects of identity. Rather, choices depending on domains, contexts, addressees and many other factors have a large role to play in determining which register and repertoire will be used. While there is ample discussion of these issues in the vast literature on the ethnography of speaking, on sociolinguistics and variation, on languages in education and on language ideologies, it is our feeling that such a view of communication has not been taken up by mainstream descriptive and documentary linguists, in particular in the Africanist tradition, in which we ourselves have been trained (2013, 2).

In this perspective, it is essential to keep in mind that, as Lüpke (2016) put it, “languages are not purely linguistic entities but constructs relying on shared identity according to a number of social, political, historical, religious and other factors” (2016: 10). Language is a socio-political status, which a linguistic variety enjoys if it is recognized by institutions. In the

5. https://www.eva.mpg.de/lingua/tools-at-lingboard/pdf/ET_5_4_Hengeveld_IS_QUEST.pdf

case of the absence of standardization, a linguistic practice can acquire this status by the work missionaries and linguists (see Blommaert (2008); Lüpke & Storch (2013) on the role of these actors in creating “named” languages). I am aware that, in the case of Kakabe, which lacked so far any official status, the current work by the very fact of its existence, in particular the publication of the dictionary, contributes to its creation as a “named language”.

1.3.1 Multilingualism and language ideologies applied to Kakabe

In general, multilingualism and mobile language identity, associated with it, are rather the norm than an exception for Western Africa, see, in particular Lüpke & Storch (2013). As Lüpke (2016) demonstrates on the basis of a detailed ethnographic analysis, language ideologies and identities in the Casamance region of Senegal are often indexical rather than essentialist, in the sense that a person usually does not have a unique language identity but rather activates parts of his linguistic repertoire and identity according to the situation.

This is fully applicable to the object of the present study. The *lingua franca* of the Fouta-Djallon is the Pular variety of Fula, an Atlantic language. Most Kakabe speakers also speak Pular. The only exception where Pular can be absent from the linguistic repertoire of a Kakabe speaker is the Fello-Njandi district, where Kakabe has a particularly strong position. Moreover, inhabitants of Pular villages in this area claim, at least, to understand Kakabe.

In general, Kakabe speakers possess a repertoire of languages which can include, apart from Kakabe, Pular, Maninka and often Susu and French. Accordingly, for people of this area it is not uncommon to interchangeably use several of these languages (except for French, for evident reasons) when referring to their identity. The Kakabe identity is mostly internal, and it is changed to Pular or Maninka when the Kakabe speaker is outside of his village. Of course, the activation of each of the available language ideologies is not arbitrary, and extensive ethnographic work is needed to describe these patterns. To cite one example, Ansoumane Camara, one of my main consultants “is” Susu since his father came from Conakry and mostly spoke Susu, and he is Kakabe when opposed to Fulbe, finally he can also be Maninka at the level of national identity.

Dogomet, the subprefecture administrative center, hosts a rural radio station which broadcast programs in Kakabe, along with programs in Pular and Maninka. The transmissions of this radio station can be received only in the villages of the Central Kakabe area, and neither Western Kakabe, nor Northern Kakabe speakers can listen to its broadcasting. Photographs in 1.4 and 1.5 below show Kakabe, Pular and Maninka in two timetables, hanging in the building of the radio station. Note the varying spelling of the languages name: *KAKKABHE*

on the first image and *KAKABE* on the second image.

ROULEMENT DES REGISSEURS A L'ANTENNE			
JOURS	NOM ET PRENOMS	LANGUES	TECHNICIEN
LUNDI	MAMADOU ALPHA DIALLO	PULAR	
MARDI	ALPHADIO DIALLO	PULAR	
MERCREDI	GNALENI KEITA	MANINKA	
JEUDI	ALPHADIO DIALLO FATOUMATA BAMBA	KAKKABHE	
VENDREDI	FATOU DIALLO	MANINKA	
SAMEDI	AMADOU SIDIBE SAMBA TEDOUNO	PULAR	
DIMANCHE	BARRY ALPHA BOUB ALPHADIO DIALLO	PULAR	

Figure 1.4: Rural radio station in Dogomet, assignment of sound directors depending of the language and the day of the week, Kakabe spelt as “KAKKABHE”.

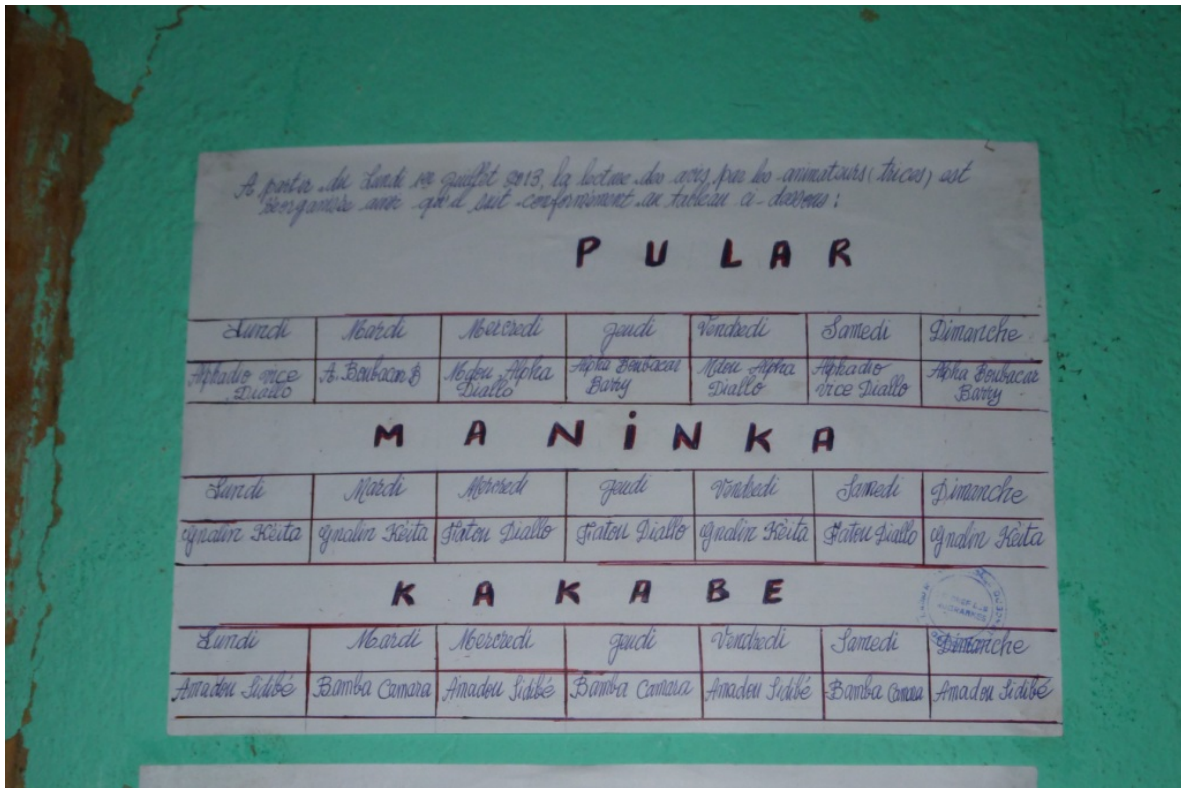


Figure 1.5: Rural radio station in Dogomet: “La lecture des avis” in Pular, Maninka and Kakabe (spelt as “KAKABE”).

In 2015, when I published the Kakabe-French dictionary, a celebration was organized for this occasion for a people from a dozen villages from Dogomet and Saramoussaya subprefectures. The village of Fello-Njandi was chosen for the event as the historical and cultural center of the Kakabe community. This village is located at a considerable distance from any important road, which made it more difficult for some people to attend to the event. At the same time, this inconvenience was inevitable and the very fact that the cultural and social center of Kakabe is isolated in terms of transport and administration reflects the social status of the Kakabe language, which has been politically and socially dominated for several centuries. The event was organized with the participation of the administration of the subprefecture of Dogomet and partly the administration of the prefecture of Dabola. The official part of the celebration consisted of the reception of the official delegation composed by the administration of the representatives of the subprefecture and the prefecture and the radio and their address to the Kakabe speakers. Apart from the dictionary, an alphabet book was printed and distributed during the celebration.



Figure 1.6: Arrival at Fello-Njandi for the Kakabe dictionary celebration, January 7th, 2015.



Figure 1.7: The Kakabe dictionary celebration in Fello-Njandi, “Ecole primaire de Fello-Njandi”, January 7th, 2015.

1.3.2 Nuclear and peripheral Kakabe

The situation in the area of the Fouta-Djallon plateau in Guinea, where Kakabe is spoken, is characterized by a high linguistic diversity and by the absence of clear boundaries for varieties spoken in continuous spaces. Now, the dominant language in this area is Pular, by which Kakabe is surrounded, and a number of villages which are divided between Pular and Kakabe families. It covers most of the South-Eastern quarter of Fouta-Djallon and approaches in the South-East the Maninka dialectal continuum and the zone of Koranko, a Mokole language. Apart from Kakabe, there are other villages with non-Fulbe population with linguistic varieties similar to Kakabe. These are Wure-Kaba, Kuru-Maninka and also villages where

Fouta-Maninka is spoken, a variety between Kakabe and Maninka. These Fouta Maninka villages became known due to the project on Manden dialectology carried out by A. Davydov since 2012. According to Davydov (2012 and 2014), these idioms have Kakabe morphology with mainly Maninka vocabulary.

This is complicated by multilingualism and the mobility of the linguistic identity, omnipresent in the area. This means that not only is it sometimes impossible to delimit continuous geographic areas associated with one linguistic variety, but individuals within this areas usually have complex linguistic identities.

There is no simple answer to the question whether the Kakabe villages, on the one hand, and Wure-Kaba, Kuru-Maninka and the Fouta-Maninka villages, on the other hand, should be considered as belonging to one linguistic area. The criterion of shared identity does not yield any unambiguous solution. Wure-Kaba, Kuru-Maninka and Fouta-Maninka call themselves Maninka and never Kakabe. At the same time, the identification as Maninka is possible for people of Kakabe villages also. In the light of the above said, it is clear that the dialectal subdivision and the inclusion of linguistic varieties in one language or considering them as different languages, has to be arbitrary at least to some extent (unless there exists any relevant political or administrative criteria). In this thesis I decided to group all the mentioned varieties as belonging to one language, Kakabe. This reflects the fact that Wure-Kaba and Kuru-Maninka varieties are closer to the Nuclear Kakabe dialects than to Maninka⁶. I refer to the varieties spoken in villages where people identify themselves as Kakabe as Nuclear-Kakabe, and to the Wure-Kaba, Kuru-Maninka and the Fouta-Maninka varieties as Non-nuclear Kakabe. It is true that the only identity shared by the speakers of all of these varieties is Maninka. Therefore, for example, naming it as “the Fouta-Maninka language” would reflect better the existence of, at least, a potential shared identity between the speakers of all these varieties. Yet, the choice of the name “Kakabe” can be justified by the fact that it is more specific.

Nuclear Kakabe are divided into three dialectal zones (see map on page 1.8):

- Nuclear Kakabe dialects:
 - Northern Kakabe (NK): villages of the Kankalabe subprefecture, to the North from of Tene river;
 - Western Kakabe (WK): villages between Timbo in the East and the Tene river in the North;

6. The results of the lexico-statistical comparison between the Wure-Kaba and Kuru-Maninka, on the one hand, and the Nuclear Kakabe, on the other hand, are given in Vydrin & Vydrina (2014)

- Central Kakabe⁷ (CK): to the East from Timbo to Dogomet and Kindoye in the East and the Marela prefecture in the South.
- Non-nuclear Kakabe dialects:
 - Wure-Kaba: villages of the Kuru-Maninka subprefecture, to the West of the
 - Kuru-Maninka
 - Fouta-Maninka varieties.

1.3.3 Genetic affiliation of Kakabe

Kakabe belongs to the Western branch of the Mande family. Mande belongs to the Niger-Congo phylum⁸, it contains around 70 languages, concentrated mostly in Mali, Côte d’Ivoire, Guinea, Sierra Leone, and Liberia, Burkina Faso, Senegal, Gambia, and Guinea Bissau. The most recent classification (Vydrin 2009b) is based on the lexico-statistical method. See also the discussion of preceding classifications of Mande languages by Kastenholz (1997) and Grégoire & de Halleux (1994). Figure 1.8 below highlights the position of Kakabe in the Mande classification after Vydrin & Koryakov (2017).

Mokole, the lowest group including Kakabe, is the sister of Vai-Kono, on the one hand, and Manding, on the other hand, with the distance between Mokole and Vai-Kono being shorter compared to the distance between Mokole and Manding. Manding (*Manden* as autonym) includes many of the biggest Mande languages by number of speakers, such as Bamana (4 millions first-language speakers and up to 10 millions second-language speakers), Maninka (3 millions first-language speakers in Guinea) and Mandinka (1.5 millions). Maninka is one of the four main languages in Guinea, along with Pular, Kpelle and Susu. Maninka was also one of the eight languages adopted as a media of instruction in primary and middle school under the administration of Sékou Touré (Benson & Lynd 2011). It is widely used as the language of cross-ethnic communication in Guinea (Kakabe speakers among others), in particular, in Forest Guinea Vydrin (2017b: 18). See also (Davydov 2017) on the dialectal variation within Maninka spoken in Guinea.

7. Since there is no “Eastern” or “Southern Kakabe” opposed to the Central Kakabe, the latter could also be referred to as South-Eastern (opposed to the Northern and Western Kakabe dialects). Nevertheless, the dialect that I name as Central Kakabe occupies not only the South-Eastern, but also the the central portion of the Kakabe area. The choice of the term “Central” reflects in this case the fact that this dialect occupies the central area.

8. The inclusion of Mande in Niger-Congo is contested by some researchers, based on the argument that Mande do not share the morphology characteristics typical for most of the Niger-Congo family, see (Dimmendaal 2008).

Within Mokole, the language, closest to Kakabe is Mogofin (also called Mixifore). The speakers of the language to which go back Mogofin and Kakabe supposedly divided in the course of the 18th century, when Mogofin people moved from Fouta-Djallon to the region of Boke, in the North-West of the present Guinea (N'Daou 1999). Kakabe and Mogofin are mutually-intelligible, but they are not contiguous geographically.

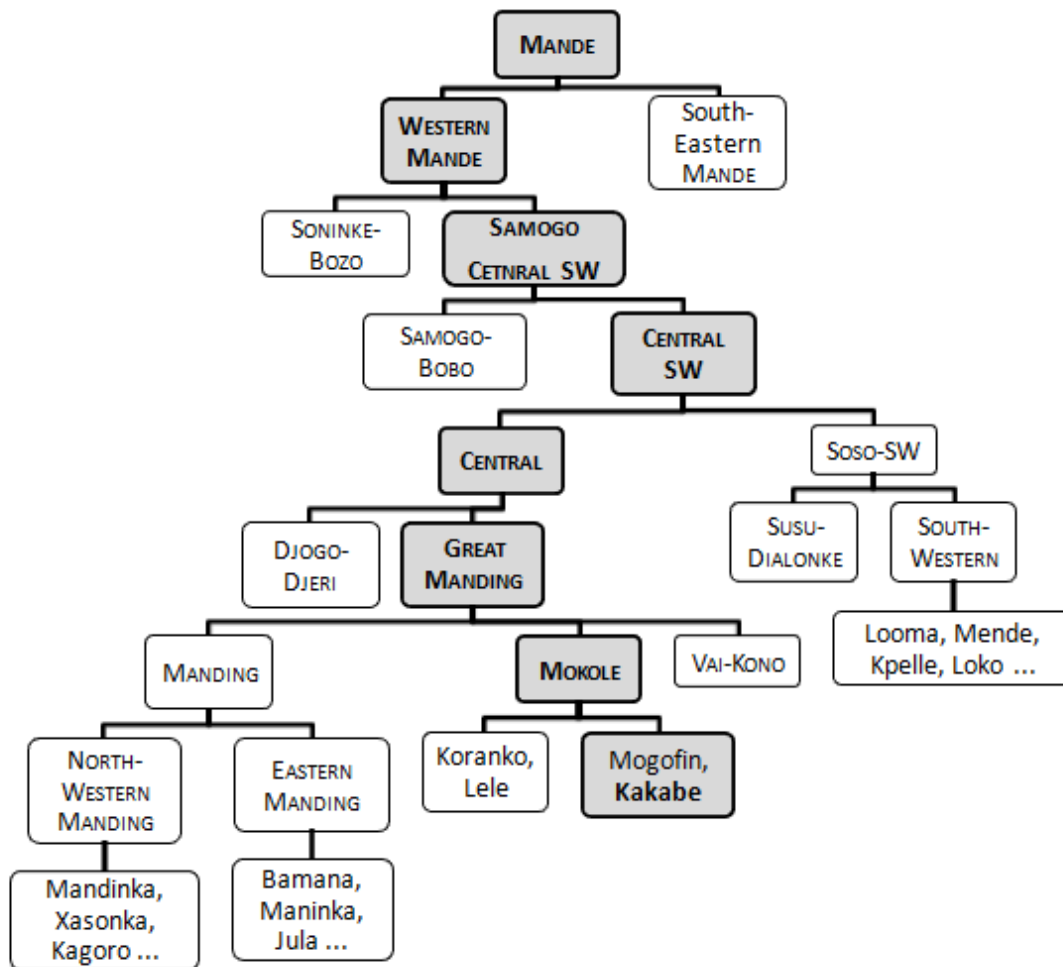


Figure 1.8: Kakabe in the Mande language family after Vydrin & Koryakov (2017)

1.3.4 Kakabe map

The Kakabe map on page 1.8 shows the Kakabe language, including three dialects of the Nuclear Kakabe (NK, WK and CK), Wure-Kaba and Kuru-Maninka. This representation should, of course, be taken as a very rough approximation, considering, what has been said previously about the absence of objective clear limits between the linguistic areas.

It is based on the data collected during my fieldtrip in November 2013 – January 2014. One of the aims of that fieldtrip was to investigate the dialectal distribution and variation in Kakabe. I visited a number of villages in different parts of the Kakabe-speaking part of Fouta-Djallon. In each of the villages where I stayed, I worked with the village elders and the members of local administration noting the names of the villages where Kakabe is spoken and the approximate number of inhabitants. This information served as the basis for the creation of the map on page 19, created in collaboration with the cartographer Jérôme Picard. The list of the villages with some additional information is given in Appendix A. It was established that the Kakabe area is considerably bigger, than represented previously, cf. Vydrin et al. (2000). In particular, I found that there is an area to the East of the Bafing river with several dozens of Kakabe-speaking villages (the villages of the Dogomet and Oure Kaba sub-prefectures in Appendix A), which passed unnoticed in the previous research on Mokole languages.

1.3.5 Language names

‘Kakabe’ goes back to the frenchified version of the Pular word *kakkabe*, which can be translated as ‘non-Fulbe population of a land governed by Fulbe’⁹. It is a term used for all Kakabe speakers. The language is called *kákkabe kùlè*, and, more rarely *(fùla)jɔn kùlè* (with the variants *(fùla)yɔnkulè* in Northern and Western Kakabe areas) ‘the languages of the slaves of Fulbe’, where *kákkabe* is rendered by the native Kakabe word *fùlajɔn*. In the central part of the Kakabe area more precisely in the villages, belonging to the Saramoussaya and the Dogomet subprefectures, Kakabe speakers use the word *álmaamiya* to refer to the Kakabe area and *álmaamiyakulè* for the Kakabe language. Both are derived from *Almaami* (*Almamy*, *Almani*, *Almany*), a term which is used in West Africa to refer to Muslim religious and military leaders (Ogot 1999). The Ethnologue language code is *kke*, and in the Glottolog database it appears under the code *kaka1265*.

The origin of these denominations reflects the fact that during the jihad performed by Islamized Fulbe in the 18th century, Kakabe (alongside Jalonke and some Maninka) found themselves in a subordinate position towards the conquerors. Those who refused to become subjugated to the Fulbe migrated to the West; Mogofin are their descendants.

9. See the variation in spelling illustrated by photographs on pages 35 and 36.

1.3.6 Geographical distribution and the number of speakers

Kakabe is spoken in the center of Fouta-Djallon, a highland region in the center of Guinea. It is highly probable that the ancestors of Kakabe and Mogofin (and, probably, speakers of other Mokole languages, now extinct) were among the most ancient inhabitants of Fouta-Djallon, so that today's Kakabe and Mogofin are just remainders of a much more important language community (or rather a language continuum). The Kakabe villages are represented mainly in the Mamou region, and a small part of them are in the Faranah region to the East and in the Labé region to the North, see Map on page 19.

As for the “number of speakers”, I am aware of the dangers of surrendering to the “irresistible power of numbers”, denounced by Lüpke & Storch (2013) in this question. The notion of the number of speakers makes part of the common descriptivist machinery which contributes to the objectification of language, first of all, because it relies on the assumption that an individual can be identified by one native language:

One should not get hung up on a discussion of speaker numbers, as their significance is more than disputable in the light of the often multiple and changeable identities that prevail – a point we have been making throughout this book. Many Africans qualify as speakers of a number of languages, and any attempt at assigning native language status to one of them and second language status to others must fail, given the nature and development of repertoires in multilingual environments (Lüpke & Storch 2013: 271-272)

In particular, they criticize the practice of extrapolating the number of speakers numbers based on the estimation produced by the colonial government. Nevertheless, I find it a lesser evil to have a number which would reflect the cumulative estimations by the Kakabe speakers themselves, than not giving any number at all, which would perpetuate the circulation of numbers which have even less justification.

During my survey in Fouta-Djallon in 2013-2014, in every new village where I stayed, I questioned the village chiefs and the members of the local administration, noting the names of the closest villages where Kakabe is spoken and the approximate number of their inhabitants. The number of Kakabe speakers is 50,000 according to my estimations. It is based on the information collected during my fieldtrips in approximately ten villages in different parts of the Kakabe area. The total number of 50,000 Kakabe speakers results from the addition of the numbers provided by the authorities. The list of villages and the estimated numbers of their inhabitants are given in Appendix A. It should be noted that the Guinean census

(<http://www.stat-guinee.org>) does not provide any numbers concerning ethnic or linguistic identification¹⁰.

1.3.7 The three dialects of Nuclear Kakabe

The Nuclear Kakabe area (the Kakabe excluding Kuru-Maninka and Wure-Kaba, see 1.3.2) shows properties of a geographical dialectal continuum, following the definition by Chambers & Trudgill (1998):

At no point is there a complete break such that geographically adjacent dialects are not mutually intelligible, but the cumulative effect of the linguistic differences will be such that the greater the geographical separation, the greater the difficulty of comprehension (Chambers & Trudgill 1998: 5).

The Nuclear Kakabe dialect continuum stretches, roughly, from the North-West to the South-East. The schema of localization on Figure 1.9 below is designed to represent linguistic and geographic distance between the dialects. NK is closer to WK than to CK linguistically, and CK is closer to WK. NK stands slightly apart from the rest of the Kakabe area, which is reflected in the map by a different color used for that area. There is no geographical continuity between NK and WK, and little communication between Kakabe living in these two areas. Contrary to that, WK and CK represent one uninterrupted zone. On the map, the southernmost Kakabe area is shown as an enclave separated from the rest of the CK area. The zone between the Fello-Njandi village in the North and the Bantaferenya village in the South is supposedly very scarcely populated and is considered, by the inhabitants to the North and to the South of it, as wilderness. At the same time, no linguistic differences were noted between the Kakabe in the Bantaferenya village, which belongs to the southern pocket of CK, and the villages in the core part of the CK zone.

10. Ethnologue estimates the number of Kakabe speakers to 10,000 and the size of “ethnic population” to 50,000. This numbers are based on V. Vydrin’s estimations from 2012. He used the same methodology of noting the names of the villages and the approximate number of the inhabitants, with the difference that he interrogated only one person. Therefore, my data which comes from ten different villages can be considered more accurate, though, of course, it remains a rough approximation.

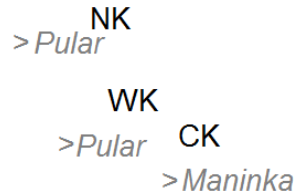


Figure 1.9: Schematic localization of Kakabe dialects: Northern Kakabe (NK), Western Kakabe (WK), Central Kakabe (CK) and the dominant languages

The influence of Pular is stronger to the North-West, and in the South-East Maninka is more the dominant language, though Pular is also present. This difference is reflected in the amount of lexical borrowings from Pular, which are more numerous in NK and WK than in CK, and also in the fact that NK has a morphological passive, which is apparently a structural borrowing from Pular, whereas in WK and CK passive is unmarked.

Dialectal variation is discussed throughout the thesis. Certain features, subject to variation across the Kakabe dialects, are grouped in Table 1.1 below:

	NK	WK	CK
1PL	<i>mò</i>	<i>mà</i>	<i>mà</i>
2PL	<i>ò</i>	<i>(w)ò</i>	<i>(w)ò</i>
<i>tàran ~ tèren</i> ‘find’/ aux.	<i>tàran</i>	<i>tàran ~ tèren</i>	<i>tàran ~ tèren</i>
usage of <i>tèrɛ</i> as past marker	–	–	+
refactive verb. prefix	<i>ta-</i>	<i>tɔ- ~ ta-</i>	<i>tɔ- ~ ta-</i>
allomorphs of PERF auxiliary	<i>bát(i) ~ ti</i>	<i>bát(i) ~ ti</i>	<i>bát(i)</i>
passive marking	suffix <i>-ma</i>	unmarked	unmarked
stative participle	<i>-len</i>	<i>-len</i>	<i>-nden</i>
dim. + ART	<i>-ndéè</i>	<i>-nnéè/ -ndéè</i>	<i>-nnéè</i>
aux. + pron.	<i>ka + i > kii</i>	<i>ka i</i>	<i>ka i</i>
tone of heavy auxiliary	H ^L	H	H
palatals alternation	occl.	<< – – – >>	glide

Table 1.1: Isoglosses for the Kakabe area

1.3.8 Previous research on Kakabe and other Mokole languages

Until very recently, Mokole languages, and especially Kakabe, were profoundly neglected by linguists. Only Koranko has a grammar and a dictionary (Kastenholz 1987a, 1987b). There is a M.A. thesis by Jacqueline Janse on Mogofin in Dutch (1999a) published also as a grammar sketch in French (Janse 1999b). The only publication on Lele is a short sketch by Vydrin (2009a). The very existence of Kakabe had passed practically unnoticed, seemingly because it was usually taken for Maninka. The two languages are relatively close to each other; Kakabe and Maninka villages are often intermingled; Kakabe and Maninka occupy the same social niche in Fouta-Djallon, etc.

Kakabe was the object of a M.A. thesis by A. Keita (1977), but defended at the University of Kankan in Guinea forty years ago, it is unfortunately inaccessible. Abdourahmane Diallo, a specialist of Pular spoken in Fouta-Djallon, published his observations concerning Mande, in particular Kakabe, influence on Pular in Diallo (2008 and 2006), Kakabe is also mentioned in his sociolinguistic survey of the languages of Guinea (Diallo 2013). In his article “Le kakkabe entre pidgin et langue minoritaire” [“Kakabe between pidgin and a minority language”] (2006), Diallo discusses some contact phenomena between Kakabe and Pular and provides sociolinguistic information about Kakabe. Though he rejects the hypothesis that Kakabe is a pidgin, the statement of the question itself eloquently speaks of the state of the knowledge about Kakabe at that moment and about its low sociolinguistic status. See also the description of Kakabe by Voeltz (1996: 14): “argot de pular et maninkakan parlé à Mamou” [“an argot of Pular and Maninkakan spoken in Mamou”].

My previous work on Kakabe includes the Kakabe-French dictionary (2015), reproduced with some amendments in Appendix C of this thesis, publications on different aspects of the phonology of Kakabe (Vydrina 2008; 2009a; 2013), on the verbal plurality marker (Vydrina 2009b) on the morphological passive in Northern Kakabe (Vydrina 2011b) and the unmarked passive in Western and Central Kakabe (Vydrina 2011a), the modal and discursive functions of the subjunctive auxiliary (Vydrina 2014). A short general description of Kakabe was published this year (Vydrina 2017). Together with V. Vydrin we published a preliminary dialectology of Kakabe (Vydrin & Vydrina 2014) and an article about the influence of Pular of various aspects of Kakabe grammar (Vydrin & Vydrina 2010).

1.4 Model of representation

This description uses a model with two levels of representation: the underlying representation (UR) and the surface representation (SR).

I follow the derivational approach which goes back to the model of Chomsky & Halle (1968), see also McCarthy (2007) for a recent discussion of the framework. At the underlying level every morpheme has a unique representation, except for suppletion. The transition from UR to SR is mediated by phonological processes. The number of intermediate levels resulting from the application of phonological processes is indeterminate. The application of phonological processes is ordered. The output of phonological derivation, the surface phonological representation, is the input for phonetic implementation.

The UR consists of lexically specified phonological features. The SR reflects how the underlying representation is realized in the context of the utterance, which results from the application of the realization rules. Below the passage from one level to the other is illustrated on the example of the phrase *kà jógòn yèn* ‘to see each other’:

Phonological representation:		
underlying phonological level	lexically specified phonological features	/kà/ + /jógòN/ + /jéN/ INF + each.other + see
⇓ phonological realization rules ⇓		
surface phonological level	features as realized in the utterance	[kà j:ógò j:èŋ]

1.5 Notation and transcription

Three types of notation are used in the present description: the practical orthography, the IPA style notation and the surface tone notation, marked in square brackets, [sà:rà]. In the discussion of loanword adaptation strategies in Section 3.4, for the languages in question (which are most often French and Pular), I use the orthography notation and the IPA transcription, when

necessary.

The IPA style notation is the most detailed one in terms of the representation of segmental features among the three types of notation used. Accordingly, it is used in Chapters 3 and 4, dealing with segmental phonology. In all other chapters, I use instead the surface tone notation, which reflects the surface realization of tones. Finally, the practical orthography is used to represent the lexical form of morphemes in the second line of glossed examples.

In the glossed examples in Chapters 1 and 2, dedicated to segmental phonology, the first line is IPA style notation. The second line represents lexical forms of morphemes in practical orthography, see (1.2).

(1.2) [kà: sǎ: n:á mùsê:nù jèŋ]

kà à sà̀n ànu la mùsu-È-nu yen
 INF 3SG buy 3PL POSS wife-ART-PL BNF
 to buy it for their wives.

In all other chapters the first line of glossed examples is the surface tone realization, and, as already said, the second line is the practical orthography, see (1.3) below.

(1.3) *bàán dè máyítàlà jòò là à nín sìisèénù*
bàa-È-nu lè máyita-la jòò la à nín siise-È-nu
 sheep-ART-PL FOC sell-GER there OBL 3SG and chicken-ART-PL
 Goats are sold there, and also chicken.

In the second line of the glossed examples, which is of the same type for all chapters, the morpheme is always represented by one **main allomorph**. Therefore, a morpheme can be represented differently in the two lines. For example, the possession linker *la* which is realized as *na* after nasal, is always *la* in the second line of the gloss, as in (1.2) above. As discussed in Section 3.3.2.2.1, **monosyllabic verbs** are realized as CV or CVV, which are, in some cases, defined by the morphological context, and in other cases are subject to free variation. In the second line of the glossed examples, the monosyllabic verbs are always represented by their short CV allomorph.

Pauses are represented in the first line of the glossed examples by the indication of the duration of the pause in seconds enclosed in round brackets, e.g.:

(1.4) *dó⁺é dònse⁺é lè(0.23) dóè↑é(0.35) kàrà̀mó⁺ké lè*
dó-È dònso-È lè dó-È-H% kàramokɔ-È lè
 one-ART hunter-ART-H.BT FOC one-ART teacher-ART FOC
 The first one is the hunter and the other one is a teacher.

1.5.1 Notation of suprasegmental features

The practical orthography does not fully correspond to the underlying representation, but it is close to it in several aspects. For example, in the Kakabe orthography, only the lexical (underlying) tone is marked for each morpheme, which is in most cases the first tone of the morpheme. Since tones can be underlyingly associated only with one mora, from where it spreads to the right, it is noted only on this initial mora, e.g. *dáa* ‘door’. In the surface realization, the result of the spread is represented by a diacritic on every letter, e.g. *dáa* gives *dááá*.

There are no complex tonemes, the diacritics “ ^ ” and “ ˇ ” are used to note the two tones, HL and LH respectively. The diacritic “ ^ ” is used to mark the cases when a CVN syllable is realized with HL tones. This realization is possible in two cases. First, it occurs when the underlyingly floating L has to be linked to the second mora of a CVN syllable, e.g. *mín^l tága* REL go → *mín tágá*, see Section 5.8. Second, it occurs when the boundary tone ↑HL% is realized on CVN syllable in the IP-final position, e.g. the combination of the toneless benefactive postposition *yen* with the ↑HL% boundary tone is realized as [↑yên], see Section 6.4.5 in Chapter 6.

The diacritic “ ˇ ” is used, first, to mark LH realized on one mora, which occurs only in the case of monomoraic L-toned pronouns before another L tone, e.g. *mà jìgi-ta* → *mă jìgìtà*. Second, it represents the LH on CVN syllable (the same way as “ ^ ” represents HL on such syllable), e.g. *sì ò nàta* → *sĩn nàtà* ‘If I came’.

The subscript down arrow signals downstep, e.g. *kà sòbéé[↓] lé tàbì* ‘to prepare meat’.

The subscript up arrow notes the phonetic upstep, which rises H preceding L in a HHL sequence, e.g. [kà tá[↑] gá kèlélé kè] ‘to go and fight war’, see Section 5.2.2.

The intonational raising of the register, and the intonational lowering dealt with in Chapter 6 are signaled by (non subscript arrows), e.g. *à téé díyá[↑]* ‘It won’t be good’, *à í sòtòlà[↓]* ‘They will get it’.

In the phonetic transcription used in chapters on segmental phonology, the vowel length is represented by the corresponding IPA symbol “ : ”. Contrary to that, in the surface phonological transcription used in the rest of the thesis, the vowel length is signalled by the doubling of the vowel, as represented below:

(1.5)	[dá:]	phonetic representation: IPA transcription	Chapters on segmental phonology: 1st line in glossed examples
	<i>dáá</i>	surface phonological representation	Chapters on suprasegmental phonology and grammar sketch: 1st line in glossed examples
	<i>dáa</i>	underlying lexical representation	All chapters: 2nd line in glossed examples

The notation of IP-final intonational and tonal operations, used in Chapter 6, is explained in Section 6.4.

1.5.2 Notation of segmental features

In Kakabe long vowels, which can be either heteromorphemic or tautomorphemic, are opposed to the sequences of two identical vowels, belonging to different syllables, which are always heteromorphemic and differ from the long vowels both by their phonetic realization and by their morphological functions (this question is analyzed in Section 4.6). Table 1.2 shows how this phenomenon is represented in the Kakabe orthography, in the underlying representation and in the surface representation (IPA):

	ortho- graphy	UR	SR (IPA style)
long vowels (can be either heteromorphemic or tautomorphemic)	<i>ii</i>	i:	i:
sequence of identical vowels divided by syllable boundary (always heteromorphemic)	<i>i i</i>	i + i	[i.i] or [i i]

Table 1.2: The notation of the sequences of identical vowels and long vowels

The next table illustrates the fact that a geminate in the SR can reflect four phonologically different phenomena: 1) gemination as an underlying feature; 2) gemination resulting from

the realization of the N coda; 3) gemination resulting from the disappearance of a vowel before and, finally, 4) gemination caused by the short variant *bá'* of the perfect auxiliary *báti*. These case are noted differently in the orthographic notation, but are not distinguished in IPA style notation.

	Kakabe orthography	UR	SR (IPA style)
gemination of consonant (phonological feature)	<i>jille</i>	jíl:ɛ 'follow'	jíl:é
realization of N before sonorants	<i>mùgan lólu</i>	mùgaN + ló:lu twenty + five	mùgà l:ó:lú
vowel deletion in weak syllables	<i>máni lá</i> or <i>mán lá</i>	máni + lá COND + lie	[má l:á] or [máni lá]
realization of the auxiliary <i>báti</i>	<i>bá' lá</i> or <i>báti lá</i>	báti + lá PFV.OF + lie	[bá l:á] or [báti lá]

Table 1.3: The notation of the gemination

Likewise, the vowel length in SR can also originate from different phenomena in UR, as shown in Table 1.4.

	Kakabe orthography	UR	SR (IPA style)
vowel length as a phonological feature	<i>bàaba</i>	bà:ba 'father'	bà:bà
merge of the auxiliary with the DO pronoun	<i>à k' à fɔ́</i>	à ka à fɔ́ 'he said it'	à kâ: fɔ́
realization of the referential article	<i>dàgà</i>	dàga + È pot + ART	dàgâ:

Table 1.4: The vowel length in SR resulting from three different UR

A particularly confusing case of divergence between IPA system and the Kakabe orthography is the notation of the two consonants [ɟ] and [j], since “j” is used for the palatal approximant in IPA and for the palatal voiced stop in the Kakabe orthography:

	IPA notation		Kakabe orthography
palatal stop	[ɟ]	→	<i>j</i>
palatal approximant	[j]	→	<i>y</i>

Thus, the reader has to keep in mind that *j* in italics stands for the voiced palatal stop, whereas [j] stands for the palatal approximant. In cases of possible confusion, the two notations will be indicated explicitly, for example the variation between the palatal and the velar voiced stops is referred to as “the variation *g* ~ *j* [ɟ]”.

The IPA style notation which is used in the present thesis, does not fully correspond to IPA. In IPA vowel nasalization is marked with a superscript tilde, whereas I mark vowel nasalization with a subscript tilde, e.g. [bám_̃bá], in order to avoid the superposition of the tilde and the diacritics denoting tones.

Chapter 2

Basic grammar of Kakabe

The task to provide a balanced and, at the same time, informative, description of a whole language in a book is very hard to accomplish. In one chapter it is barely possible. Therefore, I abandoned the idea of trying to describe all aspects of the Kakabe grammar within the limited space of a thesis chapter. Instead, I decided to focus on a number of topics which may present some theoretical interest and also contribute to the research on Mande languages. At the same time, the chosen topics concern phenomena which occupy a central place in the language, therefore, hopefully, this chapter will nevertheless give the reader a general idea about Kakabe.

More precisely, I was guided by three considerations in choosing the topics and the depth of argumentation. First, this description is intended to be in certain aspects complementary with my own publications on Kakabe and with the existing literature on closely related languages. Such topics as argument structure, verbal derivation, and a considerable part of the modal and aspectual system, are treated here very briefly, because they are described in detail in my previous publications. I didn't dwell either on the question of noun-verb distinction, the expression of possession, nominal compounding, since Kakabe is similar in these domains to related languages, for which these phenomena are well described.

Second, I chose topics which might be of theoretical interest or which are little discussed in Mande studies. One of the examples is the specialized reflexive pronoun which can have as antecedent only a non-overt subject. The interaction between the aspectual categories and information structure is another example. I compare the organization of the auxiliary system in Kakabe with the phenomenon of conjoint-disjoint opposition which is widespread in African languages, in particular in the Bantu family.

Third, this grammatical sketch focuses on issues that represent a grammatical counterpart for the phonological phenomena discussed in the following chapter. For example, Section 2.4 gives a detailed account of alternation of the copula *bi* with zero which complements the account of the allomorphy pattern of this copula, provided in 4.6.5 in Chapter 4. I hope that these circumstances are enough to justify the lack of proportion in the following description.

The chapter is organized as follows. The first section shortly describes typologically relevant aspects of the grammar of Kakabe as well as phenomena which, for the reasons mentioned above, I do not treat in detail (2.1). Section 2.2 is dedicated to the expression of con-

stituent and operator focus. It discusses the distribution of auxiliaries depending on the type of information structure of the utterance, and puts the Kakabe case in the context of other African languages. The section on non-verbal predication (2.3) is, again, concerned with information structure. I explore the possible diachronic relationship between the constituent focus marker and copulas which might explain the interdependence in their distribution. This section introduces the question of inherent focus associated with negation and question words. Section 2.4 which is dedicated to the alternation of the existential copula with zero, continues the issue of the complementarity between the copula and the constituent focus marker, and explores more concretely their relationship at the syntactic and morphological levels. Section 2.5 is dedicated to noun phrases, in particular it describes the use of the referential article and accounts for the distribution of bare nouns. Section 2.6 provides a detailed description of the use of pronominal expressions in discourse and their interaction with, there again, the focus category. I analyze the choice between personal pronouns and demonstratives and show, for example, that the demonstrative is chosen when the subject position is yielded to another referent, even if the latter is discursively old and topical. The last section is dedicated to two types of complex sentences: the complex sentences of the temporal-conditional continuum and relativization.

2.1 General grammatical information

2.1.1 Constituent order

Kakabe shows the typical rigid S (aux)-O-V-X word order where X stands for any adjunct.

(2.1)	Sbj	Aux	DO	V	IO	pp
	<i>à</i>	<i>sí</i>	<i>nìngéé</i>	<i>sàn</i>	<i>mànsàà</i>	<i>yèn</i>
	3SG	POT	cow.ART	buy	chief.ART	BNF
	He will buy a cow for the chief.					

The SOVX word order is typologically unusual, but typical for Mande languages¹. Nikitina (2011), building on Heine & Reh (1983) and Claudi (1994), states that this word order is “a consequence of categorial reanalysis of constructions with deverbal nouns as verb phrases, with subsequent replacement of the older type of verb phrase by the newly introduced structure” (Nikitina 2011: 253). The post-subject position is often, and in some Mande languages almost always, occupied by an auxiliary. Thus, the proposed scenario is that constructions of the type (2.2a) in the following example developed into (2.2b), so that the former verb became reanalyzed as an auxiliary, and the actual main verb goes back to the nominalization in the postverbal position, see also Nikitina (2008).

1. It does not occur in any languages unrelated to Mande languages except the languages of the Senufo, Gur family, as well as in several other languages which are in contact with Mande (Nikitina 2011).

- (2.2) (a) Sbj V possessor N (pp)
 ↓ ↓ ↓ ↓ ↓
 (b) Sbj Aux DO V (-suff)

2.1.2 Argument and adverb marking

Kakabe doesn't mark grammatical relations through any case marking, cross referencing or agreement on verb. Nevertheless, the grammatical relations are encoded through word order, and, in the case of indirect object, through postpositions. Postpositions often originate from relational nouns or from combinations of relational nouns and a postpositions, for example:

- (2.3) *kòtɔ* 'under' – *kòtɔ* 'back';
búutɔ 'unside' – *búu* 'stomach' and *tɔ* 'in',
kènnà 'near' – *kèn* 'foot' and *la ~ na* oblique postposition.

Adverbs are characterized by their ability to occupy post-verbal position without being followed by a postposition. Contrary to that, most nouns need to be accompanied by a postposition to occur in this position. Besides, there is a group of adverbs that can be used both in the argument position and adverbially without postposition, e.g. *sérùn* 'last year', *kúnùn* 'yesterday', *dóndèn* 'a little', *kóobèn* 'a lot'. Most adverbs can occur clause-finally as well as clause-initially.

Apart from postpositions, Kakabe also has a small number of prepositions which can also introduce arguments in postverbal position. Prepositions often combine with postpositions. Thus, in (2.4 a) below the NP *kilà* in the postverbal position is accompanied both by the preposition *háa* 'until' and by the oblique postposition *la*. All prepositions in Kakabe are at the same time conjunctions, since they can also introduce clauses (but not all conjunctions are prepositions), see *háa* in (2.4 b).

- (2.4) (a) *ì sáá wà háá kílà là*
ì si àwá háá kílà-È la
 2SG POT 3SG go until road-ART OBL
 You will go to the road.
 (b) *mà nì lógè ràbò háá à nì nèwù*
mà ni lógɔ-È ràbɔ háá à ni néwu
 1PL wood-ART plane until 3SG SBJV
 We plane the wood until it becomes smooth.

2.1.3 Negation

Negation is always sentence-level in Kakabe. There are four markers containing negation: *máa* is used in imperfective negative clauses and in non-verbal predications, the negative

copula *béle* is used in negative locative, existential constructions and in imperfective constructions, including progressive. The marker *káni* is used in modal negative constructions. The marker *tée* expresses negation cumulatively with the potential and future meaning.

The set of negative markers is reduced in comparison to the number of affirmative markers, see Table 2.1 in next section. First, there is no opposition between Perfective [+OPF] and Perfective [-OPF] and second (this opposition is discussed in Section 2.2.3), there are no negative counterparts for the conditional auxiliary *máni* which appears in subordinate clauses. The relation between negation and focus in non-verbal constructions is discussed in Section 2.3.1.

2.1.4 Verbal predication

TAM and polarity categories are expressed cumulatively by a paradigm of auxiliary markers which are referred to as predicative markers in the Mandeist tradition. As I argue in Section 2.2, information structure oppositions are also expressed with this paradigm.

The allomorphs of the copulas and auxiliaries are discussed in detail throughout the thesis, Table 2.1 below gives only part of the allomorphs. The paradigm contains the existential copula *bi* and the negative existential copula *béle* and the negative perfective or identification copula *máa*. Preterit in intransitive utterances is expressed by the suffix *-ta*. In all other cases the post-subject position is occupied by an auxiliary or a copula.

	Affirmative	Negative
perfective	[+OPF] <i>báti^(L) ~ ti ~ bá'^(L)</i> [-OPF] <i>ka tr./ -ta intr.</i>	<i>máa^(L)</i>
stative-resultative	<i>bi -len</i> (NK, WK) <i>bi -nden</i> (CK)	<i>béle^(L) -len</i> (NK, WK) <i>béle^(L) -nden</i> (CK)
progressive	<i>bi -la</i>	<i>béle^(L) -la</i>
potential	<i>si</i>	<i>tée^(L)</i>
subjunctive	<i>ni</i>	<i>káni^(L)</i>
imperative	\emptyset	
conditional	<i>máni^(L)</i>	–

Table 2.1: Paradigm of verbal predication constructions in Kakabe

The superscript (L) after bimoraic markers, e.g. *káni^(L)* refers to the fact that whereas in CK and WK heavy auxiliaries bear lexical H, in NK heavy auxiliaries are assigned H^L at the lexical level, this is discussed in Section 5.8.3. Yet, unless it is relevant for the discussion, in the notation of the lexical form of the markers in question, I omit this dialectally restricted floating L for the sake of the simplicity of reading.

The distinction between perfective with operator focus PFV [+OPF] and perfective without the operator focus (PFV [-OPF]) is discussed in detail below (see 2.2). The transitivity split, with the differentiation of the perfective in transitive construction and the perfective in intransitive construction is a feature shared by all Manding languages as well as Mokole

languages².

Kakabe has zero-marked imperative with no overt subject in the singular and an overt subject in the plural. In the

- (2.5) Imperative (affirmative)
- | | | | |
|-----|-----------|-----|-----------------------------|
| (a) | <i>bó</i> | (b) | <i>wò bó</i> |
| | go.out | | 2PL go.ou |
| | Go out! | | Go out! (to several people) |

In the prohibitive which is the negative counterpart of the imperative, both the singular and the plural subjects are expressed overtly:

- (2.6) (a) Prohibitive singular (b) Prohibitive plural
- | | |
|--------------------|------------------------------------|
| <i>ì káni bó</i> | <i>wò káni bó</i> |
| 2SG IMP.NEG go.out | 2PL IMP.NEG come.closer |
| Do not go out! | Do not go out! (to several people) |

The marker *ni* in finite clauses can express the hortative meaning (indirect command), see (2.7) below. In this usage it is close to the zero-imperative construction with which is also shares the negative counterpart *káni*.

- (2.7) (a) *ì nì bó* (b) *wò nì bó*
- | | |
|---------------------|-----------------------|
| 2SG SBJV go.out | 2PL SBJV go.out |
| Your should go out! | You (pl.) should out! |

In general, *ni* is more frequently occurs in subordinate clauses: in purpose adverbial clauses and in complement clauses of volitional and certain modal predicates, see Section 2.7.2.

The progressive, potential and perfective constructions are discussed in 2.2. The use of the conditional *máni* is described in Section 2.7.4. The construction with the copula *bi* and the participle *-len* (NK, WK) and *-nden* expresses stative or resultative aspectual meaning and it can be used both with transitive and intransitive verbs.

Kakabe has a defective verb *kó* ‘say’ which is used without any TAM markers. Nevertheless, clauses with *kó* can contain indirect objects:

- (2.8) (a) *à kó á bààbà mà ò bítí nà*
- | |
|--|
| <i>à kó à bàaba ma ò bítí nà</i> |
| 3SG 3SG father to 1SG PFV.OF come |
| He said to his father: “I have arrived.” |

In Section 2.7.3.3 it is shown that *kó* has developed into a conjunction introducing not only complements of utterance predicates but also purpose clauses after other types of predicates.

2. A diachronic account of the transitivity split is suggested in Creissels (1997).

2.1.5 Argument structure and event structure

Neither object, nor subject pro-drop is possible in Kakabe. At the same time, the elimination of the subject can take place in CK and WK through a very regular zero-passivization (a type of ‘P-lability’ in the terminology of Dixon 1994)³. As for the object, there are no syntactic processes allowing to dispense with it. NK has morphological passive instead. Example (2.9a) illustrates the zero passive in CK and WK and (2.9a) shows the construction with the passive suffix *-ma* in NK, compared to the transitive construction in (2.9a). As can be seen, the agent can be expressed by a postpositional phrase with the postposition *bólo* ‘with’ (from the relative noun *bólo* ‘hand’). For more details on transitivity alternations and the use of morphological passive in NK see (Vydrina 2011a).

- (2.9) (a) Transitive clause (CK, WK, NK)
Séékù bání yé⁺gé bità
 Sekou PFV.OF fish.ART catch
 Sekou has caught the fish.
- (b) Zero passive in CK and WK
yé⁺gé bání bità (Séékù bòlò)
 fish.ART PFV.OF catch Sekou with
 The fish has been caught (by Sekou).
- (c) Morphological passive in NK
yé⁺gé bání bità-mà (Séékù bòlò)
 fish.ART PFV.OF catch-PASS Sekou with
 The fish has been caught (by Sekou).

The passive marker occupies the outermost position in the verb form, it is attached after the gerund and the participle marker, see e.g. *máyìta-la-ma* sell-GER-PASS in (2.10) below:

- (2.10) *sùkkàrè bì màyìtálàmà ké pòðrééndénnù tò*
sùkkári-È bi màyìta-la-ma ke pòðre-nden-È-nu tò
 sugar-ART be sell-GER-PASS this plastic-DIM-ART-PL in
 The sugar is sold in these little plastic bags.

Causative is marked by the prefix *la-*, e.g. *dòn* ‘enter’ → *la-dòn* ‘make enter’. In elicitation, almost all verbs, intransitive as transitive, can combine with the causative marker where the original object is put in the postverbal position accompanied by the oblique postposition *la*, yet, the causativization of transitive verbs as in (2.11b) is very rare.

- (2.11) (a) *Séékù bání jùléé kùntù*
 Sekou PFV.OF rope.ART cut
 Sekou cut the rope.
- (b) *ñ bání Séékù là-kùntù jùléé là*
 1SG PFV.OF Sekou CAUS-cut rope.ART OBL
 I made Sekou cut the rope.

3. See Creissels 2014; Lüpke & Cobbinah 2012 on zero passives in African languages.

2.2 Constituent and operator focus

Following Lambrecht (1994), I will consider topic to be a referent that a given proposition is construed as being about, and focus as that part of a proposition which is distinct from what is already presupposed in the discourse (which will often mean that focus is correlated with new information).

In Kakabe, the constituent focus is marked by the particle *lè*, following the element in its scope, cf. DO focus in (2.15 a) and Subject focus in (2.15 b). But in certain syntactic positions it can also signal a type of broad focus which I will refer to as operator focus, following Dik (1989).

I will argue that the auxiliary *báti* expresses operator focus cumulatively with the aspectual perfective meaning. I will demonstrate that the progressive construction *bi -la* is also concerned with the differences in information structures, but in a structurally different way which is discussed in Section 2.2.4. Finally, in the *bi -la* construction, *lè* has acquired a new type of aspectual/modal meaning which incorporates operator focus.

In line with what has just been said, in the glosses I indicate the presence of the Operator focus for *báti* PFV.OF (perfective with Operator Focus) and I use the glosses PFV.TR and PFV.INTR for *ka* and *-ta*, respectively.

2.2.1 Types of focus marked by *lè*

The focus marker *lè* (*dè* after nasals) marks constituent focus by attaching to the right edge of the constituent in its scope, cf. (2.15 a) and (2.15 b) below:

(2.15) (a) ko

mùsée kà sòbéé †lé tàbì
 woman.ART PFV.TR meat.ART FOC prepare

The woman prepared THE MEAT.

DO focus

(b) *mùsée lè kà sòbéé tàbì dénnè yèn*
 woman.ART FOC PFV.TR meat.ART prepare child.ART for

THE WOMAN prepared the meat for the child.

Sbj focus

Both contrastive and completive (information) focus can be marked by *lè*.

As has been said, *lè* can also mark operator focus. Operator focus (Dik 1989), also referred to as ‘auxiliary focus’ (Hyman & Watters 1984; Good 2010 et al.) or ‘predication focus’ (Güldemann 2003), ranges its scope over a sentential operator, such as truth value, TAM, negation, as opposed to constituent or term focus, that ranges over a lexical constituent. Watters (2010), building on Dik (1989), represents the focus types corresponding to scope as in Figure 2.1. In a cross-linguistic perspective, the opposition between operator and constituent focus is gradual: languages which use different marking devices for operator vs. constituent focus can pattern the focus on the predicate either with the operator or with the constituent focus.

wò yáá sèppilá lè nùn káá wò ì táálá
wò bi à séppi-la lè nùn káá wò bi táa-la
 2PL be 3SG go.on.foot-GER FOC PST or.INTERR 2PL be go-GER
mó⁺té lè tò
móto-È lè to
 motorcycle-ART FOC on
 Did you go on foot or you went on motorbike?

(2.18) *wò káá súúsú lè káá wò ká wò dègèn dè*
wò ka à súusu lè káá wò ka wò dègen lè
 2PL PFV.TR 3SG suck FOC or.INTERR 2PL PFV.TR 2PL learn FOC
 Did you inherit it or did you study it?

On the other hand, in the question-answer pair in (2.19), the truth value of the situation is at issue, thus, here we are dealing with the operator focus, and, in particular, the focus on the truth value.

(2.19) *má lè lúú tígènú mà ì súnná lè -ééy lúú*
mà lè lúu tigi-È-nù mà bi sún-la lè ééy lúu
 1PL LG yard owner-ART-PL 1PL be fast-GER FOC yes yard
tígènú ì súnná lè
tigi-È bi sún-la lè
 owner-ART-PL be fast-GER FOC

A: Us, the heads of the family, do we fast? B: Yes, the heads of the family do fast.

The assertion focus can be marked by *lè* following the verb also if an IO follows, in which case the IO is part of the assertion as well. For example, in (2.20) below, the right and the left context unambiguously indicated that the whole assertion ‘I go to school’ is in focus.

(2.20) *ñ bi táálá lè háá lèkkól búùtò*
ñ bi táa-la lè háá lèkkól búùtò
 1SG be go-GER FOC as.far.as school in

[When you go out in the morning, do you sometimes fail to go to school?] I do go to school [because I understand that it is important to study].

Finally, the focus marker after subject can have an inferential interpretation (on the inferential meaning of focus constructions see, e.g. Robert 1991; Bearth 1999b; 1997), instead of signaling subject focus. Thus, utterances with the focus particle after the subject can have the interpretations as represented in (2.21).

(2.21) *mùsèè lè ká sòbéé tàbí*
 woman.ART FOC PFV.TR meat.ART prepare
 Sbj DO V

a. The woman prepared the food

[Sbj]_{FOC} DO V

b. It is because the woman prepared the food

[Sbj DO V]_{FOC} expletive/inferential

Examples (2.22 a) and (2.22 b) from the corpus illustrate the inferential focus and expletive focus, expressed by the focus marker in post-verbal position.

(2.22) (a) *kònò má lè lé sigìlèn jógòn fɛ*
 kònò mà lè lè sigi-len jógòn fɛ
 but 1PL LG FOC live-PC.ST each.other with
 [I cannot give it to you for this money, it is more expensive.] But we are neighbors! [therefore we must help each other]!

(b) *jéé lè báánù tólén jódò là*
 jíi-È lè bi ànu tó-len jódò la
 water-ART FOC be 3PL leave-PC.ST there OBL
 [He told me to put him on sticks and to carry him here], (because) the water had left him there.

2.2.2 Operator focus and TAM in African languages

Before discussing further the Kakabe data, a few words should be said about the role of the operator focus in the morphology of African languages in general.

The expression of operator focus through verbal inflection is attested in various African languages. There are a number of descriptions of this phenomenon for Bantu languages, but also for Cushitic, Atlantic and Gur languages Hyman & Watters 1984; Watters 2010; Creissels et al. 2008; Robert 2010. Creissels et al. (2008) claim it to be a phenomenon typical for the African area:

A remarkable feature of African languages is the relatively high proportion of systems of verbal inflection that directly express distinctions relating to various types of focus phenomena, or interfere with other focus-marking devices. Such systems seem to be very rare outside Africa (Creissels et al. 2008: 104).

It is now commonly accepted that the conjoint/disjoint alternation, typical of Bantu languages⁵, has to do with the differences in information structure (Hyman & Watters 1984; Watters 2010; Güldemann 2003 among many others). Roughly speaking, it can be described as the division of verbal conjugation between [+OPF] and [-OPF] where OPF stands for operator focus. The [+OPF] form, the ‘disjoint form’, is usually incompatible with focus on any other constituent. Conjoint forms are used when the term focus is present in the same predication as well as in various types of subordinate clauses, see Van der Wal & Hyman (2017) for discussion.

Compared to other families of African languages, there has been relatively little discussion of the interaction between TAM categories and focus in Mande languages. There are few exceptions. First, Vydrin (2016a) explains the unexpectedly rare co-occurrence of analyses

5. The phenomenon of conjoint/disjoint alternations has a long history of description going back to Meeussen (1959), and there has been a growing interest in this phenomenon in the recent years. For references see (Van der Wal & Hyman 2017), a collective volume dedicated to the comparison of its realizations across Bantu languages.

Perfect in Maninka by describing it as a category with inherent focus. The other exception is Toura (Southern Mande) where according to Bearth's (1992; 1999a) analysis, the predicative marker *ké* is 1) mutually exclusive with constituent focus-marking, and 2) does not appear in dependent clauses. These properties make it possible to consider it a [-OPF], or conjoint, verb form. Finally, according to Vydrin (2012), in Dan (Southern Mande), a conjoint form replaces the existential form in subordinate clauses and in utterances with term focalization. Finally, in Soninke, the verb, preceded by an interrogative word or a focalized NP, changes its tone to L (Creissels 2016).

2.2.3 Opposition *ka/ -ta* vs. *báti*

Let us now look at the opposition between *ka*⁶ /-*ta* and *báti* in Kakabe, as illustrated in (2.23 a) and (2.23 b) below.

- (2.23) (a) *mùséè kà sòbéè lè tàbí*
 woman.ART PFV.TR meat.ART FOC prepare
 The woman prepared THE MEAT. DO focus
- (b) *mùséè báti sòbéè tàbí *mùséè báti sòbéè †lé tàbí*
 3SG PFV.OF meat.ART prepare
 The woman prepared the food.

The range of context in which *ka/ -ta* occurs and from which *báti* is systematically excluded, are described as typical for [-OPF], or conjoint verb forms (e.g. in Hyman & Watters 1984). These contexts and the illustrations are listed below:

- [-OPF] contexts (contexts typical for conjoint forms):
- clauses containing a question word (2.24 a);
- clauses containing a constituent focus (2.24 b);
- relative clauses (2.24 c);
- conditional clauses (2.24 d);
- default marker in narratives (2.24 e).

- (2.24) (a) *ì kà fén sàñ?*
 ì ka fén sàñ
 2SG PFV.TR what? buy
 What did you buy?
- (b) *à ká nìngéè lè sàñ*
 à ka nìngi-È lè sàñ
 3SG PFV.TR cow.ART FOC buy
 He (has) bought A COW.

6. In NK the variant *ki* appears in free variation with the perfective auxiliary *ka*, but is much less frequent than *ka*. According to Sanba Nyuma Keita from Sokotoro village, *ki* is used only by young people.

- (c) *à ká nìngéè mín sà̀n à̀nù báti wò dàmù*
à ka nìngi-È mín^L sà̀n à̀nu báti wò dàmù
 3SG PFV.TR cow.ART REL buy 3PL PFV.OF that eat

They have eaten the cow that he bought.

- (d) *sà̀à ká nìngéè sà̀n à̀n sí wò dàmù*
sì à ka nìngi-È sà̀n à̀nu sí wò dàmù
 if 3SG PFV.TR cow.ART FOC buy 3PL POT that

If he buys a cow, they will eat it.

- (e) *à̀n tágátá à̀n ká nètè̀ènù yèn, à̀nú yélétá*
à̀nu tága-ta à̀nu ka nètè-È-nu yén à̀nu yè̀le-ta
 3PL go-PFV.INTR 3PL PFV.TR nere-ART-PL see 3PL rise-PFV.INTR
à̀n ká nètè̀è b̀ò
à̀nu ka nètè-È bó
 3PL PFV.TR nere-ART pick

They went and saw nere grains, they climbed up the tree and gathered the nere grains.

Finally, the *ka/-ta* and *báti* correspond to only one negative form, the auxiliary *máa*. This is one more argument for describing these markers through the presence or the absence of the operator focus, *alias* conjoint (CJ) vs. disjoint (DJ) forms, cf.: “It is often the case that CJ and DJ correspond to one form in negation. This suggests that the CJ and DJ forms are in the same temporal-aspectual category” (Van der Wal 2017, 40).

The marker *báti*, reconstructed as **bán-Da* (Vydrin 1999a), is attested in several Western Mande languages and is always referred to as perfect, *bára ~ wára* in Koranko (Kastenholz 1987b), Soso, Jallonke, *báda ~ bára* in Mainka (Vydrin 2016a) etc.

Though, of course, the analysis of the data of each of the languages would be necessary to decide whether it is perfect, or rather, a perfective with operator focus, yet the former hypothesis should not be excluded. Thus, Van der Wal (2017) notes that it is very common in the descriptions that the conjoint/disjoint form is misinterpreted as tense-aspect opposition:

Even in languages where the CJ and DJ verb forms function as pairs, in traditional grammar descriptions the difference is often described in terms of tense-aspect semantics. <...> In most cases, these tense-aspect differences are not essential to the CJ/DJ distinction, but they are used in the description simply because we are used to describe differences between tenses in temporal or aspectual terms. The tense-aspect differences reported for the CJ and DJ forms remain vague and ambivalent, and they tend to ‘disappear’ when used in contexts that are typical for one or the other verb form. Question-answer combinations are one such case (Van der Wal 2017: 40).

The categories *ka/-ta* and *báti* in terms of relative time have the same profile: they describe a situation which is completed before topic time, using the terms of Klein (1994), the topic time can coincide with the utterance as in (2.25 a) and (2.25 b):

(2.25) (a) ST < TT, TT = UT; [+OPF]

mà b́átí yé⁺gé bitá bì dé
mà b́átí yége-È bita bì dé
 1PL PFV.OF fish.ART catch today DISC
 We have caught fish today.

(b) ST < TT, TT = UT; [-OPF] constituent focus

mà kà yé⁺gé lé bitá bì dé
mà kà yége-È FOC bita bì dé
 1PL PFV.TR fish.ART catch today DISC
 We have caught FISH today.

Examples (2.26 a) and (2.26 b) illustrate the usage of *ká* and *b́átí* with reference to the past, where the topic time precedes the utterance time, the precedence is marked by *nùn*:

(2.26) (a) ST < TT, TT < UT; [-OPF]

̀n ḱíí ⁺kéle nùn ì káá lábità
̀n ka ì kéle nùn ì ka à labita
 1SG PFV.TR 2SG call PST 2SG PFV.OF 3SG answer
 I called you the other time and you answered.

(b) ST < TT, TT < UT; [+OPF]

kómúnikè b́át ⁺tánbí nùn rádíyòè búùtò áláámíyà f́óó
kóminike-È b́átí tánbí nùn rádíyo-È búùtò álmaamiyà f́óo
 release-ART PFV.OF pass PST radio.ART in Kakabe.land UNIV
b́átáà lòn
b́átí à lón
 PFV.OF 3SG know
 An announcement was issued on the radio and all Kakabe people learned about it.

Finally, both can be used with the reference to the future:

(2.27) (a) ST < TT, TT > UT; [+OPF]

̀ì téé wààsè háá ì ní f̀àgà kòfí ì
̀ì téé^L wáase háá ì ní f̀aga kòfí ì
 2SG POT.NEG be.poor as.far.as 2SG SBJV die because 2SG
b́átá⁺á j́úmá má j́nè
b́átí^L à j́uma má ñ yen
 PFV.OF 3SG good do 1SG BNF
 You won't be in need until you die, because you will have done a good thing for me.

(b) ST < TT, TT > UT; [-OPF]

sì mà ká mà nógón dèèmàn àllà tùgùn sí mà dèèmàn
 if 1PL PFV.TR 1PL each.other help God also POT 1PL help
 If we help each other, God will also help us.

The auxiliary *báti* is often used with performative meaning. Thus, the utterance in (2.28), from a conversation inside a smithy in the Labiko village, is addressed to the smith by a man who wants to obtain the hoe in exchange to his hat, and the utterance is pronounced simultaneously with stretching out his hand with the hat.

(2.28) *ñ bák kè kúfúnè dū mà*
ñ báti kè kúfunε-È dí ì ma
 1SG PFV.OF this hat-ART give 2SG to
 I am giving you this hat.

It is frequently used in combination with verbs describing different types of speech acts, e.g. *wáyine* ‘to say goodbye’, *tára* ‘to implore’ with the performative meaning, see also (2.29) below. The performative usage is also attested for the perfective construction *yé/-ra* in Bamana (Idiatov 2000).

(2.29) *ómò tí kúmà dì kááwú búbákàrnù bòlò*
ó-mò ti kúma-È dì káawu Búbakàr-nu bólo
 1PL-INCL PFV.OF word-ART give Kaawu Bubakar-PL hand
 We are giving the floor to Kaawu Bubakar.

With the verb *tànbi* ‘pass’ or *tága* ‘go’ it can express the meaning of near future or intention:

(2.30) *nùméè kó í bát tágá à kó ñ bát tágá*
nùmu-È kó ì báti tága à kó ñ báti tága
 smith-ART say 2SG PFV.OF go 2SG say 1SG PFV.OF go
 The smith said: “So, you are leaving?” He said: “Yes, I’m leaving”.

The markers *ka / -ta* also occur in utterances with the performative meaning, see (2.31 a) and (2.31 b) below:

(2.31) (a) *ñ ká wó †màñínínká lè fén dè wó †dónná*
ñ ka wò màñínínka lè fén lè wò dòn-la
 1SG PFV.TR 2PL ask FOC what? FOC 2PL sent-GER
dògòmè
 Dògome
 Dogomet
 I am asking you, what for do you go to Dogomet?

- (b) *ñ kii fàndà wón[†]dèlè tɔ*
ñ ka ì fànda wón[†]dèlè tɔ
 1SG PFV.TR 2SG give.present this.PL.FOC in
 These are the things that I give us as a present.

Finally, the markers *ka/-ta*, are associated with the verbs of mental state like *lón* ‘know’.

- (2.32) *wò káá lón tóróbáगतòè-nù dén síyámán sòtéé lè*
wò ka à lón tóróbáगतò-È-nù dén siyaman sòtò-È lè
 2PL PFV.TR 3SG know poor-ART-PL child numerous get-ART FOC
 You know, poor people, they usually get a lot of children.

The markers *ká/-ta*, on the one hand, and *báti*, on the other hand, are, of course, not fully parallel in their usage. Thus, in the performative utterances the choice between *ká/-ta* and *báti* is, supposedly, defined lexically. Further investigation is necessary in order to have a more complete account of their distribution.

The opposition [+OPF] vs. [-OPF] which distinguishes *báti* from *ka/-ta* in the main clause, in the context of temporal/conditional antecedent clauses is transformed into the opposition between actual and non-actual mode of proposition, see Section 2.7.4.

2.2.4 Construction *bi -la* and the auxiliary *si*

Apart from the perfective category, the operator focus is also involved in the progressive construction, but in a structurally different way. The construction *bi -la* expresses the progressive meaning, see (2.33) and (2.34 a)⁷.

- (2.33) *wáájé-láà báti tàkkìtè à bí nàlà*
wáájé-láa-È báti tàkkíté à bi nà-la
 chasseur-ART PFV.OF go.out.from.ambush 3SG be arrive-GER

[Two birds are talking, at the same time] The hunter has left the ambush and is approaching.

But when *bi -la* (*-na* after N) co-occurs with the marker *lè*, as in (2.34 b), it does not express the progressive meaning anymore. Instead, it conveys future or habitual meaning, cf. the two example below.

- (2.34) (a) Progressive [+OPF]

mùsèè bi sòbèè tàbìlà
 woman.ART be meat.ART prepare-GER
 The woman is preparing the meat.

7. Its origin is the locative construction, where *-la* goes back to a general locative postposition. This kind of nominal periphrastic origin is recurrent for a construction with progressive and imperfective meaning in Western Mande, e.g. Maninka, Susu et al. In general, it is widely attested cross-linguistically (e.g. Heine & Kuteva 2002).

- (b) *mùséè* *bi* *sòbéé* *lé* *tàbì-là*
 woman.ART be meat.ART FOC prepare-GER
 Sbj DO V

The woman will prepare/(usually) prepares the meat.

* The woman is preparing the meat.

See (2.35) from a conversation, with focus on DO and which has, clearly, not a progressive but a habitual meaning:

- (2.35) *wáttòè* *dòn* *tò* *ñ* *nì* *kíní* *kó⁺té* *lè* *dámùlà*
wáttu-È *do-n* *tò* *ñ* *bi* *kíní* *kòtò-È* *lè* *dámu-la*
 time-ART one-PL in 1SG be food old-ART FOC eat-GER

[What do you eat for breakfast before going to school] Sometimes, I eat old rice.

Güldemann (2003), elaborating the hypothesis of Hyman & Watters (1984), claims that the exclusively semantic definition of progressive is “deficient, because it ignores its essential pragmatic component of inherent focality”. He proposes that the category of Progressive is an amalgamation of semantic and a pragmatic component:

semantic (aspect) component: ongoing, continuous nature of an event

pragmatic component: the immediate relevance of the state of affairs, focus of the utterance.

In the progressive, the continuous, ongoing nature of an event is that information which is viewed by the speaker as the most relevant for the addressee in a given communicative context.

Such a definition of the progressive makes it possible to account for the Kakabe data: *bi -la* ceases to represent the event as relevant in its continuous ongoing nature, since the focus is on the choice of a participant, and no more on the internal structure of the event.

The auxiliary *si* covers a range of meanings which partly overlap with the meaning of *bi -la*, when the latter occurs in utterances with constituent focus. The semantic field of *si* includes the following meanings:

- (2.36) modal potentiality: deontic or epistemic possibility, desire, hope
 imperfective potentiality: future (2.37 a); habitual/generic (2.38 b)

The illustrations of the meaning of *si* are given below:

- (2.37) (a) Future

sì *ñ* *ká* *wò* *fɔ̃* *ò* *sí* *ñ* *bólókà*
sì *ñ* *ka* *wò* *fɔ̃* *ò* *si* *ñ* *bólókà*
 if 1SG PFV.TR that say 2PL POT 1SG leave
 If I tell you this, will you release me?

(b) Deontic possibility

*sì í lè ká í wàkkilè ì sí *nón kàrànnà*
sì ì lè ka ì wàkkile ì sí nòn kàran-la
 if 2SG LG PFV.TR 2SG be.courageous 2SG POT can study-GER
 If you work hard, you will be able to study.

(c) Epistemic possibility

wáttín tó mà sì tó lèkkól là jòò háá fàná
wátti-nu tó mà si tó lèkkol là joo háa fana
 time-PL in 1PL POT leave school OBL that as.far.as afternoon
 Sometimes we can stay at school until the afternoon.

(d) Desire

ń yìliyáá mà àn sí ń dèèmán
ń yiliya-È à mà ànu si ń dèeman
 1SG hope-ART 3SG to 3PL POT 1SG help
 I hope that they will help me.

A good illustration of the overlap between *si* and *bi -la* with *lè* in their aspectual meaning and also of their sensitivity to information is the extract in (2.38 a) and (2.38 b) below. In (2.38 a) a speaker asks his addressee what she does for living, proposing two alternatives, working in the field and catching fish, shaped in two clauses featuring *bi -la* markers and the focus marker. Thus, from the context it is clear that these two clauses contains VP constituent focus and that at the level of aspectual semantics they can be described as generic or habitual. In her answer in (2.38 b), NK first chooses one of the proposed alternatives, repeats the structure with *bi -la* and constituent focus. After a small pause, in the two following clauses, where she elaborates on her everyday work, though the aspectual construal remains the same, there is no more constituent focus, and she switches to the construction with the auxiliary *si*.

(2.38) (a) *wò ì bálúndén nón kámà káá wò í sènée lè*
wò bi bálu-nden non kámà káá wò bi sènè-È lè
 2PL be be.alive-PC.ST but how or.INTERR 2PL be field FOC
kèlà báá wò bì yé⁺gé lé bitàlà
ké-la báa wò bi yége-È lè bita-la
 do-GER or 2PL be fish FOC catch-GER

How do you make a living? Do you labor the fields or do you catch fish?

(b) *mà bí sènée lè kèlà(0.42) mà sí sènée kè mà sì*
mà bi sènè-È lè ké-la mà si sènè-È ké mà si
 1PL be field-ART FOC this 1PL POT field-ART do 1PL POT
náákòè là
náako-È lá
 garden-ART lie

We labor the fields... we labor the fields, we make a vegetable garden.

To remind the reader what has been said in 2.2.2, there are contexts which exclude operator focus: relative clauses, clauses with question words, and other types of constituent focus. In these contexts the contrast between *si* and *bi -la* is along the line of the irrealis/realis opposition.

Let us look at some examples. The auxiliary *si* is used to convey potential or irrealis, but neither habitual nor generic when it is used in contexts excluding operator focus. The auxiliary *si* is typically used in relative clauses, referring to a hypothetical situation, as in (2.39 a), and in relatives denoting events in the scope of negation (2.39 b):

(2.39) (a) *si* in rel. clause: irrealis

fó *ì* *náá* *jàá* *jínín* *dé* *ì* *sì* *mín* *dàmù*
fó *ì* *ni* à *jàa* *jínin* *dé* *ì* *si* *mín^L* *dámu*
 NESS SBJV 3SG eye look.for EMPH 2SG POT REL eat
 You should look for something to eat.

(b) *si* in rel. clause: negation

sábú *bélé* *mà* *mà* *mín* *sì* *má* *dèèman*
sábu *béle* *mà* *mà* *mín^L* *si* *mà* *dèèman*
 support COP.NEG 1PL to which POT 1PL help
 There is nobody who would help us.

By contrast, when *bi -la* is used in relative clauses, it conveys the meaning of a future, whose actuation is not questioned (2.40 a), or the habitual/generic meaning (2.40 b).

(2.40) (a) Future

mà *nì* *tákàrà̀n* *mà* *ì* *mín* *kè̀l̀à* *sínàn*
mà *ni* *ta-kàran* *mà* *bi* *mín^L* *ké-la* *sínàn*
 1PL SBJV REF-study 1PL be which do-GER tomorrow
 We should revise what we will do tomorrow [in class].

(b) Habitual/Generic

mín *†i* *fó̀lá* *ì* *yèn* *ì* *níí* *tò̀lò̀màsò* *kóòbèn*
mín^L *bi* *fó-la* *ì* *yen* *ì* *ni* *tó̀lomasò* *kóòbèn*
 REL be say-GER 2SG for 2SG SBJV 2SG listen much
 [when you are at school] You should listen attentively to what is told to you.

Modality meanings have not yet been discussed in relation to the question of inherent operator focus. Yet, the logic of the argumentation suggests that they are good candidates for categories with inherent focus. Hyman & Watters (1984) suggest that all kinds of deviations from the indicative, i.e. marked aspect, marked mood, marked negation can be grammaticalized in a particular language as having inherent auxiliary focus.

Using the terms of Güldemann (2003), it can be said that the potential modality category contains the pragmatic component of focality, as does the progressive. Furthermore, potential can be decomposed into this marked modality component and the irrealis meaning. When *si* occurs in contexts, excluding operator focus, only the irrealis component is retained, since it is not associated with operator focus. Otherwise, *si* conveys the modal potential meaning.

Whereas *si* belongs to the irrealis domain and can have marked modality meaning, the construction with *bi -la* belongs to the realis domain and conveys the marked aspectual meaning when the focus is on the operator value. This is visualized in Figure 2.2.

		[+OPF]	[-OPF]	[-OPF]	[+OPF]
irrealis	irr + potential [+mod]	<i>si</i>			
	irrealis		<i>si</i>		
realis	ipfv + realis			<i>bi -la</i>	
	ipfv. + progressive [+asp]				<i>bi -la</i>

Figure 2.2: The distribution of *si* and *bi -la*

To sum up, the distribution between *si* and *bi -la* depends, first, on aspectual/modal semantics and, second, on the information structure configuration.

Cross-linguistically, habituals, generics and future occupy an intermediate position between irrealis and irrealis, in some languages they pattern with realis categories and in others with irrealis categories, see e.g. Palmer (2001); Bybee & Fleischman (1995). As has been shown, in Kakabe, these categories can be either realis or irrealis: potential future is marked by *si*, whereas the more certain future and generic, included in the realis category, are marked by *bi -la*. To cite Mithun (1995), “speakers might choose to exploit the Irrealis/Realis distinction to express varying expectations of actuation”.

2.2.5 Particle *lè* as the marker of operator focus in *bi -la* construction in NK

As has been shown in 2.2.1, *lè* in post-verbal position can mark not only the constituent focus (V or VP), but also the assertion focus.

In NK, in addition to these interpretation, the post-verbal *lè* in *bi -la* construction has developed an array of modal meanings, such as menace, prediction, statement of imminent actuation. At the same time, the gerund suffix *-la* in this construction can fuse with the focus particle *lè* into *-llè*. The fusion is impossible, though, when the suffix is realized as *-na* after N, as in (2.42 a). The fused form is more frequent: *-llè* occurs 49 times, whereas *-la lè* occurs only 9 times. Importantly, this fusion cannot be accounted for as a regular elision, since, as I show in Section 4.4 vowel elision in Kakabe does not allow the deletion of the low *a*.

(2.42) (a) Prediction

à mání bòi kómìn à bí tàlàncànnà lè
 à mání bòi kómìn à bi tàlancan-la lè
 SG COND fall how 3SG be split-GER FOC
 [Make the shell fall] When it falls, it will split.

(b) Threat

ñ bíí †dámúlá lè ñ bélé tólón dè là
 ñ bi ì dàmula-la lè ñ béle tólon lè la
 1SG be 2SG eat-GER FOC 1SG COP.NEG play FOC OBL
I will eat you! I'm not joking.

(c) Imminence

báyì súú kǒllè ómò tólónè fǒlò
 báyì súú kò-la lè ò-mò tólon-È fólò
 as night arrive-GER FOC 2PL-1PL party-ART start
 Since **the night is about to fall**, let's start the party.

(d) Directive

ò báá làwítúyállè
 ò bi à la-wútuy-la lè
 2PL be 3SG CAUS-be.short-GER FOC
 You have to make them short [don't tell long stories].

(e) Directive

ì kánáà fǒ à sí úlúfíté ì báá †fǒllè
 ì káni à fǒ à sí ulufite ì bi à fǒ-la lè
 2SG IMP.NEG 3SG say 3SG POT tomber 2SG be 3SG say GER FOC
 à sí bìrì
 à si biri
 3SG POT bury
 You shouldn't say "ulufite" [Pular word], **you should say** fall in.

(f) Promise

ñ mán nà ñ báá †yógóllè
 ñ mání nà ñ bi à yógɔ-la lè
 1SG COND come 1SG be 3SG pay-GER FOC
 When I come, I will pay you.

2.3 Non-verbal predication

According to the typology of Stassen (1997), Kakabe is a split-language by virtue of the difference between the lexical items involved in nominal and locational predication. As can be seen on Table 2.2, Kakabe uses the (optional) copula *mu* for identity statements (2.43 a) and class-membership statements (2.43 b) and the copula *bi* for locative and existential predications, (2.43 c) and (2.43 d) respectively. See the discussion of the semantic types of intransitive predications in Stassen (1997: 11-15). I will be using the abbreviation ICM (identity/class-membership) to refer jointly to the first two semantic types of nominal predication in Kakabe, since there is no common term for these two semantic types. Property predication has no copula in the affirmative and uses the copula *máa* in the negative. In the affirmative, both *bi* and *mu* are optional.

(2.43) (a) copula *mu*: identity statement

mà là wálè mù ké lè là
mà la wáli-È mu ké lè la
 1PL POSS work-ART IDENT this FOC OBL
 Our work is THIS.

(b) copula *mu*: class-membership statement

ì lè mù déndén dè là
ì lè mu dénden lè la
 2SG FOC IDENT child FOC OBL
 You are a child.

(c) copula *bi*: locational predication

kérè bí yàn
kéri-È bi yàn
 hoe-ART be here
 The hoe is here.

(d) copula *bi*: existential statement

dòóléè bì
dòòle-È bi
 power-ART be
 There is power.

The presence or the absence of the copula, both *bi* and *mu*, is connected to the realization of the particle *lè* in the same clause. The possibility of the omission of *bi*, both in non-verbal and in verbal predication, is discussed in a separate section (see 2.4). For the alternation of *mu* with zero, see 2.3.1.1.

	Affirmative	Negative
(a) Locative, existential	<i>(bi)</i>	<i>béle</i>
(b) ICM statement	<i>(mu)</i>	<i>máa</i>
(c) Property predication	\emptyset	<i>máa</i>
Verbal predication	<i>Aux/bi</i>	<i>béle/máa/tée</i>

Table 2.2: Copulas depending on the type of non-verbal predication

- (2.44) (a) *̀̀n báàbà bì bònè t̀̀* *̀̀n báàbà béle bònè t̀̀*
 My father is in the house. My father is not in the house.
- (b) *̀̀n báàbà mú k̀̀emógó lè là* *̀̀n báàbà máa k̀̀emógó là*
 My father is an old man. My father is not an old man.
- (c) *̀̀n báàbà k̀̀éjín* *̀̀n báàbà máa k̀̀éjín*
 My father is beautiful. My father is not beautiful.

Apart from copulas, the non-verbal predication constructions can contain the focus marker *lè*, postpositional phrases, and have constraints on the order of the subject and the predicate, as shown in Table 2.3 below. Location is denoted by a postpositional phrase following the subject nominal with *bi/béle*. By contrast, in ICM construction the order of the two nominals, the semantic subject N_{SBJ} and the semantic predicate N_{PRED} , is not fixed. Both the semantic subject and the semantic predicate can be expressed by the postpositional phrase with *la*. The only constraint is that N_{PRED} is always focalized. Another difference between the locational/existential and ICM constructions is that in the former the predicate part (location) can be omitted, whereas in the class-membership construction the predicate nominal is the obligatory part. In the property predication construction, a particular lexical category word is used which I will refer to as predicative. It is different from nouns, verbs and adjectives by its syntactic properties.

An important characteristic of the property predication construction is the restricted use of the marker *lè*. First, long forms of personal pronouns (also formed with *lè*) do not occur with it. Second, with the exception of the comparison construction, focalization is very rare in constructions with property predicates (see 2.3.3). This is in sharp contrast with the two other non-verbal predication constructions, where *lè* in both functions (long form of pronouns and focalization) is frequent and is obligatory after the predicate part, except for deictic ICM constructions (see 2.3.1.2). In Section 2.3.3, I argue that this is due to a particular type of information structure, associated with these types of predicates.

	Affirmative	Negative
Locational/existential	N _{SBJ} (<i>bi</i>) (N _{PRED} pp)	N _{SBJ} <i>béle</i> (N _{PRED} pp)
ICM	(N _{SBJ}) N _{PRED} <i>lè</i> (<i>mu</i>)	(N _{SBJ}) N _{PRED} <i>máa</i>
	N _{PRED} <i>lè</i> (<i>mu</i>) N _{SBJ} <i>la</i>	N _{PRED} <i>máa</i> N _{SBJ} <i>la</i>
	N _{SBJ} (<i>mu</i>) N _{PRED} <i>lè la</i>	
Property-predication	N Property-predicate	N <i>máa</i> Property-predicate

Table 2.3: Non-verbal predication in Kakabe

2.3.1 Identity/class-membership constructions

As can be seen from Table 2.3, the affirmative and the negative ICM constructions are not symmetrical: the first displays more flexibility in the order of the predicate and subject nominals, and the focus particle *lè* is present in the affirmative, but not in the negative. In what follows I show that this difference stems from the fact that the negative copula *máa* is inherently focused, whereas the copula *mu*, used in the affirmative, does not contain predication focus, therefore predication focus has to be expressed by *lè*. The negative and the affirmative identification constructions differ in three aspects:

- The order of nominals with respect to *mu* is free, whereas *máa* is always preceded by the predicate nominal;
- *mu* is optional, whereas *máa* is obligatory;
- in constructions with *mu*, predicate nominal has to be followed by *lè*, whereas in the negative the predicate is followed by *máa* only.

The obligatory part of ICM construction is the predication. This predication is formed by a nominal (a full-fledged NP or pronoun) which has to be accompanied by an element marking predication focus, since the nominal does not contain it itself. The element marking focus in ICM construction is *lè* or *máa*. As I show in Section 2.3.3, property predicates contrast with nominals used in ICM construction in that they contain predication focus and therefore do not require any external focus marker. It is also shown in what follows that certain types of nominals used in ICM construction contain inherent focus and therefore do not require *lè* in the affirmative: these are interrogative phrases and, partly, demonstratives.

Finally, the distribution of the particle *lè* is defined by the fact that it is polysemous between constituent focus, predication focus and the long form marker for personal pronouns.

2.3.1.1 Focus in ICM constructions and variation

There is a close link between focus and identification statements, see on this question Stassen (1997: 109):

Discourse-motivated elements such as topic markers and focus particles are more likely to appear (and are more likely to appear obligatorily) in identity statements than in other sentence types. <...> In identity statement, there is no such thing as a grammatical subject, discourse-motivated notations such as topic or focus will have to be made explicit at all times.

There is a number of languages, where predicate nominals strongly prefer the presence of focus particles, as in Awtuw, a Papuan language. Focus marker is obligatory in sentences with nominal predicates in Chemehuevi (Uto-Aztecan), Alabama (Muskogean), Somali (Cushitic) (Stassen 1997: 108), Zay (Semitic).

In ICM constructions in Kakabe, the predicate nominal must be followed by *lè*, its absence is possible only when the predicate is a proper noun or a demonstrative (see 2.3.1.2). The particle *lè* can also be absent when one member of ICM construction is a question word. The absence of the focus marker in this case, see (2.45) below, is due to the fact that question words already contain inherent focus, therefore focalization by *lè* is not necessary⁸.

- (2.45) *yón mù ké mùsée là*
yón^L mu kè mùsu-È la
 who? IDENT this woman-ART OBL
 Who is this woman?

The order of the constituents is flexible (probably conditioned by information structure but further research is needed to find out in what way): the semantic predicate can either precede or follow the semantic subject. It can also change its position with respect to the ICM copula *mu*, cf. (2.46 a) and (2.46 b) below.

- (2.46) (a) N_{SUBJ} *mu* N_{PRED} *lè là*
- ì lá †káyéé †mú kèemógó lè là*
ì lá káyé-È mu kèemogɔ lè la
 2SG POSS man-ART IDENT old.man FOC OBL
 Your husband is an old man.
- (b) N_{PRED} *lè mu* N_{SUBJ} *la*
- déndén nák[†]kóé lè mù í lè là*
dénden nákkɔ-È lè mu ì lè la
 child cursed-ART FOC IDENT 2SG LG OBL
 You are a cursed child!

8. The focus marker is not incompatible, though, with the inherent focus of the question word, but can be an optional spelling out, see Section 2.6.2.5.

The copula *mu* can be absent, see (2.47 a) and (2.47 b) where only *lè* identifies the predicate part:

(2.47) (a) [lùùmᵌ b́áá]_{PRED} lè
 lùumᵌ b́áá lè
 market big FOC
 It is a big market.

(b) dóè_{SBJ} dònsoéè_{PRED} lè dóè_{SBJ} kàramókè_{PRED} lè
 d́óo-È dònso-È lè d́óo-È kàramókè-È lè
 one-ART hunter-ART FOC one-ART teacher-ART FOC
 The one is a hunter, the other is a teacher.

The function of the particle *lè* partly overlaps with that of the ICM copula *mu*. This explains why, occasionally, two particles *lè* can occur in one utterance. See (2.48) below, where *lè* focalizes the NP in the possessor position, and after *ᵓᵌᵓᵓᵓᵓᵓ* ‘bustle’ appears with the function of the ICM copula.

One can suppose that the focus marker takes on the function of the copula when the latter is omitted. The occurrence of *lè* after two constituents belonging to the same clause, as in (2.48), are rare in the corpus, and are often rejected in elicitation. This can be interpreted in a way that the focus function of *lè* is mainly a focus marker, but is starting to develop the copula function⁹.

(2.48) b́á [ᵓ⁺sállúᵓ⁺ᵓé ᵓ⁺lé ᵓᵌᵌᵓᵓᵓᵓᵓ]_{PRED} lè kó kóntórol b́eláà
 b́á^L sállun-È lè ᵓᵌᵓᵓᵓᵓᵓ lè kó kóntorol b́ele à
 since holiday-ART FOC bustle FOC say control be.NEG 3SG
 tᵌ
 tᵌ-H%
 on-H.BT

Since it is the bustle of the party, there’s no way to control it.

When the semantic subject is a pronoun, it can be either in the long form (2.49 b) or in the short form, as in (2.49 a) and (2.49 c). The same is true when the semantic subject pronoun is followed by the postposition *la*, see (2.46 b).

(2.49) (a) Pron_{SUBJ}*mu* N_{PRED}*lè la*
 à mù f́úlá lè là
 à mu f́ula lè la
 3SG IDENT Fulbe FOC OBL
 He is a Fulbe.

9. The opposite change, whereby copula becomes a focus marker, is rather widespread cross-linguistically, see (Heine & Kuteva 2002). Therefore, one could imagine, that *lè* is a former copula and in cases like (2.48) it appears both in its new and in its old function. Yet, this is not supported by the comparative evidence: the Kakabe focus marker *lè* corresponds to the proto-Mande root **de* which, supposedly, was a focus marker at the Proto-Mande level (Vydrin, p.c.).

(b) N_{SUBJ} mu N_{PRED} *lè la*

i lé †mú tàlilàáláá lè là
i lè mu tàlilaalaa lè la
 2SG LG IDENT story.teller FOC OBL
 You are a story-teller.

(c) N_{SUBJ} mu N_{PRED} *lè la*

i mù básibóláá lè là
i mu básì-bó-laa lè la
 2SG IDENT medicine-make-NMLZ FOC OBL
 You are a sorcerer (you are a potion-maker).

When the semantic predicate of the construction is a pronoun, the latter is followed by two particles *lè*, since with the personal pronouns the first *lè* creates the long form and the focalization proper is done by the second *lè* (see 2.6.1.7).

(2.50) *ĩ †lé †lé nùméè là*
ĩ lè lè nùmu-È la
 2SG LG FOC smith-ART OBL
 It is you who is the smith.

2.3.1.2 Demonstratives in ICM constructions

The demonstratives *kè* and *wò* can be used after the copula *mu* without the postposition *la*. The usages with and without *la* are in free variation, see (2.51 a) and (2.51 b) below, utterances representing a dialog at the beginning of a tale about a goat and a hyena, when they meet and recognize each other. In (2.51 a) *kè* after *mu* is used without a postposition, and in (2.51 b), where the hyena recognized the goat, *kè* is followed by *la*.

(2.51) (a) *síikú†lé †lé mú kè*
síikuli-È lè mu kè
 goat-ART FOC IDENT do
 [When the goat and the hyena met on the road, hyena said] Is it the goat?

(b) *óllè mú kè là*
ò lè lè mu kè la
 2PL LG FOC be IDENT do
 [Yes!] It's you!

An analogous pair of examples for the demonstrative *wò* is in (2.52 a) without *la*, and with *la* in an identical context (2.52 b):

- (2.52) (a) *àn ní jìnìnkà yón †mú wò*
 ànu ní ì jìnìnká yón^L mu wò
 3PL SBJV 2SG ask who? IDENT that
 They would ask you: who is it [that you want to take as wife]?
- (b) *à kó yón †mú wò là?*
 à kó yón^L mu wò la
 3SG say who? IDENT that
 [I met a woman whom I want to marry] –Who is she?

The demonstrative can also be preposed to the copula, e.g.:

- (2.53) *kè mú pòrtéé lè là*
 kè mu pòrto-È lè la
 this IDENT white.person-ART FOC OBL
 She is a white woman.

Example (2.54) illustrates the absence of the postposition in the negative context:

- (2.54) *gbàngbàn sámákálá máá wò*
 gbàngban sámakala máá wò
 dust joke PFV.NEG that
 This is not some little dust!

Apart from the possibility to omit *la* in the post-copula position, the ICM construction with a demonstrative can have no overt focalization of the predicate, see (2.55 a) and (2.55 b) below with the demonstrative *kè* ‘this’:

- (2.55) (a) *a! Tràórè kè-* This is Traore [seeing Traore approaching],
 (b) *í tàtá kè?* Is he your elder brother?

Thus, in ICM constructions, demonstratives display exceptional behavior compared to other nominal expression, either personal pronouns or full-fledged NPs, cf. the impossibility to use the personal pronoun *à* or of the full-fledged NP without the postposition *la* in the position after *mu*:

- (2.56)
- | | | |
|---|---------------------------|----------------------|
| <i>yón mù à (lè) là</i>
who? IDENT 3SG LG OBL | * <i>yón mù à (lè)?</i> | ‘Who is he?’ |
| <i>yón mù kè mùsée là?</i>
who? IDENT this woman.ART OBL | * <i>yón mù kè mùsée?</i> | ‘Who is this woman?’ |
| <i>yón mù wò (la)?</i>
who? IDENT that OBL | | ‘Who is this?’ |

In general, demonstratives have a special status in ICM constructions. Many languages distinguish demonstrative pronouns in verbal clauses from demonstratives in copular and nonverbal clauses Diessel (1999: 5). Apart from that, demonstratives are commonly grammaticalized into copulas which also points to the link between the two Diessel (1999: 147). Thus, the special behavior of the demonstratives *wò* and *kè* in ICM constructions is due to their semantic and pragmatic properties.

2.3.1.3 Copula *mu* in construction with *gerund*

There are some rare occurrences in the corpus where the copula *mu* is used with a gerund complement which refers to a proposition under the modality of necessity (2.57 a), or obligation (2.57 b).

(2.57) (a) *zàndàrméri †rútyè(0.5) wón dè mù kíítè kèlà*
zàndarmeri rútye-È wò-nu lè mu kíiti-È ké-la
 police road-ART that-PL FOC IDENT judgement-ART do-GER

The police station [staff], they had to issue a report.

(b) *ñ dé lè mù kóè lákééla ràdyó ríral bú†útó*
ñ lè lè mu kóo-È la-ké-la ràdyó ríral búùto
 1SG LG FOC IDENT thing-ART CAUS-do-GER radio rural in

dògòmè

Dògome

Dogomet

It is me who does everything at the radio station in Dogomet.

In (2.58) below *mu* is has a modal meaning:

(2.58) *kòndéé lè mù ì là déjè gbàá là*
kòndi-È lè mu ì la dén-È gbàa-È la
 bird-ART FOC IDENT 2SG POSS child-ART trace-ART OBL

The bird is persecuting your child.

The gerund suffix *-la* goes back to the postposition *la*, the same which is used in ICM construction. Thus, it is easy to see the continuity between the ICM construction and the modal construction:

(2.59) N (*lè*) *mu* N *la* ‘X is equal to Y’ → N (*lè*) *mu* V-*la* ‘X has to do Y’

Exactly the same type of construction, but with the existential copula *bi* instead of *mu*, gave rise to the imperfective construction which occupies a central position in the expression of verbal predications (see 2.3.2). On the other hand, as has been shown here, the verbal construction with the ICM copula *mu* is used only marginally. I leave open the question of what conditioned this difference. Another question which I have to leave without answer, is why the existential copula is the base of a construction with imperfective/progressive meaning, whereas the identification copula in the same morphological context develops is the source of a necessity modality.

2.3.1.4 Negative ICM constructions

Examples (2.60 a)-(2.60 c) illustrate the different types of negative ICM constructions. As has been already said, contrary to affirmative constructions, in the negation of identity or class-membership, there is no focus marker *lè*, because the focus is contained in *máa*.

(2.60) (a) N_{PRED} *máa* N_{SBJ} *là*

[*má tán*]_{PRED} *máa* *dùgèè* *là*
mà tán *máa* *dùgu-È* *la*
 1PL porperty IDENT.NEG land-ART OBL
 The land is not our property.

(b) N_{PRED} *máa* N_{SBJ} *là*

ǎn *dè* *yònkáyè*_{PRED} *máa* *àn* *nà*
ànu *lè* *yònkáyì-È* *máa* *ànu* *la*
 3PL FOC kakabe-ART IDENT.NEG 3PL OBL
 They are not Kakabe.

(c) N_{PRED} *máa* DEM

kó *kě* *bòbèè* [*ń* *nà* *dén*]_{PRED} *máa* *kè*
kó *keε* *bòbò-È* *ń* *la* *dén* *maa* *kè*
 say this baby-ART 1SG POSS child IDENT.NEG this
 He said: this baby, it is not my child.

(d) N_{PRED} *máa*

kùréé *lè* *báá* *bòlò* *dén*_{PRED} *máa*
kùru-È *lè* *bi à* *bólo* *dén* *máa*
 stone-ART FOC be 3SG arm child IDENT.NEG
 She had a stone in her hands, it was not a child.

The complementarity between the focus marker *lè* and the negative copula *máa* can be interpreted as due to the inherent focus of negation. Among with several other categories, such as marked aspect, imperative, negation is described by many authors as inherently focused, see (Givón 1975; Heine & Reh 1984; Marchese 1983; Hyman 1999). Thus, Marchese (1983: 128) states the following about the intrinsic focus of the negative and imperative constructions: “we are dealing with an African areal feature, whereby languages overtly show assertive focus and, in a systematic and formal way, treat negatives and imperatives as having an inherent focus nature of their own”.

A lexicalized use of the negative ICM construction is the expression of exclusion, as in (2.61) below.

2.3.2.2 Two possession constructions

The main strategy to express possession in Kakabe is a locational possessive, as in (2.64) the largest of the possessive types according to Stassen (2009). I will refer to it as existential possession construction, EPC, by the type of copula used.

- (2.64) *nègèsóè* *bí ò* *bòlò*
 nègesoo-È *bi ò* *bólo*
 bicycle-ART be 1SG hand
 I have a bicycle.

Apart from that, the copula *mu* is used in the construction with possession meaning X_{poss} *lè tán mu* (*Y la*), litt. “X’s property is (on Y)”, e.g. (2.3.2) and (2.65 b). I will refer to it as identification possession construction (IPC).

- (2.65) (a) *fú⁺lán* *dè* *tán* *mú* *dùgée* *là*
 fúla-È-nù *lè* *tán* *mu* *dùgu-È* *la*
 fula-ART-PL FOC property IDENT earth-ART OBL
 The land belongs to Fulbe [not to us].
- (b) *mà lá* *mògée* *lè* *tàn* *mù*
 mà la *mògo-È* *lè* *tán* *mu*
 1PL POSS man-ART FOC property IDENT
 It belongs to our people.

The two constructions are opposed by the distribution of the information structure roles between the possessor and the possessed item. In IPC the focus is on the possessor. Thus, in (2.65 a) above, the possessor ‘Fulbe’ is under the contrastive focus. The out-of focus status of the possessed item also explains the fact that it can be omitted in this construction, as in (2.65 b). By contrast, in EPC the possessor is, in most cases, not in focus, as in (2.64), where the highly activated possessor is referred to by a short pronoun form.

Apart from that, IPC is opposed to EPC as more stable to temporary possession. Thus, EPC in (2.66) could not be replaced by IPC, because the possessed item *wótè* does not, in fact, belong to the referent of the syntactic possessor. Note also that in (2.66) the possessor is in focus, but, as has been said, IPC is ruled out for semantic reasons.

- (2.66) *à* *wótè* *fóó* *tèrè* *bí ò* *dé* *lè* *bòlò*
 à *wóti-È* *fóo* *tère* *bi ò* *lè* *lè* *bólo*
 3SG money-ART UNIV PST.PS be 1SG LG FOC arm
 [and the medicine was sold], and it was me who had all the money from it [but had to give it away afterwards].

Finally, in rare cases, the ICM construction can express possession also without the noun *tán* ‘property’, as in (2.67) below. More data is needed, though, to defined its semantics.

- (2.67) *nìngéé wònù mínnù mú wò là*
nìngi-È wò-nu mín^L-nu mu wò la
 cow-ART that-PL which-PL IDENT that OBL
 The cows that you have, ...

2.3.2.3 Abstract locational

Locational constructions are used to express states, emotions, but also actions, e.g.:

		Sem. role of X	Sem. role of Y
<i>X bi Y bólo</i> X be Y hand	‘Y has X’	Possessor	Possessee
<i>X bi Y fè</i> X be Y with	‘Y likes/loves X’ = ‘Y needs X’	Experiencer	Stimulus
<i>X bi héera tó</i> X be peace on	‘X is fine’	Experiencer	–
<i>X bi Y gbáa la</i> X be Y trace OBL	‘X is following Y’	Agent	Target
<i>kónkè bi Y la</i> hunger.ART be Y OBL	‘Y is hungry’	Stimulus	Experiencer
<i>X lógò bi Y la</i> X wish be Y OBL	‘Y wants X’	X - stimulus	Experiencer

2.3.3 Constructions with property predicates

Kakabe has a small group of lexemes which I will refer to as property predicates which are used as predicates without any copula in the affirmative and in the negative the copula *máa* (*máa^L* in NK) is used between the subject and the predicate.

- | | | |
|--------|----------------------|----------------------------|
| (2.68) | positive | negative |
| | Sbj Predicative | Sbj <i>máa</i> Predicative |
| | <hr/> <i>à gbélé</i> | <hr/> <i>à máa gbélé</i> |
| | ‘It is difficult’. | ‘It is not difficult’. |

Most often, property predicates are used to give an evaluation of a situation, see some examples below:

- (2.69) *à gbélé dé* ‘It is expensive!’ *à kééjín* ‘It is beautiful!’
à kéndé ‘It is true!’ *à dí* ‘It is nice!’
à ján ‘It is far!’ *á fisa* ‘More!’
à sỳà ‘There is a lot of it!’

kàràjè †dí ‘It is good to study!’
kàràjèè sètò máá dí ‘It is not easy to study!’

The property predicates can also refer to the properties of an individual:

- (2.70) *à kéndé* ‘He is in good health!’
à fání ‘He is lying!’
á kùsàn ‘Good job’ (he is able)!
à kééjín ‘He is beautiful!’

The property predicate constructions are often used to refer to an immediate state of affairs. For example, the utterance with the property predicate *à fání* which approximately can be translated as ‘he is lying’, is pronounced in a situation where the speaker claims his disbelief of what has been said. By contrast, in order to characterize somebody as a person who often lies, ICM construction with the nominal predicate would be used, *í fòniya-fɔɔ-laa lè* ‘You are a liar’. In the same way, *kùsan* ‘be good at something, be skilful’, *á kùsan* ‘he’s good at it’ can be pronounced to express the admiration for somebody’s performance of an activity. Thus, in (2.71), from a tale, a child is listening to the song of a lizard and expressing to his mother his emotion about the song.

- (2.71) *ké kùsàn sígè lálá yè*
kè kùsan sígi-È lá-la yè
 this able song-ART sing-GER TRUTH.FOC
 He is singing so well!

Yet, the utterances with property predicates can also be judgements about stable properties, as in (2.72) below:

- (2.72) *à lúúmè kòlò* 3SG market big. ‘The market [of Dogomet] is big’.
kàràjè †dí study.ART good ‘It is good to study’.

I argue that property predicates have inherent assertion focus which accounts for the following distributional properties. First, the utterances with property predicates often contain various types of intensifiers and assertion focus markers, such as the assertion focus marker *dé*, the *kóòbèn* ‘indeed’, *dóndèn* ‘however’, *hákkéè* ‘intensifier’, the assertion focus marker *náni* and the truth focus marker *yè* (2.71), see also (2.73) below:

- (2.73) *à téé †fɔ́ á kèèjìn*
à téé fɔ́ à kèèjìn
 3SG POT.NEG say 3SG pretty

There are no words to express, how beautiful she is!

Second, with the exception of comparative constructions as in (2.74), focalization is very rare in utterances with property predicates. Moreover, a pronominal subject always occurs in the simple form, and never in the long form with *lè*. Excluding the comparative constructions with *fisa*, there are only three examples in the corpus, where the subject is focalized.

- (2.74) *brúsa tó fěnnù fóó sùlúkú lè fisa fààtòyà là*
búrusa tó fěn-nu fóo sùluku lè fisa fàatò-ya la
 bush in thing-PL UNIV hyena FOC be.better insane-ABS OBL

Among all the animals in the bush, the craziest is the hyena.

2.4 Alternation of the copula *bi* with zero

The existential copula *bi* balances on the edge of total disappearance due to its pattern of allomorphs *bi* ~ *i* ~ *b*, where *i* is not far from zero realization (the distribution between these allomorphs is discussed in detail in Section 4.6.5). As I show in this section, apart from the segmental reduction which leaves little of the phonological substance of the marker, the danger can come also from the side of syntax. As it is argued here, the particle *lè* can occupy the same syntactic slot as *bi* and, therefore, makes the presence of the existential copula unnecessary.

In Kakabe, *bi* is not the only copula which alternates with zero, as has been shown earlier. In general, the possibility of zero copula for predicate nominals is common across languages (Stassen 1997). As has been shown earlier, the ICM copula *mu* is, on the one hand, optional and, on the other hand, used in a construction, where the predicate part is focused by *lè* (as I argue, *lè* is absent only when an inherently focussed word is present in the same clause). By contrast, the negative ICM copula *máa* cannot be omitted since otherwise the negation would not be expressed and, at the same time, in the presence of *máa* the predicate part of the construction is not focused by *lè*. The absence of a separate focus marker (*lè* in our case) in this context can be due to the inherent focalization of negation which, according to Marchese (1983) is common for African language. And as for the non-negative copula *mu*, the possibility to omit it is related to the absence of focus in it.

The copula *bi* can be omitted for the same reason as *mu*: it is not inherently focused. In the following sections I will analyze more concretely the mutual distribution of *bi* and *lè*. It will be shown that in some contexts they are treated by grammar as belonging to the same slot, but there is a particular morphonological context, where *lè* cannot replace *bi*.

2.4.1 Optionality of *bi*

Apart from locational predications, the copula *bi* can also be used in progressive and stative-resultative verbal constructions, and in this case the omission is also possible (see examples in 2.3.2.1). This section explores the possibility to omit copula across all the three types of constructions.

The optionality of *bi* is illustrated by (2.75), where *bi* occurs in the first and the third clauses, but not in the last one:

- (2.75) [à lé lè bì tábíré kélá] [à lé lè báára mésénè fó
à lè lè bi tábiri-È ké-la à lè lè báara mése-È fó
3SG LG FOC be food-È make-GER 3SG LG FOC work small-ART all
kélá] [à lé lè bí nìngéènu bitinnà]
ké-la à lè lè bi nìngi-È-nu bitin-la
make-GER 3SG LG FOC be cow-ART-PL milk-GER
It is her who prepares food, it is her who does the little tasks, it is her who milks the
cows.

Table 2.4 shows when the presence of *bi* is obligatory and when it is optional in the progressive, stative and non-verbal (locative and existential) constructions. The usage of the copula depends on two parameters: 1) the presence of *lè* in the post-subject position and 2) the transitivity of the clause, for the progressive and stative constructions.

With respect to the first parameter, it should be noted that the meaning and function of *lè* does not matter. As shown in Section 2.6.1.6, the marker *lè* can mark various types of focus after non-pronominal constituents, and after personal pronouns a single occurrence of *lè* marks a decrease in referent accessibility, whereas double *lè* marks focus. But these differences in meaning and function have no effect on the obligatory or optional character of *bi*. The only parameter which counts, is whether the position after the subject is occupied by *lè* or not, no matter its function is. The cell “*bi* / Ø” stands for the cases where the copula can be omitted, and “*bi*” for the cases when it is obligatory. The table shows that the copula becomes optional in the presence of subject focalization for all constructions. Besides, in the stative construction the copula is optional when the construction is intransitive and obligatory when it is transitive, whereas for the progressive construction it is obligatory in both cases.

		intransitive	transitive
Progressive	Sbj	<i>bi</i>	<i>bi</i>
	Sbj <i>lè</i>	<i>bi</i> / Ø	<i>bi</i> / Ø
Stative-resultative	Sbj	<i>bi</i> / Ø	<i>bi</i>
	Sbj <i>lè</i>	<i>bi</i> / Ø	<i>bi</i> / Ø
Non-verbal	Sbj	<i>bi</i>	
	Sbj <i>lè</i>	<i>bi</i> / Ø	

Table 2.4: Presence of overt *bi* in progressive, stative-resultative and non-verbal constructions

This distribution can be interpreted in the following way. The copula *bi* and the focus marker *lè* can both fill the post-subject slot. At the same time, constructions differ in whether this slot has to be filled or not. In the progressive and non-verbal constructions, the post-subject slot has to be filled and either *lè* or *bi* must be present. By contrast, in the stative-resultative construction, the post-subject slot has to be filled only if the construction is transitive.

The illustrations of the above said are given in the following two subsections.

2.4.2 Optionality of *bi* in the stative-resultative construction

Intransitive stative constructions (which, not surprisingly, are more numerous in the corpus: 35 transitive against 390 intransitive) are almost always used without an overt copula as in (2.76).

- (2.76) *ǹ si⁺gíndén ǹ ná hódē t̀ yǎn d̀*
ǹ sigi-nden ǹ la hódí-È t̀ yàn l̀
 1SG sit-PC.ST 1SG POSS village.ART in here FOC
 I live here in my village.

In the case of intransitive stative-resultative constructions, the use of the copula *bi* is always allowed in elicitation, but it is rare in discourse. Out of 390 intransitive stative constructions occurring in my corpus¹⁰, only three contain the *bi* copula; they are given in (2.77 a)-(2.77 c) below. In (2.77 c) it actually occurs twice which is possible with the past marker *t̀èr̀e*.

- (2.77) (a) *ẁ f̀ i s̀andén d̀*
ẁ f̀ bi s̀an-len l̀
 that UNIV be sell-PC.ST FOC
 All that is sold.
- (b) *i t̀èr̀e bi táándén mín ná*
i t̀èr̀e bi táa-nden mín^L là
 2SG PST.PS be go-PC.ST REL OBL
 Where did you go?
- (c) *i bi t̀ér̀e bi k̀ìb̀òndèn f̀én ná*
i bi t̀èr̀e bi k̀iibo-nden f̀én^L là
 2SG be PST.PS be sleep-PC.ST thing OBL
 What did you see in your dream?
- (d)

2.4.3 The presence of post-subject *l̀è*

Examples (2.78 a)-(2.78 e) attest that *bi* can be omitted when the subject is followed by *l̀è*: in the progressive construction, intransitive (2.78 a) and transitive (2.78 c), as well as in the transitive stative construction in (2.78 d) and in the locative construction in (2.78 e).

- (2.78) (a) *b̀aán d̀ máyítàlà ǹò là à nín s̀ìs̀éénù*
b̀aa-È-nu l̀è máyita-la ǹò la à nín s̀iise-È-nu
 sheep-ART-PL FOC sell-GER there OBL 3SG and chicken-ART-PL
 Sheep are sold there, as well as chicken.

10. The number may include some non-predicative resultative constructions that it was impossible to filter out automatically.

- (b) *i* [†]*lé* *kàrànnà* *mîn*
ì *lè* *kàran-la* *mín^L*
 2SG LG study-GER REL
 Where do you study?
- (c) *wò* *lé* *lè* *kùrséé* *sànnà* *wó* *ɲètè* *yèn*
wo *lè* *lè* *kùrséé* *sàn-na* *wo* *ɲète* *yen*
 2PL LG FOC trousers.ART buy-GER 2PL self BNF
 It is you who buys clothes for yourself.
- (d) *àn* *dé* [†]*lé* *mà* *blòkèlèn*
ànu *lè* *lè* *mà* *blókε-len*
 3PL LG FOC 1PL block-PC.ST
 They are blocking us.
- (e) *mǎ* [†]*lé* *lè* *ɲóò* *là*
mà *lè* *lè* *ɲóò* *là*
 1PL LG FOC here OBL
 We are here.

The overt copula is always an available option, cf. (2.79).

- (2.79) *kě* *lè* *bí* *ń* *tódèèmannà*
kè *lè* *bi* *ń* *tódèèman-la*
 this FOC be 1SG help-GER
 It is him who helps me.

As argued earlier, the focus particle *lè* may take up the function of copula, therefore, the partial complementarity between *lè* and *bi* might be due to their functional overlap.

2.4.4 Morphological constraints on copula omission

The possibility to omit *bi*, licensed by the presence of *lè* in the post-subject slot, is overruled by the presence of *à* or *ànu* in the DO position: if *lè* is present after the subject, but the object position or the position of the non-verbal predicate is occupied by the pronouns *à* or *ànu*, the overt copula is obligatory. In this case *bi* is merged with the pronoun and the initial consonant can be occlusive or non occlusive (see 4.6.5.1 about the allomorphs of *bi*).

- (2.80) (a) *ń* *dé* *lè* *yáá* *lábòrilà* \ **ń* *dé* *lè* *á* *lábòrilà* \ **ń* *dé* *l**áá* *lábòrilà*
ń *lè* *lè* *bi* *à* *la-bòri-la*
 1SG LG FOC be 3SG CAUS-run-GER
 I will drive it.

- (b) *ń* *dórón* *dè* *báá* *fòlà*

n *dóron* *lè* *bi* *à* *fɔ-la*
 1SG only FOC be 3SG say-GER
 Only I say it.

(c) *ké* *lè* *là* *báá* *là* *dépè* *là* / **ké* *lè* *à* *là* *dépè* *là* / **ké* *láá* *là* *dépè* *là*

kè *lè* *bi* *à* *la* *dén-È* *la*
 this FOC be 3SG POSS child-ART OBL
 This is her child.

By contrast, the presence of the 2SG pronoun which is also onsetless, does not require an overt copula; compare (2.81 a) and (2.81 b) with no overt copula before *i*, and (2.81 c) with the copula.

(2.81) (a) *i* *dóron* *dè* *i* *lá* *sènéè* *bààràlà*
i *dóron* *lè* *i* *la* *sène-È* *báara-la*
 2SG alone FOC 2SG POSS field.ART work-GER
 You work your field alone.

(b) *ké* *lè* *i* *lá* *àpàràntéé* *lè* *là*
kè *lè* *i* *la* *àparanti-È* *lè* *la*
 his FOC 2SG POSS apprentice-ART OBL
 This is your apprentice.

(c) *fɛn* *dè* *bíi* *lè* *fɛ*
fɛn *lè* *bi* *i* *lè* *fɛ*
 what FOC be 2SG FOC with
 What do you want?

As shown in Section 4.6.2 the object pronouns *à* and *ànu*, on the one hand, and the pronoun *i*, on the other hand, display different morphological behavior with respect to the preceding auxiliary. The pronouns *à* and *ànu* almost obligatorily fuse with all the auxiliaries, whereas *i* forms one syllable with the auxiliary only if its vowel is also an *i*, e.g.:

ni SBJV + *i* → [ni:], but *ka* + *i* → [ka i].

This leads to the following conclusion. The merger with a copula or an auxiliary has become obligatory for *à* or *ànu* in DO position and in the post-subject position in a non-verbal predication. At the same time, morphologically, *lè* is not treated as a copula, therefore, it cannot merge with a pronoun.

2.4.5 Summary

The analysis of the mutual dependency in the distribution of *bi* and *lè* suggests that *lè* can be treated as a copula at the syntactic, but not at the morphological level. Thus, two phenomena, by which *lè* is treated differently, have been singled out as the result of the investigation:

- the necessity for the post-subject slot to be occupied: => *lè* is treated as identical to *bi*;
- the requirement of *à* to merge with copula/auxiliary => *lè* is treated as different from *bi*.

2.5 Noun phrase

A noun phrase consists minimally of the head with the article. The head can be accompanied by modifiers, quantifiers, determiners. The order is represented in (2.82) below, followed by some examples.

(2.82) (Poss) (Det₁) N (Adj) (Num) (Det₂) (Quantifier)

<i>mùséénù wò fòó</i>	N that Quantifier	‘all these women’
<i>mùsù tán fòó</i>	N Num Quantifier	‘all the ten women’
<i>mùsù kótó filà</i>	N Adj Num	‘two old women’
<i>wó mùsù kótó filà</i>	Det N Adj Num	‘these two old women’

The plural suffix *-nu* is characterized by a low degree of grammaticalization. This marker attaches at the end of the NP, after the referential article, e.g. *mùsù kótè-nù* woman old-ART-PL ‘old women’.

2.5.1 Possessive construction

Typically for Mande, Kakabe has two possessive constructions:

- alienable possession construction, with the simple juxtaposition of two NPs, (2.83 a)
- inalienable possession construction, with the linker *la* between the two NPs (2.83 b)

The alienable possession construction is used with body parts, most kinship terms, part-whole relationship terms, etc, cf. (2.83 a) and (2.83 b).

(2.83) (a)	<i>mùsèè bólè</i>	woman.ART hand.ART	‘woman’s hand’
	<i>mùsèè bààbà</i>	woman.ART father	‘woman’s father’
	<i>kòndéè gábùntáñè</i>	bird.ART wing.ART	‘bird’s wing’
	<i>mùsèè kúnpà</i>	woman.ART ignorance.ART	‘woman’s ignorance’
	<i>mùsèè sèè</i>	woman.ART life.ART	‘woman’s life’
(b)	<i>mùsèè là sáákòè</i>	woman.ART POSS bag.ART	‘woman’s bag’
	<i>mùsèè là náákòè</i>	woman.ART POSS garden.ART	‘woman’s garden’

The kinship terms *déñè* ‘child’, *káyèè* ‘husband’, *mùsèè* ‘wife’ are used in inalienable construction, *bítáñè* the general term for in-law relation, *sínáà* ‘co-wife’ can be used both in alienable and inalienable constructions.

The alienability opposition is not a purely lexical phenomenon, though. Thus, the choice between the possessive linker construction and simple juxtaposition is not always determined by the head lexeme. For example, *wótè* ‘money’ can be used in the inalienable possession construction, e.g. *nìgèè wótè* ‘the cow’s money’ in the meaning ‘the money received from the selling of the cow’. In speech, however, *wótè* occurs more often with an alienable possessor, referring to the person who holds the money. Since the discourse function of the possessor is to anchor a referent (Langacker 1995; Haspelmath 1999; Koptjevskaja-Tamm 2001), the more frequent use of ‘money’ in alienable construction, is due to the fact that, in most cases, it is more efficient to identify it through the person who holds it than through the bought object. To sum up, the association of a lexeme with a particular type of possession construction can have a semantic basis apart from being defined lexically.

2.5.2 Referential article

The segmental realization of the referential article *-È* was described in Chapter 4, see Section 4.6.4, and the tonal realization of the article is described in Chapter 3, see Section 5.9.1. NPs almost always occur with this article which corresponds to Greenberg’s (1978) general article, or stage 3 in the definiteness cycle. See (2.84), where *nègesòè* ‘bicycle’ is used with the article, though it is new and indefinite.

- (2.84) *mòyén dè bélé í bààbà yén nùn à ní nègèsòè sà̀n*
mòyèn lè béle ì bàaba yen nùn à ni nègesoo-È sà̀n
 means FOC be.NEG 2SG father BNF PST 3SG SBJV bicycle-ART buy
í yèn
ì yen
 2SG BNF
 Your father didn’t have money to buy you **a bicycle**.

2.5.3 Bare noun

The appearance of a bare noun is, in general, due to two reasons: 1) lack of existential closure; 2) lexicalized usage.

2.5.3.1 Absence of existential closure

Bare singular in Kakabe can appear under the following operators: (a) negation, (b) modality, (c) genericity. The feature common to these three contexts is the absence of an existential closure. Apart from that, bare singulars are used in the predicative position, though they are in free variation with suffixed forms.

- (2.85) (a) *bìrèédì béle yàn* $\neg\exists x$ [bread(x), be here]
 bread be.NEG here ‘There is no bread here (generic reading)’
 (b) *bìrèédè béle yàn* $\exists x\neg$ [bread(x), be here]
 bread.ART be.NEG here ‘The bread is not here (specific reading)’.

Examples (2.86 a)-(2.86 b) below illustrate the bare noun in different kinds of modal environment:

(2.86) (a) Circumstantial possibility

àn sí gátó sà̀n à̀n sì b̀̀nbǹ̀n sà̀n à̀n sí l̀̀è̀m̀̀ú̀né sà̀n
à̀nu si gátó sà̀n à̀nu si b̀̀nbǹ̀n sà̀n à̀nu si l̀̀è̀m̀̀uné sà̀n
 3PL POT cake buy 3PL POT candy buy 3PL POT orange buy
 [If parents give some money to the children] they can buy cakes, candies, oranges.

(b) Obligation (deontic modality)

mà nì f̀̀én dó b́́ b̀̀út̀̀ùn mà nì ẃ́tí b́́ máá mà
mà ni f̀̀én do bó b̀̀út̀̀ùn mà ni ẃ́tí bó máá mà
 1PL SBJV thing one give first 1PL SBJV money give or 1PL
ní bàà b̀̀ máá mà ní ǹ̀ngì b̀̀
ni bàa bó máá mà ni ǹ̀ngì bó
 SBJV sheep give or 1PL SBJV cow give
 [When the Fulbe come,] we are obliged to give them something: some money or a sheep, or a cow.

Bare nouns can be used as **predicate** expressions, e.g. (2.87); more examples can be found in (2.3.1).

(2.87) *ì lá k̀̀à̀yéé mù k̀̀è̀m̀̀ó̀g̀ó l̀̀è là*
ì la k̀̀à̀yi-È mu k̀̀è̀m̀̀ó̀g̀o l̀̀è la
 2SG POSS man-ART IDENT old.man FOC OBL
 You husband is an old man.

Such transitive predicates as ‘look for’, ‘wish’, ‘need’ can take an object lacking existential closure. In (2.88) the bare NP *lógɔ* ‘wood’ is in the scope of the predicate *nini* ‘look for’:

(2.88) Bare N: ‘wood’ in the scope of ‘look for’

mà bát tága lógó nini díyà
mà báti tága lógɔ nini díya
 1PL PRF go wood look.for for
 We go to look for wood.

vs. N-ART: (‘wood’ has higher scope than the predicate expression ‘look for’).
 $\exists x$ [look for wood (x)]
mà bá' tága lógè nini díyà $\exists x$ [look for wood (x)]

Cf. the bare nouns vs. suffixed noun after the intentional predicate *lógɔ* ‘wish, need’:

(2.89) Bare N: [I need_w[hoe(x_w)]

kéri lógó bí ñ nà
 kéri lógó bi ñ la
 hoe with be 1SG OBL
 I need a hoe.

vs. *kéré lógó bí ñ nà* $\exists x$ [I need hoe(x)] ‘I need the hoe’.

2.5.3.2 Lexically determined use of bare nouns

Generic nouns, or ontological-category nouns such as *mògɔ* ‘person’, *fɛn* ‘thing’, *túma* ‘time’, *kóo* ‘subject, topic’, *kán* ‘place’ commonly occur in the bare form. There is no boundary between the bare nominals and the indefinite pronouns which originate from generic nouns. As in Section 6.5.3, the generic nouns *kóo* ‘subject, topic’, *fɛn* ‘thing’ and *dóo* ‘one’, serve as the basis for the indefinite pronouns and the three polarity items.

The noun *tógɔ* ‘name’ has no article when it is used in the construction ‘to be called X’, cf. (2.90) vs. (2.90), where *tógɛ* is used not predicatively but as an argument:

(2.90) à *tógɔ* lè *lásídá* *ísà* *kéyà*
 à *tógɔ* lè *Lásida* *Ísa* *Kéyà*
 3SG name FOC
 His name is Lasida Isa Keyta.

à *máá* ⁺*lá* *kàyéè* *tógɛ* *lòn*
 à *máa* à *la* *kàyéè* *tógɔ-È* *lón*
 3SG PFV.NEG 3SG POSS man-ART name-ART know
 She doesn’t know the name of her husband.

The other case of lexicalized use of a bare noun is *lógɔ* ‘wish’ in the volitional construction as in (2.91) below:

(2.91) *wó* lè *lógɔ* *bí* *mà* *là*
 wó lè lógɔ bi ma là
 that FOC wish be 1PL OBL
 That is what we want.

Yet, more rarely, *lógɔ* is used with the article. In the corpus 29 occurrences of it have no article and only three are combined with the article; they are given below. As can be seen, the form with the article can be used in the same context as the bare form, cf. (2.91) and (2.92).

(2.92) *jíí* *lógɛ* lè *káá* *bìtà*
 jíí lógɔ-È lè ka à *bìtà*
 water wish.ART FOC PFV.TR 3SG catch
 He became thirsty.

ò òì ðén lógè bó ì là
 ò òì ðén lógò-È bó ì là
 1SG SBJV child wish.ART take 2SG OBL

So that I will relieve you of your longing to have children.

ké lé lógè †í ò nà
 kè lè lógò-È bi ò là
 this FOC wish.ART be 1SG OBL

This is what I need.

Names for elder relatives are used without article; see the list below. The elder relatives display special morphological behavior in many Mande languages which, according to Vydrin (2006) testify for their belonging to a nominal class at some earlier stage.

(2.93)

<i>bàaba</i>	‘father’	<i>bàrinba</i>	‘aunt (maternal uncle’s wife)’
<i>nèene</i>	‘mother’	<i>mànkay(i)</i>	‘grand father’
<i>jàaja</i>	‘elder sister’ (NK)	<i>nèenedɔgɔman</i>	‘younger aunt’
		<i>~ nendɔgɔman</i>	
<i>tàata</i>	‘elder sibling’ (NK)	<i>nèene kìnama</i>	‘aunt (mother’s elder sister)’
<i>bàanba</i>	‘uncle (father’s elder brother), aunt (mother’s elder sister)’ (NK)	<i>bàaba kìnama</i>	‘uncle (father’s elder brother)’
<i>kàawu</i>	‘uncle (mother’s brother)’	<i>bénba</i>	‘grandfather’
<i>yàaye</i>	‘paternal aunt’	<i>báppa</i>	‘uncle’.
<i>màama</i>	‘grandparent’	<i>màamasɔrɔ</i>	‘great-grand father’

2.5.4 Adjectives

Cross-linguistically, adjectives do not constitute a universal word class, as opposed to nouns and verbs. Besides, in languages where they are present, they often form a closed class (Dixon 1977; Schachter 1985; Wetzer 1996). In Central Mande languages adjectives are often absent as class or limited in number; see the discussion in Lüpke (2005: 97).

Kakabe belongs to those Mande that do have a group of property words, even though a limited one, that can be distinguished on formal grounds. I use the terms adjectives for those words that are used in the attributive position within an NP, i.e. after the head noun and before the article, e.g. *kùrsù sùtúnè* trousers short.ART ‘short trousers’.

There is no agreement, the referential article and the number marker appears only once within the NP, after the adjective, e.g.:

- (2.94) *mángó wúlénènù*
 mángo wulen-Ē-nu
 mango red-ART-PL
 red mangoes

There are 57 lexemes that are used only attributively. Apart from that, Kakabe has a group of property concept words that are used predicatively and that I refer to as property predicates, their use is described in Section 2.3.3.

The verb-adjective differentiation is weak, for example, *wúlen* ‘(be) red’ is used both as a verb (2.95 a) and as an attribute in NP (2.95 b):

- (2.95) (a) *mángòè bítí wúlen*
 mango.ART PFV.OF (be)red
 The mango has become red.
- (b) *à bítí mángò wúlénè dàmù*
 3SG PFV.OF mango red.ART eat
 He has eaten a red mango.

There are 27 words in my lexicon that can be used both in the attribute position within NP and as property predicates, i.e. as predicates without any auxiliaries in the affirmative utterances (see 2.3.3 about property predicates):

- (2.96) (a) *à gbándí*
 3SG hot
 It is hot!
- (b) *à bí kàrò gbándè dàmùlà*
 3SG be rice hot.ART eat-GER
 He is eating hot rice.

A number of them are formed with the suffix *-ma(n)* from verbs or from property predicates:

- (2.97) property predicate attributive use
- | | | |
|--------------|---------------------|-------------|
| <i>dógò</i> | → <i>dógòma</i> | ‘little’ |
| <i>bónò</i> | → <i>bónòma</i> | ‘ugly’ |
| <i>gbèlè</i> | → <i>gbèlèma(n)</i> | ‘difficult’ |
| <i>wítu</i> | → <i>wítuma</i> | ‘short’ |
| <i>kúna</i> | → <i>kúnama</i> | ‘bitter’ |

Two adjectives are formed from verbs:

- (2.98) property predicate attributive use
- | | | | |
|-------------|---------------|------------------|----------|
| <i>sìya</i> | ‘be numerous’ | → <i>sìyaman</i> | numerous |
| <i>dìya</i> | ‘be pleasant’ | → <i>dìyama</i> | pleasant |

2.5.5 Numerals

Adnominal numerals occur after the noun, e.g. *wùlú filà* ‘two dogs’; *wùlú sàbà* ‘three dogs’. Table 2.5 gives a list of basic numerals used in Kakabe. As can be seen, ‘thousand’ is denoted by two different nouns in the dialects of Kakabe: *wáa* in CK and *wùlu* in WK and NK¹¹. See Section 5.8.2 on the floating L of the numerals.

1	<i>kélen^L</i>	21	<i>mùgán⁺ nín kélen^L</i>
2	<i>fila</i>	30	<i>bíisàba</i>
3	<i>sàba</i>	40	<i>biinàani</i>
4	<i>náani</i>	80	<i>bíi⁺ wórówilà</i>
5	<i>lóolu</i>	90	<i>bíikòntò</i>
6	<i>wórò^L</i>	100	<i>kème</i>
7	<i>wóròwila</i>	200	<i>kème fila</i>
8	<i>ságin</i>	1 000	<i>wáa kélen^L</i> (CK); <i>wùlu kélen^L</i> (WK, NK)
9	<i>kòntò^L</i>	2 000	<i>wáa fila</i> (CK); <i>wùlu fila</i> (WK, NK)
10	<i>tán^L</i>	10 000	<i>wáa tán</i> (CK); <i>wùlu tán</i> (WK, NK)
11	<i>tán⁺ nín kélèn</i>	100 000	<i>wáa kème</i> ; (CK); <i>wùlu kème</i> (WK, NK)
12	<i>tán⁺ nín fila</i>	1 000 000	<i>míliyòñ kélen^L</i>
20	<i>mùgan^L</i>		

Table 2.5: Kakabe numerals

Numerals (2.99a) differ from nouns, adjectives and determiners by the way they combine with the article as well as by their tonal behavior. Unlike nouns (2.99b) that in most cases occur with the referential article, numerals are mostly used without it. Unlike adjectives (2.99c), numerals do not form a tonally compact group with the noun and, again, mostly occur without the article the article. Finally, they differ from determiners (2.99a) in that the noun before the numeral is, in most cases, without the referential article.

(2.99)	(a)	N + Num:	<i>mùsù</i>	<i>filà</i>	<i>kètà</i>	
			woman	two	arrived	‘Two women arrived.’
	(b)	N	<i>mùséè</i>	<i>kètà</i>		
			woman.ART	arrived		‘The woman arrived’
	(c)	N + Adj:	<i>mùsù</i>	<i>kótè</i>	<i>kètà</i>	
			woman	old.ART	arrived	‘An old woman arrived.’
	(d)	N + Dtm:	<i>mùséè</i>	<i>dò</i>	<i>kètà</i>	
			woman.ART	certain	arrived	‘A certain woman arrived.’

11. These two nouns correspond to the two roots which denote ‘thousand’ across Mande languages.

2.5.5.1 Article in phrases with numeral

The referential article is possible in an NP with a numeral, but the conditions of the use of the article in it is different compared to NPs without numerals. Table 2.6 shows the number of numerals with the article (Num- \dot{E}) compared to the number of numerals without the article (Num \emptyset) in my corpus.

	Num- \dot{E}		Num \emptyset		Total	
<i>kélen^L</i> ‘one’	39	23%	127	77%	166	100%
numerals excluding <i>kélen^L</i> ‘one’	6	1%	624	99%	630	100%
Total	45	6%	751	94%	796	100%

Table 2.6: Proportion of numerals with the article - \dot{E} in the Kakabe corpus

If *kélen^L* ‘one’ and other numerals are considered together, the article is added in only 6% of cases. This proportion is reduced to one percent if one excludes the numeral *kélen^L* ‘one’. On the other hand, if only *kélen^L* is taken into account, this numeral occurs with the article in 39 tokens out of 166. This relative abundance of the form with the article (*kéléjè*) is due to the fact that *kélen^L* is used not only as a numeral. As it is common for the numeral ‘one’ cross-linguistically, *kélen^L* is used in Kakabe not only to enumerate referents, but also to signal the indefinite referential status. This is, for example, the case of *kéléjè* within the NP *à là dénmúsú kéléjè* ‘one of his daughters’ in (2.100):

- (2.100) *à kàà là dénmúsú kélé⁺jé tà kàà dáà mà*
 à ka à la dénmusu kélen^L- \dot{E} tà kà à dí à ma
 3SG PFV.TR 3SG POSS daughter one-ART take INF 3SG give 3SG to
 He took a daughters of his and gave her to him [as a servant].

Besides, there are six occurrences of *kéléjè* as part of the kinship term *nèèné kéléjè* ‘sibling from the same mother’, where it is evidently not a numeral.

Going back to the other numerals (apart from *kéléjè*), the form with the article is likely to appear if the phrase with the numeral also contains a determiner, as the determiner *wò* ‘this’ in *wò kíló lóólè* ‘these five kilograms’ from (2.101). In this example the NP ‘five kilograms’ in the DO position contains no article in its first occurrence (*kíló lóólú*), whereas in the following utterance it does have the article - \dot{E} (*kíló lóólú*). Importantly, an NP without a numeral would contain an article in both of the contexts.

- (2.101) *àhà ì kà kíló lóólù kì(0.50) ì kà kíló*
 àhà ì ka kíló lóólú kí ì ka kíló
 well 2SG PST.TR kilogram five plant 2SG PST.TR kilometre
jèlù sòtò bá ì tí wò kíló lóólè kì
 jèlù sòtò bá ì báti wò kíló lóólú- \dot{E} kí
 how.many? get as 2SG PRF that kilogram five-ART plant

So, you have planted five kilograms [of potato]... How many kilograms did you get after you planted these five kilograms?

Creissels & Sambou (2013: 221) for Mandinka and Creissels (2009a: 107) for Kita Maninka argue that the article in the numeral phrase marks definiteness, whereas otherwise it is a referentiality marker. Yet, in the case of Kakabe it is not certain that the definiteness is responsible for the appearance of the article on the numeral. For example, neither in (2.102 a) nor in (2.102 b) does the NP with the numeral and the article refer to a definite referent¹².

(2.102) (a) *à bání sà̀n náà̀nè lè kè*
 à bání sà̀n náani-È lè ké
 3SG PFV.OF year four-ART FOC do

He spent there four years.

(b) *tèlè kélépè tò tábirè s̀i kè kóó sà̀bà*
 tèlè kelen^L-È tò tábiri-È si ké kóó sà̀ba
 day one in cooking-ART POT do time three

[In the past] during one day the food would be prepared three times.

2.5.5.2 Numerals and the plurality marker

The plurality marker can also be present in the NP with a numeral. It can attach to the numeral only, as in (2.103 a) and (2.103 b) or both to the head noun and to the numeral, as in (2.103 c). The plurality marker is always preceded by the article.

(2.103) (a) *kámárén m̀ògò filáà̀nù bì b̀òlèn à̀ni bì tágá̀lá*
 kámaren m̀ògò fila-È-nu bi bó-len à̀nu bi tága-la
 young.man man two-ART-PL be leave-PC.ST 3PL be go-GER
 ɲínírè dú̀lá
 ɲíniri-È dú̀la
 searching-ART for

Two young men went out searching

(b) *músà lá ẁùlé̀nù filá*
 Músà la ẁùlu-È-nu fila
 Musa POSS dog-ART-PL two
 the two dogs of Musa [proper name]

(c) *bà̀nà̀nà̀nú filáà̀nù dí*
 bà̀nana-È-nu fila-È-nu dí
 banana-ART-PL two-ART-PL good

The two bananas are good.

Example (2.104) contains two NPs with the numeral *fila* ‘two’ each. In the first NP *nè̀nè̀ kélénmà̀nù filáà̀* ‘the children of the same mother’ the plural suffix *-nu* is added after the

12. Creissels & Sambou (2013: 221) mention in a footnote that in Mandinka cases can be found where a numeral occurs with the article even though the corresponding referent is not definite. According to their interpretation, this is due to the fact that the article in NPs with a numeral is being extended from definiteness contexts to being used as the maker of referentiality, the function it already fulfills in NPs without numerals.

noun, whereas in the second one (*bààbà kélémáá filáànù* ‘the children of the same mother’) it occurs after the numeral. Note that in both cases the plural marker is preceded by the article.

- (2.104) *nèènè kélénmáànù filáà téèmà máá bààbà kélémáá filáànù*
nèene kelenmaa-È-nu fila téema máa bàaba kelenmaa fila-È-nù
 mother sibling-ART-PL two between or father sibling two-ART-PL
téèmà
téema
 between

[This are the relations between people there:] between the children of the same mother of between the children of the same father father.

2.5.5.3 Complex numerals

Within a complex numeral, the combined numbers can be simply juxtaposed to the name of a unit (less than ten), as in (a), or separated by the conjunction *nín* ‘and’ (b) or by its equivalent *àní*¹³ (c):

- (2.105) (a) Num₁ Num₂ *bí[†]lóólú sàbà* ‘fifty three’
 (b) Num₁ *nín* Num₂ *bí[†]lóólú nín sàbà* ‘fifty three’
 (c) Num₁ *àní* Num₂ *bí[†]lóólú àní sàbà* ‘fifty three’
- (2.106) (a) Num₁ Num₂ *kèmè bílòòlù* ‘hundred fifty’
 (b) Num₁ *nín* Num₂ *kèmè nín bílòòlù* ‘hundred and fifty’
 (c) Num₁ *àní* Num₂ *kémé àní bílòòlù* ‘hundred and fifty’

When a compound numeral is used adnominally, the head noun occurs mostly only once, as in (2.107 a). But the it can also be repeated in the second conjunct; see (2.107 b) where *sàn* ‘year’ occurs both with the name of the tens *bílòòlù* ‘fifty’ and with the name of the unit *wóóró* ‘six’.

- (2.107) (a) *wò ní tèle [†]múgán [†]nín kònóntò sún*
wò ni tèle mùgan^L nín kònóntò sún
 2PL SBJV twenty and nine fast
 You fast for twenty nine days.

- (b) *à bás sà̀n bílòòlù nín [†]sán wóóró b̀̀*
à báti sà̀n bílòòlu nín sà̀n wóóró^L bó
 3SG PRF year fifty and year six leave

[For how long have you been an iron monger?] –It has been 56 years.

13. The connector *àní* goes back to the combination of *nín* ‘and’ and the 3SG pronoun *à* but is no more segmentable, see 2.6.1.5.

2.5.5.4 Counting human referents

When human referents are counted, the numeral can be preceded by *m̀̀gɔ* ~ *m̀̀*¹⁴ ‘person’ functioning as a count word. The count word is not obligatory, and the numeral can be added directly to the noun of human, cf. (2.108 a) without *m̀̀(ɡ)ɔ* and (2.108 b) with it. At the same time, the presence of *m̀̀(ɡ)ɔ* is more frequent than its absence: the numeral is added directly to the noun referring to a human in 10 cases in my corpus against 21 cases when *m̀̀(ɡ)ɔ* separates the noun from the numeral.

(2.108) (a) *̀̀n b́́tí m̀̀sù filà tà*
 ̀̀n b́́tí m̀̀su filà tà
 1SG PFV.OF woman two take
 I have (married) two women.

(b) *m̀̀sú m̀̀gɔ ś́bá lè b́́àà b̀̀lò*
 m̀̀su m̀̀gɔ ś́ba lè bi à bólo
 woman person three FOC bi 3SG at
 He has three women.

Importantly, the combination of the count word and the numeral after it forms a tonally compact group. As it is described in Section 5.9.2.1, in a tonally compact group, tones of all non-initial elements are deleted and the tone of the first element spreads on the whole sequence. Thus, in (2.109) the numerals *filà* ‘two’ and *náani* ‘four’ lose their tones, L and H respectively, and the L from *m̀̀gɔ* spreads on them.

(2.109) (a) *m̀̀su m̀̀gɔ filà* → *m̀̀sú m̀̀gɔ-filà*
 woman person two ‘two women’

(b) *m̀̀su m̀̀gɔ náani* → *m̀̀sú m̀̀gɔ-nààni*
 woman person two ‘four women’

Example (2.110) contains two tonally compact groups: first, the noun with the adjective (*m̀̀su kɔ́tɔ*), second, *m̀̀gɔ* with the numeral:

(2.110) (a) *m̀̀su kɔ́tɔ m̀̀gɔ filà* → *m̀̀sù-kɔ́tɔ m̀̀gɔ-filà*
 woman old person two ‘two old women’

(b) *m̀̀su kɔ́tɔ m̀̀gɔ náani* → *m̀̀sù-kɔ́tɔ m̀̀gɔ-nààni*
 woman old person two ‘four old women’

The construction with *m̀̀(ɡ)ɔ* is also used when the human referent is represented by a personal pronoun, as in (2.111):

14. The omission of the intervocal *g* is possible in other occurrences of the word in other contexts as well.

- (2.111) *má m̀̀g̀̀ ñà̀̀ni*
mà m̀̀g̀̀ náani
 1PL person four
 the four of us

There is only one case out of 21 when the construction with *m̀̀(g)̀̀* and numeral and only one of tokens contains the referential article, it is represented below:

- (2.112) *m̀̀s̀̀ ñò̀̀tè m̀̀g̀̀ wó̀̀rè ↑fó̀̀pú tá̀̀nínítá*
m̀̀su ñò̀̀t-È m̀̀g̀̀ wó̀̀r-È ↑fó̀̀pú tá̀̀nínin-ta
 woman old-ART man six-ART UNIV look.for-PST.INTR

They were looking for all the six old women.

2.5.5.5 Ordinal numbers

The ordinal numerals are formed with two suffixes *-nɔgɔ* and *-nan ~ -jan*. Only *-nɔgɔ* is used in NK and WK. In CK the *nan ~ jan* is in free variation with *-nɔgɔ* and the former occurs much less frequent than the latter. The ordinal number behaves as an adjective: first, an article is suffixed to it, second, it forms a tonally compact group with the preceding noun (5.9.2.1), cf. *lòolu* ‘five’ and *sàba* ‘three’ pronounced with the same tone when part of an ordinal numeral in (2.113 a) and (2.113 b).

- (2.113) (a) *dén lóólúnógè = dé́n lóólúnánè ~ dé́n lóólúnánè*
dén lóolu-nɔgɔ-È
 child five-ORDIN-ART
 the fifth child
- (b) *dén sábanógè = dé́n lóólúnánè ~ dé́n lóólúnánè*
dén sàba-nɔgɔ-È
 child five-ORDIN-ART
 the third child

In (2.114) is given an example of an ordinal numeral formed from a complex numeral. As can be seen, one the H tone of *bii* is preserved all the other tones until the L of the article are deleted:

- (2.114) *tè̀̀lè bíisábá nín kélénnógè*
tè̀̀le bíi^L-sàba nín kelen^L-nɔgɔ-È
 day ten-three and one-ORDIN-ART
 thirty first day

2.5.5.6 Juxtaposition and reduplication of numerals

The numerals of the same level (names of tens vs. names of tens vs. names of thousands etc.) can be juxtaposed with the meaning of more than one possibility of quantification. Thus, in (2.115) *m̀̀g̀̀ ñí̀̀lá sà̀̀bà* means ‘two or three people’, the same way as *two-three people* in English can have this meaning.

- (2.115) *mògó filá sàbà(0.50) wó †lé ràyì kàlà ké†lén tàlà*
mògɔ fila sàba wò lè ràyi kàla kélen^L tà-la
 man two three that FOC rail stick one take-GER

[A rail is heavy to carry] Two or three people would carry one rail.

To express the same meaning, the numbers can be separated by the preposition *háa* which is otherwise used with the meaning ‘until’ (2.116 a) with the possible repetition of the head noun (2.116 b) and (2.116 c):

- (2.116) (a) *mà yáá †kélá lè grúpú filà háá sàbà*
mà bi à ké-la lè grúpu fila háa sàba
 1PL be 3SG do-GER FOC group two until three

We do it [splitting] in two or three groups.

- (b) *mà sá†á ké tèle filà háá tèle sàbàà*
mà si à ké tèle fila háa tèle sàba
 1PL SBJV 3SG do day two until sun three

We would do it two or three day.

- (c) *mà í tàmbi hódó lóólú háá wóóró là*
mà si tàmbi hódó lóolu háa wóorɔ^L là
 1PL POT pass village five as.far.as six LOC

[While going there] we would pass five or six villages

Finally, in Kakabe, the distributive meaning can be rendered though reduplication, which is a way widely attested cross-linguistically (Gil 2013). See (2.117) were *wáa mùgan^L* ‘twenty thousand’ is repeated to render distributive meaning:

- (2.117) *mà káà kè wáá †múgán †wáá mùgân*
mà ka à ké wáa mùgan wáa mùgan^L
 1PL PFV.TR 3SG thousand twenty thousand twenty

We payed twenty thousand for each of them [Litt.: “We made it twenty thousand twenty thousand”].

2.5.6 Indefinite marker and other uses of *do(o)*

The pronoun *dó(o)* which goes back to the numeral ‘one’, is used as a weakly grammaticalized indefinite marker when occurring in the adnominal position. The variation between the long (*dóo*) and the short (*dó*) variant is supposedly free, but more systematic investigation is needed to find out how the two variants are distributed. In the line of underlying forms in the glossed examples it is represented by *dó*.

In the argument position *dó(o)* functions as the indefinite person pronoun; this usage is described in Section 6.5.3. Apart from that, in combination with the referential article, *dóè* is used in contexts with more than one prominent topical referent referring to either of them.

In this alternating topic use, *dóè* is used adnominally and pronominally. These usages are summed up below:

adnominal	NP-ART <i>dó(o)</i>	indefinite: unknown to the hearer/ speaker
pronominal	<i>dó(o)</i>	personal indefinite pronoun
adnominal	NP <i>dóè</i>	topic opposed to another highly activated referent
pronominal	<i>dóè</i>	

Examples (2.118 a)-(2.118 c) illustrate *dó(o)* used adnominally as an indefinite marker. As can be seen, it can be used with referents unknown to the hearer, or both to the hearer and the speaker.

(2.118) (a) Unknown to the hearer

mùsù kótè dò bí mà bátá nùn Dògòmè
 mùsu kòtə-È dó bí mà bátá nùn Dògəme
 woman old-ART one be 1PL house PST Dogomet
 There was an old woman at our place, in Dogomet.

(b) Unknown to the hearer and to the speaker

yón tùgún ká tàlèè dò lòn
 yón^L túgun ka tàli-È dó lón
 who? again PFV.TR tale-ART one know
 Who else knows another tale?

(c) Unknown to the hearer

òn bènta yànnétò dòn séè dò là
 n bèn-ta yànnétə dònso-È dó la
 1SG meet-PFV.INTR there hunter-ART one OBL
 I met a hunter there.

As has been said, *dó(o)* is not advanced in grammaticalization as an indefinite marker. Thus, only a minor part of NPs referring to previously unactivated referents are accompanied by *dó(o)*. The adnominal *dó(o)* is used primarily with referents which occupy high position on the prominence hierarchy. Thus, out of 75 tokens of *dó(o)* NPs in the CK subcorpus, the referent of the expression is human, or a character in a tale in 59 cases, and in 10 cases it is used to denote a topic of a conversation, as *yèwtéréè dò* ‘a speech’ in (2.119):

(2.119) *yèwtéréè dò bí ò bólo yàn ò sì mín fò*
 yèwtéré-È dó bí ò bólo yan ò si mín^L fò
 speech-ART one be 1SG arm that 1SG POT which say
 I have something to tell you.

Example (2.120) illustrates the use of *dóo* as an indefinite pronoun; for more examples, see Section 6.5.3.

- (2.120) *à téé nòn dóó kéléla à bàtà*
à téé nòn dó kélé-la à báta
 3SG NEG.POT can one call-GER 3SG at
 He cannot call anybody at his place.

In the form with the article, *dòè* acquires alternative topic meaning. It is used when different alternatives are singled out within an activated set of referents, as in (2.121) below:

- (2.121) [There were two boys, they lived together <...>
 One day they went out and met a group of people]
déndèè dòè, à táátá, à ká mùsèènú kòntòn, **The first boy** went to greet the women
déndèè dòè, à nàtà à ká kìnànú kòntòn **The other boy** went to greet the old men

Example (2.122) illustrates the pronominal use of *dòè* within the analogous function; note also the NP *dùgèè dòè* in the IO position.

- (2.122) *dòè bání *kíilá*yá sò dòè tùgùn mà dùgèè dòè*
dóo-È bání kíilaya-È sò dóo-È tùgun ma dùgù-È dóo-È
 one-ART PRF envoy-ART send one-ART again to land-ART one-ART
mà
ma
to
 [There were two people in two different villages, who were going to fight with each other.] One sent a messenger to the other one, to the other land.

Compare *dòènú* in (2.123 a) and *dóónú* in (2.123 b) below, coming from the same story as in (2.122) about the fight between two groups of people from two different villages. The form with the article and the plural marker *dòènú* refers to the whole set of individuals (from village-one) which are contrasted with another, equally activated, set of individuals (from village-two). By contrast, the two instances of *dóónú* without the article in (2.123 b) refer to an indefinite number of individuals from set-one and from set-two respectively.

- (2.123) (a) *kòtéè nòn ànú jàà bì dòènú là wònú í nàlà*
kòtéè nòn ànu jáa-È bi dóo-È-nu la wò-nu bi nà-la
 now but 3PL eye-ART be one-ART-PL OBL that-PL be come-GER
 They saw how the others were coming.

- (b) *kè dùgèè pán dóónú tí fàgá †ké yàn nà tógún dóónú*
kè dùgu-È pán dóo-nu báti fàga kè yàn la tógun dóo-nu
 this earth-ART there one-PL PRF die this that POSS again one-PL
tí fàgà
báti fàga
 PRF die

From that land somebody died, and from the other land somebody died also.

2.6 Pronouns

2.6.1 Personal Pronouns

The paradigms of personal pronouns are given in Table 2.7 below. As can be seen, in the form of 1PL and 2PL, NK differs from CK and WK. The realization of the pronoun, segmental as well as tonal, is described in detail in Chapters 4 and 5.

		CK, WK	NK
SG	1st	<i>ṅ</i>	<i>ṅ</i>
	2nd	<i>ì</i>	<i>ì</i>
	3rd	<i>à</i>	<i>à</i>
	refl./generic	<i>ì</i>	<i>ì</i>
PL (incl.)	1st	<i>mà</i>	<i>mḁ</i>
	1st + 2nd	<i>ómà</i>	<i>ómḁ</i>
	2nd	<i>(w)ò</i>	<i>ò</i>
	3rd	<i>ànu</i>	<i>ànu</i>

Table 2.7: Personal pronouns in CK, WK and in NK

The same pronominal forms are used in all syntactic positions. The usage of the reflexive pronoun is limited to a particular type of subordinate clauses (discussed in Section 2.6.1.4).

2.6.1.1 Inclusive pronoun

The inclusive pronoun, *ómà* in CK and WK and *ómḁ* in NK, represents a composition of the first plural and the second plural pronouns¹⁵. This combination is transparent semantically. There is no morphological fusion: the H tone on the first component is derived by the rules

15. In (Vydrin & Vydrina 2010) we assume that in Kakabe the inclusive pronoun could have developed under the influence of Pular which opposes exclusive (*men*) and inclusive (*en*). Though inclusive pronouns are common in South-Western and Southern Mande, they are absent from other Mokole languages and are very marginal in the Manding group. It should also be noted that the inclusive/exclusive distinction is considered to be uncommon for Africa (Cysouw 2013), yet, in the typological surveys, only few Mande languages are usually taken into consideration.

of the realization of L tone associated to a monomoraic morpheme, described in Section 5.7 in Chapter 5.

See (2.124) below from a conversation in NK, where the speaker is talking about the language spoken in the villages, using two instances of the inclusive pronoun:

- (2.124) ò táá lòn ómò bì kùmàlà kònò ómò là
 ò báti à lòn ó-mò bi kúma-la kònó ó-mò la
 2PL PFV.OF 3SG know 1PL-2PL be speak-GER but 1PL-2PL POSS
 kúmà à bí bàsàndèn
 kúma-È à bi bàsa-nden
 speech-ART 3SG be mix-PC.ST

You know, we are talking [with you], but our speech is mixed [addressed to a person who speaks the same language].

2.6.1.2 Plural used as politeness marker

The 2PL (*w*)ò (CK, WK) / ò (NK) and the 3PL *ànu* can be used as forms of respectful reference to a single person.

- (2.125) kááwù sállí ò sì hákkè tò
 káawu sállí ò sì hákkε-È tó
 uncle muezzin 2PL POT sin-ART leave
 Uncle muezzin, forgive me!

àn kété nòònètò mǎnsáà là
 ànu ké-ta nòònεto mǎnsa-È la
 3PL make-PFV.INTR there chief-ART OBL
 He (respectful) became the chief of that place.

The plural, in general, can be used with singular reference to mark respect; see the nouns with the plural marker *bàaba-nu* in (2.126) which is used to refer to the father of the listener:

- (2.126) í bààbànù àn tórótá nùn kèlèkédúlà
 ì bàaba-nu ànu tórɔ-ta nùn kèle-ké-dúlà
 2SG father-PL 3PL suffer-PFV.INTR PST war-do-place
 Your father, he suffered while fighting during the war.

The usage of plural to mark respect is rarely found Mande and is, most probably, a calque from Pular, see (Vydrin & Vydrina 2010).

2.6.1.3 *Binding of personal pronouns*

In Kakabe, personal pronouns in non-subject position can be coreferential with the subject¹⁶.

- (2.127) Sbj_i aux pron_i V
 (a) *à ká à kò* He_i washed himself_i / He_i washed him_{ii}
 3SG PFV.TR 3SG wash
 (b) *ì ká ì kò* You washed yourself
 (c) *òn ká òn kò* I washed myself

It should be noted that the construction of the type in (2.127a) where the pronoun in the DO position is occupied by a pronoun coreferent to the subject, is most frequently used to denote intransitive volitional actions like ‘run’, ‘dance’, ‘swim’, etc’, where no second participant can be distinguished. Thus, the construction of the type in (2.127a) should be called middle-reflexive.

- (2.128) (a) *à ká à bòrì* He ran
 3SG PFV.TR 3SG run
 (b) *à ká à sigì* He sat down
 3SG PFV.TR 3SG sit

Examples (2.129 a) and (2.129 b) illustrate that the use of the personal pronoun in other positions than DO can also signal coreference with the subject.

- (2.129) (a) *à_i ká dòrikéé bilá à_{i/ii} là*
 3SG PFV.TR shirt.ART put 3SG OBL
 He put on the shirt. / He put the shirt on him.
 (b) *à_i ká à_{i/ii} kú[†] jé kò*
 3SG PFV.TR 3SG head.ART wash
 He_i washed his_{i/ii} head.

Contrary to personal pronouns, the anaphoric *wò* can be bound only outside the clause: though *à* can be bound by the subject *wò* within the same clause, the non-subject *wò* cannot be bound neither by *à* nor by *wò* in the subject position within the same clause.

- (2.130) (a) *wò ká à kò* He_i washed himself_{i/ii}
 (b) *à ká wò kò* He_i washed him_{ii/ *i}
 (c) *wò ká wò kò* He_i washed him_{ii/ *i}

2.6.1.4 *The distribution between the reflexive and personal pronouns*

As has been shown above, personal pronouns in non-subject position can be bound by the subject of the same clause. Apart from that, Kakabe has a specialized reflexive pronoun which

16. The same is found, for example, in Susu, Bamana, Maninka, Mandinka.

appears only in non-finite clauses with a relativized subject or without an overt subject: in gerund, infinitival clauses, subject relativization clauses, and nominalizations.

Thus, in (2.131) below the first clause is finite, and the coreference with the subject is marked by the personal pronoun, whereas in the second, infinitival clause, it is marked by the reflexive pronoun *ì*:

- (2.131) *à bātáá kènéén nàkìmà kùì bó⁺lén*
à báti à kèn-È-nu la-kíma kà ì bólo-È-nu
 3SG PRF 3SG foot-ART-PL CAUS-be.wet INF REFL hand-ART-PL
nàkìmà
la-kíma
 CAUS-be.wet
 He wet his feet and his hands.

The use of the reflexive pronoun in any kind of finite clause is not possible in Kakabe, e.g. *à* in the first clause of (2.131) cannot be replaced by the reflexive pronoun: **à báti ì kènéén nàkìmà*.

The reflexive pronoun *ì* can have only a third-person controller, either singular (2.131) or plural (2.132).

- (2.132) *àn táán sìgì kà ì náátígílén síikúlè là*
ànu báti ànu sìgì kà ì náatigilen síikuli-È la
 3PL PRF 3PL sit INF REFL face goat-ART OBL
 They sat down and looked at the goat.

Examples (2.133 a) and (2.133 b) below illustrate the possibility to use the reflexive pronoun in IO position and in the position of the possessor, respectively.

- (2.133) (a) *à tágátá lúúmè tò kà kùtáá sàni í yèn*
à tága-ta lúumɔ-È tò kà kùta-È sàni ì yen
 3SG go-PFV.INTR market-ART to INF clothes-ART buy REFL BNF
 He went to the market and bought clothes for himself.
- (b) *à tágátá lúúmè tò kà kùtáá sàni í lá*
à tága-ta lúumɔ-È tò kà kùta-È sàni ì la
 3SG go-PFV.INTR market-ART to INF clothes-ART buy REFL POSS
mùséé yèn
mùsu-È yen
 wife-ART BNF
 He went to the market and bought clothes for his wife.

The reflexive pronoun is homonymous with the 2SG pronoun *ì*, therefore, there is no direct way to establish whether the reflexive pronoun can have the second person singular as antecedent. See the paradigm of the middle verb *ì sìgì* ‘sit down’ in (2.134).

(2.134) 'X came and sat down'

*ń nàtá kà ñ (*i) sìgì* *mó nàtá kà mò (*i) sìgì*
í nàtá kà ì sìgì *ó nàtá kà ò (*i) sìgì*
à nàtá kà ì/ànú sìgì *àn nàtá kà ì/ ànú sìgì*

The use of the reflexive pronoun is not obligatory, see (2.135) below where in the third clause the reflexive *ì* is used (*kà ì sìgì jódò*), and two clauses later the personal pronoun *à* is used in an identical context (*kà à sìgì jódò*):

(2.135) *siikúlinde* *túntá* *táà* *làkà kà* *cíkké* *kà*
siikuli-nden-È *tún-ta* *táa-È* *làka kà* *cíkke* *kà*
 goat-DIM-ART jump-PFV.INTR fire-ART over INF jump.down INF
í *sìgì jódò* *súlúkè* *túntá* *kàà* *sìgì jódò*
ì *sìgì jódò* *súluku-È* *tún-ta* *kà à* *sìgì jódò*
REFL sit there hyena-ART jump-PFV.INTR INF **3SG** sit there

The little goat jumped over the fire, landed down and sat down there, the hyena jumped and sat down there as well.

Apart from the infinitival clauses, illustrated in (2.131)-(2.135), the reflexive pronoun can be used in gerund clauses, see (2.136 a) and (2.136 b), and in clauses with subject relativization (2.136 c).

(2.136) (a) Gerund complement clause

à *báà* *mìjèlén* *†í* *dònnà*
à *bi à* *míje-len* *ì* *dòn-la*
 3SG be 3SG decide-PC.ST REFL dance-GER
 He decided to go dancing.

(b) Gerund complement clause

à *kítá* *ì* *míjítélá*
à *kì-ta* *ì* *míjíte-la*
 3SG spend.night-PFV.INTR REFL think-GER
 He spent the night thinking.

(c) Subject relativization clause

kàyéè *mín* *†bíí* *tòlòmàsòlèn* *ràdyónè* *là* *à* *bélé*
kàyi-È *mín^L* *bi ì* *tólomaso-len* *ràdyon-È* *la* *à* *béle*
 man-ART REL be REFL listen-PC.ST radio-ART OBL 3SG be.NEG
↑fēnfēn *mòèlà*
↑fēnfēn *móε-la*
 thing.PI hear-GER

The person who is listening to the radio doesn't hear anything.

As already mentioned, Kakabe has zero-marked nominalization, so that the verb can be used in an argument position with its arguments preserved. In my corpus there are no examples of the reflexive pronoun used in such zero-marked nominalizations. As for elicitation, its results can be interpreted in a way that the use of the reflexive pronoun is less acceptable, compared to the other non-finite clauses listed above (relativization, infinitive, gerund clause). The reflexive pronoun use is sometimes rejected and sometimes accepted. For example, it is accepted for the middle verb *báare* ‘lean’, but not for the middle verb *pílansɔn* ‘plunge (into water)’.

- (2.137) *ì báare mírè là*_{SBJ} *táà kóè lànògò*
 ì báare míiri-È la báti à kóo-È la-nógò
 REFL lean wall-ART OBL PFV.OF 3SG back wall-ART
 Leaning against the wall soiled his back.

Contrary to this, pronoun *ì* can have only the 2SG interpretation used in the zero-nominalization with the verb *pílansɔn* ‘to plunge into water’:

- (2.138) *ì pílansónè báti díya à yèn*
 ì pílansɔn-È báti díya à yen
 2SG/*REFL plunge-ART PFV.OF please 3SG BNF
 He liked that you plunged into water.

The middle interpretation is available only for *à*: the pronoun *ì* can have only the 2SG interpretation:

- (2.139) *à pílansónè báti díyá à yèn* He liked jumping into water.

Compared to this, the gerund clause which can be used in the same argument position as the zero-nominalization, always accepts *ì* as reflexive, coreferent with the PRO:

- (2.140) *ì pílansónná báti díyá à yèn*
 ì pílansɔn-la báti díya à yen
 REFL plunge-GER PFV.OF please 3SG BNF
 ‘He has enjoyed jumping into water’.

The elicitation of the same verbs with different consultants also gives varying results: the reflexive is accepted in the zero-nominalization of the same verb by one consultant and rejected by other. It should be said that a relative degree of acceptability of the reflexive *ì* also characterizes the clauses with the subjunctive *nì* and with the conditional auxiliary *máni*. It was mostly accepted by Mohammed Keita from the Mingiya village, but in most cases rejected by other consultants (from Dogoment, Mansaya, Wansan):

- (2.141) (a) reflexive *ì* in the conditional *máni* clause

?à mání sígí kè jùlléré tò à sí bòyì
 à máni ì sígí kè jùllere-È tɔ à si bòyi
 3SG COND REFL sit this chair.ART on 3SG POT fall
 When he sits down on this chair, he will fall.

(b) reflexive $\dot{\iota}$ in purpose *ni* clause

?à tí dòn bójnè lá à ní sǐgí gbèngbée
 à báti dòn bón-È la à ní ì sǐgi gbèngbi-È
 3SG PRF enter hoouse-ART OBL 3SG SBJV REFL sit bed-ART
 tò
 tò
 OBL

He entered the house in order to sit on the bed.

The conditional *máni* and the subjunctive *ni* both introduce dependent clauses (*ni* has also modal usage, and then the clause where it occurs is independent, but otherwise it introduces dependent clauses, in the same way as *máni*).

All the above said shows that the reflexive $\dot{\iota}$ in Kakabe is sensitive to how the subject is affected by the subordinate status of the clause. More precisely, it is allowed in those cases where the subordinate status of the clause affects the expression of the subject which is either phonologically absent, or bears a mark of dependency:

(2.142) Antecedent of the reflexive $\dot{\iota}$ has to be the subject of a subordinate clause which is either a phonological zero, or bears a mark of subordination on itself.

\emptyset_{SBJ_i} or (NP)SBJ $\dot{m}in_i \leftrightarrow \dot{\iota}_i$

The examples with the subordinated clauses with *máni* and *ni* where the subject is overt and not formally affected by the subordinate status of the clause and where the reflexive $\dot{\iota}$ is marginally accepted suggest that the reflexive $\dot{\iota}$, by the extension of sensitivity to the subordinate status of the subject (2.142), is sensitive to the subordinate status of the clause as a whole, even if the subject is formally unaffected. It remains unclear why zero-marked nominalizations are a less favorable environment for the reflexive $\dot{\iota}$, compared to gerund; further study should show whether their subject positions differ also in other respects.

Table 2.8 summarizes the contexts licensing the reflexive $\dot{\iota}$.

infinitival	$\emptyset_{\text{SBJ}_i} k\grave{a} \dot{\iota}_i V$	OK
gerund	$\emptyset_{\text{SBJ}_i} \dot{\iota}_i V\text{-}la$	OK
relative	(NP) $\dot{m}in_i \text{ aux } \dot{\iota}_i V$	OK
zero-nominalization	$\emptyset_{\text{SBJ}_i} \dot{\iota}_i V\text{-ART}$?/OK
finite subordinate	Sbj _i $\dot{m}ani/ni \dot{\iota}_i V$??
finite independent	Sbj _i aux _{main} $\dot{\iota}_i V$	NO

Table 2.8: Acceptability of the reflexive $\dot{\iota}$ depending on the type of the clause

I am not aware of other examples of languages outside of Mande with a pronoun specialized in marking coreference with a subordinate clause subject. Within the Mande family, a

candidate for a language with such a pronoun is Koranko which also belongs to the Mokole group. Otherwise there aren't any other Mande languages with a reflexive pronoun that would have the same pattern of distribution.

Furthermore, the reflexive pronouns in the Mande languages of the Manding-Mokole group are subject to other types of constraint (different for each particular language) which on the whole gives an interesting pattern of variation. The table below compares the use of the reflexive pronoun in Kakabe and four other Manding-Mokole languages, for which the relevant information was available. In all the compared languages the reflexive pronoun is *i* (its tone varies across languages but the common origin is, nevertheless, certain) and coincides in form with the second singular personal pronoun¹⁷. All the discussed languages have the middle construction homonymous with the reflexive construction, in which the pronoun in question occurs.

	Person an- tecedent	Free variation with personal pronoun	Syntactic restrictions the on use of reflexive <i>i</i>
Kita Maninka ¹⁸	3rd	yes, personal pronouns more frequent	no (?)
Mandinka ¹⁹	3rd & 2nd	can be replaced by a pronoun with intensifier in reflexive proper constructions	limited to DO position
Bamana ²⁰	3rd	yes, depends on dialect and the verbal lexeme as the main predicate	limited use in the position of possessor (depends on the lexical type of the head noun)
Koranko ²¹	3rd (?)	no (?)	yes, only in INF clause (?)
Kakabe	3rd	yes	limited to clauses with zero or relativized subject

Table 2.9: The use of reflexive pronoun *i* in Manding-Mokole

A detailed discussion of the use of the reflexive *i* in Bamana can be found in Vydrin (1994) and (in Russian) in Vydrin (1999b). In Bamana the reflexive *i* can be coreferent with the third person subject only, and with the third singular more often than with the third plural. Contrary to Kakabe, there is no restriction to the syntactic type of the clause. Its usage is always optional, in the sense that *i* can always be replaced by the personal pronoun, 3SG *à*, or 3PL *ù*, depending on the number. The author notes that the frequency of the use of *i* (as

17. Most likely, the reflexive *i* goes back to *É at the Proto-Mande level. The second person singular pronoun is an unlikely source for a reflexive pronoun. Thus, in Schladt's (2000) survey of grammaticalization sources of reflexives, the second person marker is not attested as a source of reflexive.

opposed to the choice of the personal pronoun), first, varies across the dialects of Bamana, and, second, is used more often with some verbs than with others. The reflexive *i* in the possessor position is common if the head noun refers to body part and not possible if it is a kinship term (Vydrin 1999b)²².

In Kita Maninka, *i* is also used in main clauses and, again, can always be replaced by the personal pronoun. As Creissels (2009a: 162) notes, the personal pronoun is chosen more often than the reflexive pronoun.

In Mandinka, differently from Kita Maninka, Bamana and Kakabe, the reflexive pronoun can signal coreference not only with the third person, but also with the second person, singular as well as plural. Another difference with the mentioned languages is that *i* cannot be replaced by the personal pronoun. At the same time, the usage of *i* in Mandinka is restricted by the fact that it can occur only as a direct object, and is neither possible in the position of the possessor nor in the position of IO, see Creissels & Sambou (2013: 210-212). In constructions with reflexive meaning proper, *i* can be replaced by a personal pronoun with an intensifier.

Finally, in Koranko, according to Kastenholz (1987b), the reflexive pronoun appears in infinitival clauses, and not in main clauses²³. Unfortunately, the author does not mention whether there are any other subordinate clauses which allow it.

As can be seen, the reflexive pronoun in Manding-Mokole is subject to various types of constraints. One can suppose that a system with the limitation of the reflexive pronoun to subordinate clauses such as found in Koranko and Kakabe, resulted from the disappearance of the specialized reflexive pronoun from the main clauses.

As stated in the title of Bybee's (2002) article, "Main clauses are innovative, subordinate clauses are conservative". Bybee analyses several cases of the disappearance of tense and aspect conjugation forms in the main clause. For example, in Armenian, the periphrastic progressive emerged through replacing synthetic present tense in the main clause, but not in the subordinate clause. She arrives to the following conclusion:

Many diachronic changes occur earlier in main clauses than in subordinate clauses. The reasons suggested are that main clauses are pragmatically richer, containing the focussed information and the possibility of setting off old from new information, while subordinate clauses tend to be pragmatically more even, replaying previously presented or supplementary material (Bybee 2002: 14).

In this perspective, it is logical to suppose, for the case of Kakabe and Koranko, that a specialized reflexive marker was originally used both in main and in subordinate clauses and then was replaced by personal pronouns in the main clause. This replacement must have proceeded from the stage of free variation between the specialized reflexive and the personal pronoun in the main clause which is currently attested in such languages as Bamana and Kita Maninka. To conclude, though a reflexive marker specialized in marking coreference with a

22. The author claims that this constraint is canceled when it is coreferent with a generic subject, such as the generic *mɔgɔ* 'person'. Yet, here the author conflates the reflexive *i* and the generic *i* which, as he shows himself in example (31), can occur in the subject position with the antecedent *mɔgɔ* in a higher clause.

23. Kastenholz (1987b) refers to the reflexive pronoun as the second singular pronoun, saying that in the infinitive clause the "third person pronoun is replaced by the second person pronoun".

subject of a subordinate clause seems to be uncommon cross-linguistically, nevertheless, the data of related languages where this pronoun is attested and the conservative potential of the subordinate clause attested cross-linguistically, allows us to suggest how this kind of reflexive pronoun could have evolved.

2.6.1.5 Personal pronouns as resumptive pronouns

Left-dislocated topics are common in Kakabe discourse. The dislocated NP is doubled by a pronoun which, in most cases, agrees with it in number, as in (2.143) where the dislocated plural NP *déjènù* ‘children’ is repeated by the plural pronoun *ànu*.

- (2.143) *déjènù*(0.34) *ànù jòò là háá mògò tán*
dén-È-nù ànu jòò là háá mògò tán
 child-ART-PL 3PL that OBL until man ten

Children, there are ten of them.

Prosodically, left-dislocated topics can be either in a separate or in the same intonation phrase with the following clause. The former is the case in (2.143) where *déjènù* is followed by a short pause and where the IP-boundary blocks the insertion of the H-tone separator (see 5.3.4.2). By contrast, in (2.144) the NP on the left belongs to the same IP as the following clause (the tonal realization of prosodic units are described in 5.3.4).

- (2.144) *ì lá dénká⁺yé ⁺wón àn ní lèkkól lè là*
ì la dénkayi-È wò-nu ànu ni lèkkól lè la
 2SG POSS child-man-ART that-PL 3PL SBJV school FOC OBL

Your boys, they are at school.

Most often, the left-dislocated topic corresponds to the subject of the following clause, but the dislocation of arguments in other positions also occurs in my corpus, e.g. DO in (2.145 a) and the possessor in (2.145 b).

- (2.145) (a) *sààfúnà à náà dì ñ nènènè bòlò*
sàafúna-È à ni à dí ñ nènènè bólo
 soap-ART 3SG SBJV 3SG give 1SG mother hand

The soap, she gave it to my mother.

- (b) *bòòbéé à kén jànìndèn*
bòòbò-È à kèn-È jànìn-nden
 baby-ART 3SG foot-ART burn-PC.ST

The baby, her foot was burnt.

Example (2.146) is the only case in my corpus where the resumptive pronoun does not agree in number with the dislocated topic NP. The absence of agreement here might be due to its low position on the animacy hierarchy, and therefore lower discourse salience of the referent, (see Corbett 2000 on this topic).

- (2.146) *àn nà dāmòènu à báá tàlá †nún àn bólo lè*
 ànu la dāmu-È-nu ànu bi à tà-la nùn ànu bólo lè
 3PL POSS food-ART-PL 3PL be 3SG take-GER PST 3PL hand FOC
 Their food, they [Fulbe] took it from them.

The pronoun doubling in marked topic constructions is a well-known grammaticalization source of agreement marking (Givón 1992; Siewierska 1999), cf.:

Topics, loosely associated with the clause < ... > become integrated into the clause as a result of the overuse of the marked topic constructions and thus the originally anaphoric pronouns become agreement markers (Siewierska 1999: 237)

Colloquial French is one of the examples of such an overuse. According to Lambrecht (1994), in utterances like *Pierre il vient souvent* ‘Pierre comes often’ the NP has lost topicality and has been reanalyzed as subject, and the pronoun *il* as agreement marker.

In constructions with marked topic, the topicalized NP is outside of the clause, and therefore the pronominal element is an anaphor. Anaphoric pronouns can give rise to grammatical agreement markers, when the NP loses its marked topic role and becomes part of the clause.

Since in Kakabe topic left-dislocation is common, in view of the above said, it is important to identify where this construction is located with respect to the grammaticalization cline towards grammatical agreement. A lot has been written on how to distinguish between agreement and antecedent-anaphora relations (for an overview see Siewierska 1999). The prosodic criterion does not give any positive result, since, as has been shown, the topical NP can be in a separate IP or in the same IP as the clause, see (2.143) and (2.144). The test which does work for Kakabe is checking the capacity of the pronominal element to double such expressions as *nobody*, *somebody* and question words. Since these expressions are unambiguously non-topical and belong to the same clause, therefore, a pronoun which doubles it necessarily belongs to the same clause. In Kakabe, such contexts are unavailable for the pronoun:

- (2.147) *yón nà-tà?* **yón à nàtà?* ‘Who came?’
 who come-PFV.INTR
- dóódò máá nà* **dóódò à máá nà* ‘Nobody came’.
 nobody PFV.NEG come

This means that in Kakabe pronouns are anaphors whose antecedent must be non-local (situated outside of the clause) and it has complementary distribution with the controller NP within the clause.

The types of person-marking systems vary across Mande languages, and the existence or absence of agreement largely correlates with the genetic grouping. As Konoshenko (2014) has shown in her comparative study of person marking in Mande, systems with grammatical agreement are common for Southern, South-Eastern and Eastern Mande. In languages of these groups, NPs within the clause are doubled by pronominal markers which have fused with functional words (most often, auxiliaries). By contrast, in Central Mande languages, person

and number markers are almost exclusively anaphoric (i.e. their antecedent cannot be in the same clause). The only contexts where some Central Mande languages admit pronominal markers controlled locally are coordination constructions. Locally-bound pronominals are found in this context in Koranko.

Let's look at coordination constructions in Kakabe. Coordination is marked by the conjunctions *nín* (*n'* before vowel) 'and':

- (2.148) *n* *bí* *tà*máátè *nín* *jà*gàtóé *lè* *kilà*
 n *bi* *tàmáati-È* *nín* *jà*gatu-È *lè* *kí-la*
 1SG be tomato-ART and eggplant-ART FOC plant-GER

I grow tomatoes and aubergines.

Apart from *nín*, the conjuncts can be linked by the connector *à**nín* which is, originally, *nín*, preceded by the pronoun *à*, but the latter does not have the syntactic properties of the 3SG pronoun and, crucially, cannot refer to any individual. The connector *à**nín* is obligatory, when the second conjunct appears post-verbally, as in (2.149 a) below. Besides, *à**nín* can be used as a discursive linker between clauses, as in (2.149 b). The fact that *à* is not a resumptive pronoun with respect to the first conjuncts is also seen in that it does not agree with it in number. If it were the case, *à**nu* would be used in (2.149 a) to agree with the first conjunct *sòèènú* *filà* 'two horses'.

- (2.149) (a) *ómò* *nì* *tága* *sòèènú* *filà* *fê* *à**nín* *sòò* *dén*
 ò-mò *ni* *tága* *sòò-È-nu* *fila* *fè* *à-nín* *sòò* *dén*
 2PL-1PL SBJV go horse-ART-PL two with 3SG-and horse child
 kélépè
 kélen-È
 one-ART

We should go there with two horses and with one foal.

- (b) *à**nín* *sì* *lúúmè* *bòtá* *wò* *náá* *wà*
 à-nín *si* *lúumə-È* *bó-ta* *wò* *ni à* *wá*
 3SG-and if market-ART leave-PFV.INTR 2PL SBJV 3SG go
 lúúmè *tò*
 lúumə-È *tò*
 market-ART on

[We go to Dogomet to school.] And if it is market day, do you go to the market?

The connector *à**nín* can also be used to coordinate NPs in the subject (2.150 a) and in the object positions (2.150 b), but in both these contexts simple *nín* is more frequent.

- (2.150) (a) *sú*lukè *à**nín* *sí*kúlíndèè *bèntà*
 *sú*luku-È *à-nín* *sí*kuli-nden-È *bèn-ta*
 hyena-ART 3SG-and goat-DIM-ART meet-PFV.INTR

The hyena and the goat met...

- (b) *àn ní sàndáànù ànín kúmànù dóónù tàjìni*
ànu ní sànda-È-nù à-nín kúma-nù dóo-nù ta-jìni
 3PL SBJV tale-ART-PL 3SG and speech-PL one-PL
 They will collect stories and conversations.

Bamana and Mandinka also have the connector *àni* originating from the 3SG pronoun and the conjunction *nín*, and the distribution of *àni* is analogous to that of *ànín* in Kakabe: obligatory when the second conjunct is postverbal and optional in other positions.

To sum up, only non-local pronoun doubling is possible in Kakabe, since, as has been shown, *à* in *ànín* coordination is not a pronominal expression any more.

2.6.1.6 Long forms of personal pronouns

In general, the particle *lè* marks focus, see Section 2.2.1. Yet, in combination with personal pronouns, *lè* is used as a marker of the lower accessibility of the referent or of topic shift. As for focalization, it is done through the addition of double *lè*; see the following subsection (2.6.1.7). Let's look at Example (2.151) below where the form *í lè* is used in the subject position. It is clear that the subject is not in focus, because the two alternatives which are proposed in the question are related to the content of the predicate and not to the subject. Moreover, in the second clause the predicate is followed by *lè* which, not following a pronoun, is unambiguously a focus marker. It should be noted that full address forms, like the proper name *Úmù Áwà* in this case, are always followed by personal pronouns with *lè* instead of simple pronouns. I gloss the *lè* as LG, standing for "long form".

- (2.151) *úmù áwà í lè bás sìgi fútu là káa í lè*
Úmù Áwà ì lè báti sìgi fútu la káa ì lè
 NPR N.PROM.F 2SG LG PRF sit ransom OBL or.INTERR 2SG LG
súnkutujè lè mù í lè là?
súnkutun-È lè mu ì lè la
 girl-ART FOC IDENT 2SG LG OBL

Umu Hawa, are you married or are you still an unmarried girl?

The long form of the pronoun can be used as a contrastive topic, see *á lè* in the second clause in (2.152) below:

- (2.152) *dén báà dínpógè bòlò dén kòlòyàànéè(0.24) dén*
dén báa à dínpogɔ-È bólo dén kòloya-nden-È dén
 child big 3SG friend-ART arm child grow-PC.ST-ART child
béláá lè bòlò
béle à lè bólo
 COP.NEG 3SG LG hand

His friend had a lot of children, grown-up children, and he, he had no children.

It should also be noted that there is a more explicit marker of contrastive topic, namely, the determiner *túgun* which is used more often in this context.

More frequently than in the contrastive topic function, as in (2.152), the long form is used when there is a need to reinforce the reference because of some perturbation in the topic chain. In the passage, represented in (2.153), the speaker talks about his mother-in-law, designated by the 3SG pronoun. The usage of the long form in the second clause is motivated by the interference of two clauses ‘thus it went on’, with the impersonal subject and the temporal clause ‘when the morning arrived’. Thus, this interference is even less than topic change, since neither *wò* nor *kénè* ‘morning’ can be considered as topics²⁴.

- (2.153) *à kà táábáíndén násìgì wò tótá jòò(0.65) kénè*
à ka táabali-nden la-sìgì wò tó-ta jóó kéne
 3SG PFV.TR table-DIM CAUS-sit that leave-PFV.INTR that light
màni b̀̀ á lè ní nã kòòkèè mà
máni bó à lè ní nà kòòkò-È ma
 COND leave 3SG LG SBJV come market-ART to

She set up a table [at the market, to sell groceries]. And thus it went on. Early in the morning she would come to the market.

Personal pronouns are almost always used with (at least one) *lè* in coordination construction with *nín* ‘and’. See (2.154) below, where in the second clause the 2SG pronoun is coordinated with the 3SG pronoun and both take the form with *lè*, though, just before it, *ì* appears without *lè*.

- (2.154) *ì máni wúli brúsa t̀̀ í lè náá lè sáá wà*
ì máni wúli búrusa-È t̀̀ ì lè nín à lè sí à wà
 2SG COND get.up bush-ART in 2SG LG and 3SG LG POT 3SG go
à táá b̀̀làn
à tée à b̀̀lan
 3SG NEG.POT 3SG refuse

When you go to the bush, you and him, he doesn’t refuse

In my corpus, out of 111 tokens of coordination with a pronoun as the first conjunct, only in 6 cases is there a simple pronoun not followed by *lè*, one of them is given in (2.155) below. Otherwise, there are 32 occurrences of a pronoun as the second conjunct, and in all of them, the pronoun is followed by *lè*.

- (2.155) *à nín mùséé kèlètà nùn mùséé*
à nín mùsu-È kèlè-ta nùn mùsu-È
 3SG and woman-ART quarrel-PFV.INTR PST woman-ART
sààgítá ànù bàtà
sàagi-ta ànu báta
 return-PFV.INTR 3PL home

He quarrelled with the woman and she returned to her relatives.

24. One can speculate that, in this case, the long form is sensitive to the change of the syntactic subject rather than to the change of topic.

The ability to be involved in coordination constructions is one of the criteria that opposes an autonomous pronoun from a dependent pronoun²⁵ (Siewierska 2004). Thus, the rarity of simple pronouns in this context in Kakabe indicates that they are, probably, on the way to become dependent.

This is confirmed by the fact that only long forms can appear in left-topic position:

- (2.156) *á lè wótí béléàà bòlò *á wótí béléàà bòlò*
 3SG LG money be.NEG 3SG hand
 As for him, he doesn't have any money.

Let's now try to define more clearly the discursive function of the form with *lè*, as opposed to the simple (short) pronoun. As has already been said, it has to do with the accessibility and the saliency of the referent. It is widely accepted in the literature that the choice between a less and a more elaborated forms is related to the accessibility of the referent:

Minimum encoding implies that the referent is already in the forefront of the hearer's (and speaker's) consciousness (...) more elaborate encoding suggests that the relevant discourse referent must be sought deeper in the memory store of the hearer (Siewierska 2004: 174).

A simple form of a personal pronoun is the minimum possible encoding of a referent in Kakabe, and the form with *lè* is "one step" in the direction of elaboration. The saliency of the referent is automatically lowered when he has to share the ground with other referents (cf. the factor of the "competition amount" in Siewierska 2004 and Ariel 1990). This is the case in the coordination construction, since at least two referents are present, thus the *lè* form is due to a lowered saliency. In (2.151), the fact that the speaker uses a full address form is by itself an indicator that the referent needs reactivation which therefore explains the need of the longer form.

I will be referring to personal pronouns with single *lè* in Kakabe with the neutral label 'long form' (LG in the gloss for *lè* following a personal pronoun). It is hard to find a name for this category which would be more explicit about its discursive function. Referring to *lè* after personal pronoun as topic marker would be misleading: even though the pronoun with *lè* is indeed the topic of the utterance, it is not "more topical" than the pronoun without this marker. Rather, if one were to choose, 'less topical', since the long form is used for slightly less salient referents, compared to the referents of simple pronouns. It is not a contrastive topic marker either, since, as has been shown, the referent does not necessarily have one salient alternative opposed to it in the discourse context, as in (2.151), where *í lè* is not contrasted with any clear alternative.

'Topic shift' would be a rather good match, but this label misses cases like (2.154), where the usage of *í lè* is motivated not by the change of the topic (the 2SG referent was the topic in the immediately preceding clause), but rather by the necessity to share the topicality with another referent.

25. The test of single pronoun answer to a question, as *Who are they going to ask? - Me./Her./Us.* are not applicable to Kakabe since an answer has to be a full predication.

To sum up, the functions of the long form of personal pronouns in Kakabe cannot be pinned down as one particular topic type, but rather corresponds to a range of topical discursive roles with some minimal lowering of accessibility: topic shift, contrastive topic and shared topicality. Finally, the term ‘long form’ captures the commonly accepted existence of the inverse correlation between the degree of activation of a referent and the length of the form: the less a referent is activated, the longer the form (Givón 1992; Kibrik 2011, among many others).

The analogous set of pronouns, consisting of a simple pronoun and the particle *lè* in Koranko, is referred to as emphatic pronouns by Kastenholz (1987b). In Manding languages, contrary to Kakabe and Koranko, the pronominal forms which, most probably, also go back to the combination of a simple pronoun with the focus particle, are currently non-segmentable. In Mandinka (Creissels & Sambou 2013) and Kita Maninka (Creissels 2009a) the long forms are made by the addition of *-te*, whereas the focus marker is *le*. In Bamana (see Dumestre 2003; Vydrin 2017a) the long forms contain *le* but are non-segmentable either, e.g. *nê* (1SG), *ê* (2SG), *3SG àlê* (3SG). In all the mentioned descriptions, this longer pronominal forms are referred to as emphatic.

“Emphasis” is one of the most vague and, at the same time, one of the most popular terms, used in linguistic descriptions. If one tries to find some particular substance in it, such as some type of “discourse prominence, typically either contrast and/or intensification” (Siewierska 2004: 67), then the typical example would be the English pronouns of the *self* paradigm, *myself*, *yourself*, *herself* etc. Even if the pronominal forms in Manding languages are emphatic in this sense which remains to be verified, it is evident that the pattern of usage of the Kakabe pronouns with a single *lè*, described above, does not match this description.

As has been shown, the Kakabe long forms of pronouns appear when the referent is slightly less activated and prominent, compared to the referent of a simple pronoun form, and the naming of this form of pronoun as “long” unambiguously refers to its phonological form²⁶.

2.6.1.7 Focalization of personal pronouns

The focalization of personal pronouns is done by the addition of the second *lè* to the form which already has one *lè*. See (2.157) below, where the subjects of the two clauses are contrasted. The first, full-fledged NP is followed by one *lè*, and the pronominal subject of the second clause contains two *lè* particles:

26. A confusion is possible due to the inverse correlation between the length of the pronominal form and the saliency of the referent, mentioned above. Whereas the referent is lowered in prominence, the longer form of the pronoun is more salient itself in the sense of bigger phonological substance. Therefore, one can try to save the term “emphatic pronoun” in reference to the data discussed here by saying that emphasis refers to this phonological saliency. In any case, the term “long” is preferable since it unambiguously refers to form, whereas “emphatic” can be ambiguous between phonological saliency and the saliency in the sense of activation state.

- (2.157) *i* *bààbá* *lè* *yáá* *sànná* *ì* *yèn* *káá* *í* *†lé* *lè*
ì *bàaba* *lè* *bi* *à* *sàn-la* *ì* *yen* *káa* *ì* *lè* *lè*
 2SG father FOC be 3SG buy-GER 2SG BNF or.INTERR 2SG LG FOC
yáá *sànnà* *í* *nètè* *yèn*
bi *à* *sàn-la* *ì* *nète* *yen*
 be 3SG buy-GER 2SG oneself BNF

Does YOUR FATHER buy it [the bicycle] for you, or do YOU buy it yourself?

In CK and WK the addition of two *lè* markers happens in a phonologically regular way (for the tonal realization see Section 5.7.3). By contrast, in NK the *lè* *lè* sequence has frozen into the form with elision *llè*. This has happened for all personal pronouns, but 1SG and 3PL pronouns. The elision is not possible in the case of 1SG pronoun, because *lè* is realized as *dè* after N. In the 3PL focus form, it is the vowel of the plural marker which has been permanently deleted, resulting in *ǎn* *†délè*. In texts, “full forms”, like *ì lé* *lè*, *ànu lé* *lè* are never used. The paradigms of the long forms of personal pronouns for CK and WK, on the one hand, and NK, on the other hand, are given in Table 2.10 below:

		CK, WK	NK
SG	1st	<i>̀n dé</i> <i>lè</i>	<i>̀n dé</i> <i>lè</i>
	2nd	<i>ì lé</i> <i>lè</i>	<i>ǐ llè</i>
	3rd	<i>à lé</i> <i>lè</i>	<i>ǎllè</i>
PL (incl.)	1st	<i>mà lé</i> <i>lè</i>	<i>mǎ llè</i>
	1st + 2nd	<i>ómà lé</i> <i>lè</i>	<i>ǒ†mó llè</i>
	2nd	<i>(w)ò lé</i> <i>lè</i>	<i>ǒ llè</i>
	3rd	<i>ànú lé</i> <i>lè</i> ~ <i>àn dé</i> <i>lè</i>	<i>ǎn† dé</i> <i>lè</i>

Table 2.10: Long forms of personal pronouns in CK, WK and in NK

2.6.1.8 Second person singular pronoun used as generic

The impersonal use of the second singular person, like in the English example *You shouldn't drink and drive*, is a cross-linguistically common phenomenon (Siewierska 2004: 212), see also (Gast et al. 2015) for a recent discussion. Kakabe is no exception, see e.g. (2.158):

- (2.158) *ì* *nì* *pírikì* *tà* *ì* *náá* *kìtì* *ì* *náá*
ì *ni* *píriki-È* *tà* *ì* *ni* *à* *kiti* *ì* *ni* *à*
 2SG SBJV trap-ART take 2SG SBJV 3SG tie 2SG SBJV 3SG

làyààgè

la-yáage

CAUS-become.big

[How does one install a trap?]: You take the trap and attach it with a rope and lay it out.

A typical R-impersonal (reduced referentiality impersonal, a term introduced by Siewierska 2011) in Kakabe, is *mògɔ* ‘man’ which is frequently used non-referentially. In Kakabe the generic *ì* is regularly used as an anaphor to the R-impersonal *mògɔ* as in (2.159) below:

- (2.159) *mògɔ*_i *mán* *sènέέ* *bità* *ì*_i *dórón* *dè* *ì*_i *lá* *sènέέ*
mògɔ *máni* *sènε-È* *bita* *ì* *dórɔn* *lè* *ì* *la* *sènε-È*
 man COND field-ART seize 2SG only FOC 2SG POSS field-ART
bààràlà
 báara-la
 work-GER

When one gets a field, does he work it alone?

In (2.160) *ì* in the position of the subject and in the position of the possessor within DO (with the same reference), is coreferent with the reduplication NP *mògɔ̀nìnfìn mògɔ̀nìnfìn* with distributional generic meaning ‘any person’.

- (2.160) *állà* *yáà* *kè* *nòn* *mògɔ̀nìnfìn* *mògɔ̀nìnfìn* *ì* *nìì* *là*
álla *bi à* *ké* *nɔn* *mògɔ̀ndenfìn* *mògɔ̀ndenfìn* *ì* *ni ì* *la*
 God be 3SG this but person person 2SG SBJV 2SG POSS
lún sà̀n
 lún sà̀n
 day buy

God made it so that each person has to pay for his day. Litt.: “(Each person)_i, you_i have to pay”.

The antecedent of the generic pronoun can be a free relative clause as (2.161) below:

- (2.161) *mín* [↓]*máá* *kàrán* *ì* *nì* *métíyè* *kè*
mín^L *máa* *kàran* *ì* *ni* *métiyε-È* *ké*
 which IDENT.NEG study 2SG SBJV profession do

Those who don’t study [at school] should learn a technical profession.

Example (2.162) illustrates the use of the generic pronoun in the IO position:

- (2.162) *mògɔ* *táán* *màfítán* *ì* *mà*
mògɔ *tée ànu* *ma-fítan* *ì* *ma*
 man NEG.POT 3PL VERB.PL-sweep REFL to

[Those gad-flies,] you cannot wipe them off yourself.

Creissels (2013) discusses the impersonal use of *ì* with non-specific NP in Mandinka. He supposes that this phenomenon must be widespread for the area, but has been, so far, ignored by linguistic descriptions:

To the best of my knowledge, the situation I describe has never been analyzed before, either in Mandinka or in other languages, and none of the descriptive

grammars of West African languages I have been able to consult mentions it, although it undoubtedly occurs in texts, not only in other Manding varieties (Bambara, Maninka, Dyula, etc.), but also in languages whose genetic relationship with Mandinka is, at most, very remote, for example, Wolof.

In Kakabe, there is one additional type of usage of the pronoun *i* which is not mentioned by Creissels (2013) for Mandinka. The pronoun *i* can be coreferent with a distributive universal quantifier, in which case it no more has a generic reading, see (2.163 a) and (2.163 b) below:

- (2.163) (a) *mà fó fàtàntà nòò kálá tágátá i bàtà*
mà fó fàtan-ta nòò kála tága-ta i báta
 1PL UNIV divide-PFV.INTR that every go-PFV.INTR 2SG home

At that moment we separated, and **each one** went to **his** house.

- (b) *kálá bák kúma i là báára là*
kála báti kúma i la báara-È là
 everybody PFV.OF speak 2SG POSS work-ART OBL

[A group of people gathered at the riverbank] Everyone_i talked about his_i work.

Generic impersonals are found in non-assertive, irrealis context, where the referent corresponds to “some unspecified or loosely specified group of individuals” (Siewierska 2011). These are the readings of *i* in (2.158)-(2.162). By contrast, events in (2.163 a) and (2.163 b) are specific. *Kála* ‘every’ marks the distributional universal quantification²⁷ over a set of specific referents which is the group of people, including the speaker in (2.163 a) and the group of people gathered on the riverbank in the episode described in (2.163 a). Importantly, *i* cannot signal the distributivity on its own, thus, it cannot replace *kála*, as shown in (2.164) below.

- (2.164)
mà fó fàtàntà nòò í tágátá i bàtà We separated, and you went to your place.
 #We separated and everyone went to his place.
 ≠ *mà fó fàtàntà nòò kála tágátá i bàtà* We separated and everyone_i went to his_i place.

Contrary to that, the replacement of the generic *mògò* by *i* does not change the meaning of the utterance:

- (2.165) *mògò táán màfítán i mà ≈ i táán màfítán i mà*

‘You_{generic} cannot chase them off yourself’, see. (2.163 a) for glosses.

Thus, *i* is compatible with the distributive plural meaning, without being able to express this meaning on its own.

See also (2.166) below, where the generic/distributive *i* in the last clause is licensed by *nògòn* in the preceding clause (*i* in the preceding two clauses is the specialized reflexive pronoun homonymous to 2SG, described in Section 2.6.1.4). This proves that the semantic component which licenses the use of *i* in this case is indeed distributivity, and not universality.

27. See e.g. Gil (1995) on the notion of distributivity with respect to universal quantification.

- (2.166) *dénnèn* *ì wó kitilà lógè lá lè kà í sigáá*
 dénden-È-nù bi wò ka lógɔ-È là lè kà ì sigì à
 child-ART-PL be that PFV.TR tree-ART OBL FOC INF REFL sit 3SG
kùnma kà í nògòn náfilì ì náá wà
 kùnma kà ì nògɔn lafilì ì ni à wá
 on INF REFL the.same throw 2SG SBJV 3SG go
 [How children make a swing:] children attach it to a tree, and sit on it, and push **each other**, so that **each of you** swing.

To sum up, the pronoun *ì* can have a generic meaning on its own, as in (2.158), and can be anaphoric to an NP with generic reference. By extension of this antecedent-anaphoric relation with a generic NP, it started being used as an anaphor to distributional plural NPs. The link between generic reference and distributivity lies in the domain of modality which I do not have space to discuss here and refer the reader to Fintel & Iatridou (2003) and Gagnon & Wellwood (2011).

The uses of *ì* described above and illustrated in (2.158)-(2.166), and the primary usage of *ì* when it refers to the addressee, line up in a sequence of four stages, characterized each by different types of referentiality, represented below:

(1) reference to addressee	>	(2) generic reference	>	(3) kind reference	>	(4) distributive plural
deixis	>	not bound	>	anaphor	>	anaphor
realis/irrealis		irrealis		irrealis		realis/irrealis

Stage (1) corresponds to the participant deixis (in terms of Cysouw 2003), where the pronoun has the addressee as the only reference. At Stage (2), widely attested for the 2SG person cross-linguistically, *ì* has generic and non-specific reference. At this stage it is no more a deictic in the strict sense of the term, since it does not point to any element in the speech situation. Neither is it a shifter, since its reference does not depend on the speech situation, see Gast et al. (2015) for the discussion of the relation between 2SG deictic and the impersonal reference. At Stage (3) the pronoun is starting to be used in a context, where it is dependent in its interpretation on an NP antecedent in the subject position or as a left-dislocated topic. Importantly, this NP has to be generic, but nevertheless its interpretation domain is narrower compared to the impersonal use of 2SG. Thus, the transition from (2) to (3) is accompanied by the narrowing of referentiality: whereas at Stage (2) it refers to ‘any person’, at Stage (3) it refers to any person belonging to the kind denoted by its NP antecedent, e.g. ‘any X who does not study’ in (2.161).

Finally, at Stage (4) *ì* extends the range of its possible contexts to utterances with a specific plural topic and a distributive quantifier. This is, again, accompanied by the narrowing of the range of possible referents, compared to the preceding stage: at (3) it was any referent of the kind X, and here it is each distinct individual of the specific set X.

As shown on the schema above, the evolution of the use of *ì* affects several levels: the referentiality (narrow/wide); the pragmatic type of meaning (deixis/anaphora) and the level

of aspect and modality (realis/irrealis). The conclusion about the change in the referentiality is in tune with the findings of Gast & Auwera (2013), who develop a semantic map of human impersonal pronouns in European languages. According to their analysis, the change in the meaning of the impersonal pronominal markers such as French *on*, German *man*, English *they* etc. follows a circular trajectory where the referential domain is, first, widened, and then, narrowed back.

Analogously, the referential domains of the Kakabe 2SG (as well as the Mandinka *i* and, supposedly, the second person singular pronoun in many other Western African languages), the meaning is also, first widened and then narrowed. The typology of Gast & Auwera (2013) does not include the generic anaphoric use of the 2SG pronoun, for the simple reason that in European languages they are not attested. Thus, the example of Kakabe, as well of many other West African languages, according to Creissels (2013), may be an interesting contribution to the theory of impersonal pronouns.

2.6.2 Non-personal pronouns

2.6.2.1 Demonstratives and anaphors

Table 2.11 represents the demonstrative used in Kakabe:

	> pronominal /adnominal	> adverbial	
proximal (closer to the speaker)	<i>kè</i>	<i>yàn</i>	<i>káa</i> (manner)
medial (closer to the listener)		<i>pàn</i>	
distal	<i>wò</i>	<i>ńóđ ~ ńɔ</i>	
used adnominally	N pron ~ pron N	N pron	

Table 2.11: Demonstratives in Kakabe

The pronouns *kè* and *wò* are mostly used in argument positions, whereas *yàn*, *pàn* and *ńóđ ~ ńɔ* are mostly used adverbially, but, occasionally, the adverbial demonstratives occur in argument position also. The demonstratives *kè* and *wò* are also used adnominally, either before or after the head, and in both cases the noun occurs with the referential article.

(2.167) (a) *mùséé wò ~ wò mùséé* ‘that woman’

(b) *mùséé kè ~ kè mùséé* ‘this woman’

By contrast, *yàn*, *pàn* and *ńóđ ~ ńɔ* are never used adnominally. At the same time, they often combine with the pronouns *kè* and *wò*: *kě yàn*, *kě pàn*, *kè ńóđ*, *wò yàn* etc. The demonstratives *wò* and (much less frequently) *kè* are also used as anaphors, in the sense that they primarily stand for some other expression in the discourse.

The demonstratives *kè* and *wò* display a special behavior in ICM constructions, see 2.3.1.2.

The differentiation between the pronouns *kè* and *wò* is best accounted for in terms of the distinction between exophoric and endophoric pragmatic use. Figure 2.4 below reproduces

Diessel’s (1999) categorization which builds on Halliday & Hasan (1976). In this classification, an anaphoric referential expression keeps track of discourse participants, and is most often coreferential with prior NPs, its referent commonly persists in the subsequent discourse. On the other hand, a discourse deictic demonstrative refers to propositions and speech acts, and its referent usually does not persist in the subsequent discourse. The English *it* is an example of anaphor, whereas *that* is a discourse deictic. Exophoric deictics primarily identify a referent through the situation surrounding the interlocutors, and are often accompanied by a pointing gesture.

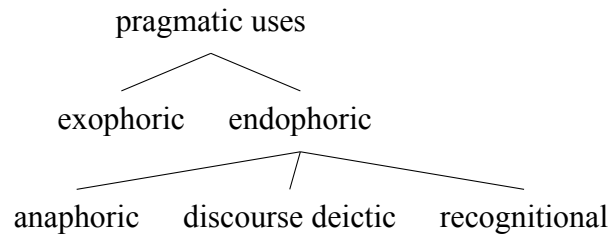


Figure 2.4: The pragmatic uses of demonstratives, after Diessel (1999)

The demonstrative *kè* is the primary **exophoric** deictic in Kakabe. Typically, it is used in contexts like (2.168), where it refers to a person present in the situation.

(2.168) *ómò bání kè yén sigilén ómò téèma yǎn bì*
 ò-mò bání^L kè yén sigi-len ò-mò téèma yàn bì
 2PL-1PL PRF this see sit-PC.ST 2PL-1PL between here today

We see him sitting here today among us.

The demonstrative *wò* covers the endophoric pragmatic uses: discourse deictic, anaphoric use and recognitional use. It is a typical **discourse deictic**, being is the primary device to refer to propositions in discourse, as in (2.169) below.

(2.169) *à néènè káá sòtò ñàráá lè kòtò à lè ká*
 à nèene ka à sòtò ñàra-È lè kótò à lè ka
 3SG mother PFV.TR 3SG get tree-ART FOC under 3SG LG PFV.TR

wò lón
wò lón
 that know

His mother had given him birth under a the tree “ngara”, he knew **it**.

“Discourse deictic demonstratives focus the hearer’s attention on aspects of meaning, expressed by a clause, a sentence, a paragraph, or an entire story” (Diessel 1999: 101). In line with that, *wò* is part of expressions which are regularly used when the narrator summarizes his story. It can also be used cataphorically:

- (2.170) *háray ñ kà wó lè fɔ́ túsùr ñ kà wó lè fɔ́*
háray ñ ka wò lè fɔ́ túsùr ñ ka wò lè fɔ́
 so 1SG PFV.TR that FOC say always 1SG PFV.TR that FOC say
nání ɔ́⁺mò ɔ́mò tàdíyálén wò là
nání ò-mò ò-mò tàdíya-len wò là
 ASR.F 2PL-1PL 2PL-1PL be.happy-PC.ST that OBL

I was always saying that, I was saying indeed, that we are very happy about it.

The demonstrative *wò* is often used as anaphor in correlatives, e.g.

- (2.171) *kě dùnbúndè mín fìsà fěyáálá ì ní ⁺wó tè*
kè dùnbu-nden-È mín^L fisa fěeyaa-la ì ni wò tè
 this box-DIM-È which be.better be.light-GER 2SG SBJV that split

You should split that box which is lighter.

Along with *à*, it is used as anaphor to topical NPs dislocated to the left, as in (2.172). Compared to *à*, *wò* is less frequent in this context, but regularly appears, for example, if the NP in question contains an adnominal *wò*, as it is the case in (2.172).

- (2.172) *pírí⁺ké wò, wò í lásìgìlà kámà?*
píríki-È wò wò bi la-sìgi-la kámà
 trap-ART that that be CAUS-sit-GER how

These traps, how are they installed?

Finally, the third endophoric type of use is the **recognitional** type. Recognitional demonstratives are only used adnominally and do not have any referent in the preceding discourse or the surrounding situation; rather, they are used to activate specific shared knowledge (Diessel 1999; Himmelmann 1996). An example of recognitional use of *wò* is (2.173) below. The NP *àn ná kàrà⁺né wò* ‘those writings of theirs’ [by which the speaker means the works of Muslim scholars] is the first mention of the referent, but the speaker construes it as something that his hearers are suppose to know, due to their religious engagement.

- (2.173) *àn ná kàrà⁺né wò dún à fɔ́lén dè ì kán*
ànu la kàran-È wò dún à fɔ́-len lè ì káni
 3PL POSS studies-ART that so 3SG say-PC.ST FOC 2SG SBJV.NEG
mògòndènfjè làdì hákkè là
mògòndenfin-È la-dí hákke-È la
 person-ART CAUS-weep distress-ART OBL

In those writings of theirs, it is said that you shouldn’t make people cry in distress.

2.6.2.2 Opposition between the demonstrative *wò* and the 3SG pronoun *à*

In the section above we have identified the distinction between the *wò* and *kè* which is the opposition between the discourse-internal type of reference and the to reference through the

situation of speech. The next question is what is the demarcation line between *wò* and the third person singular pronoun *à* which can both be used as anaphors. As will be shown, the personal pronoun *à* can have the same two endophoric pronominal uses as *wò*. The personal pronoun *à* can be bound to an NP-antecedent (not within the same clause), and it can also refer to propositional meaning expressed in the discourse. Thus, *wò* and *à* share the roles of the discourse deictic and the anaphor. In what follows, I will first compare *à* and *wò* when they are used in anaphoric relation to an NP and have term references.

I argue that they play different roles in reference-tracking when used anaphorically. The demonstrative *wò* serves, first, to further integrate a new referent as a topic, after its first mention through a full-fledged NP. Second, *wò* is used along with *à* in order to keep apart two referents claiming the same position in the givenness and salience hierarchy. As for *à*, its referents are characterized by the highest salience and activation state which is typical of personal pronouns cross-linguistically (e.g. Chafe 1987; Gundel et al. 1993). When *à* and *wò* are used with propositional reference, then the distinction between direct vs. non-direct relation between anaphor and antecedent (Prince & Cole 1981; Erku & Gundel 1987; Gundel et al. 2004) comes into play.

2.6.2.2.1 Anaphoric use of *wò* and *à*

Himmelman (1996) points out that after the introduction of a new referent through a full NP, its second mention is, typically, a demonstrative. After that, when the referent is already well established as a topic, it can be referred to through a personal pronoun. In Kakabe *wò* usually fulfills the role of the second-mention anaphor.

In (2.174) below, the elders from the Mansaya village are discussing the relationships between Kakabe and Fulbe. They say that people tend to go away from their village because of the existing tensions. The proper name *Cérnó Úsmánè* refers to a person they know, but who is mentioned for the first time in the discussion. He is first referred to with the full-fledged NP, his second mention is *wò*, and when he appears again in the third intonation phrase, the personal pronoun *à* is used. After it, another man from the village, *báppá Kèsélin* is mentioned, with the same pattern of referential expression: full-fledged NP → demonstrative *wò* → personal pronoun *à*.

- (2.174) *Cérnó Úsmánè* (0.24) A: And **Thierno Ousmane**,
éèy B: Yes
wò bélé †kónákiri A: Is he not in Konakri?
à ì nò ò là B: Yes, **he** is there.
báppá Kèsélin A: And **Bappa Keselin**
éèy B: Yes
wó kàtè, as for **him**
à máá bó ò bólo tɔ? didn't **he** go away from you?
à tì bó ò bòlò tɔ B: Yes, **he** went away from us.

The demonstrative *wò* can be not only a second- but also a third- mention of a new referent. Let's look at the passage in (2.175). The story is about a young man, who saw a married woman and fell in love with her. In (2.175) he tells to his friend that he found out who the

pronoun. But this topic chain is also disrupted by the interference of yet another referent. The horse of the hunter, mentioned first with a full-fledged NP in the DO position *à lá sòéè* ‘his horse’²⁸, then by the pronoun *à* in the DO position of the next clause. In the following clause (e), where it becomes subject, it is referred to by the demonstrative *wò*.

- | | | |
|-------------|--|--|
| (2.178) (a) | <i>à_i ká wò kílà jòkkì</i> | He_i [the young man] took the road |
| (b) | <i>háá à_i táátá à_i k’ à_{ii} tàrà̀n,</i> | He_i walked until he_i found
him_{ii} [the hunter he was looking
for] |
| (c) | <i>wò_{ii} b’ (à lá sòéè)_{iii} kítìlèn kándò</i> | He_{ii} had (his horse) _{iii} attached in
some place. |
| (d) | <i>à_{ii} b’ à_{iii} sà̀nèlèn,</i> | He_{ii} had attached it_{iii} |
| (e) | <i>wò_{iii} ì dàmú̀rè là</i> | and it_{iii} was grazing. |

All the above said leads to the conclusion that, apart from the novelty of the referent, the choice of the referential device depends on what syntactic position this referential marker occupies within the clause. A possible explanation of this fact is that the syntactic position is one of the elements taken into account in the reference tracking: the difference between the syntactic positions occupied by two referents is enough to keep them apart, even if they are denoted by the same markers.

Thus, the same referential device can be used for two distinct referents if they occupy different syntactic positions which also, in most cases, implies a difference in the roles within the event structure, and therefore there is no danger of ambiguous identification. On the other hand, if in a chain of utterances the subject position is to be passed from one referent to the other, in this case it is necessary to use different referential markers.

Analogously to that, in (2.179) below *wò* is used for a referent promoted to the subject position. The NP *kà̀rà̀mókó Lámínà* ‘master Lamina’ occupies first the object position and then is referred by *wò* in the following clause.

- | | | |
|---------|---|--|
| (2.179) | <i>à táátá ká í sò kílà dà̀à fè</i> | He_i went and stopped by the road |
| | <i>à kó à ì kà̀rà̀mókó Lámí⁺ ná kòǹndèn</i> | He_i said he was waiting for Master
Lamina _{ii} |
| | <i>wò bótá</i> | He_{ii} went out, |
| | <i>à t’ á kò hán à tí gàsè</i> | after he_{ii} had finished washing |

2.6.2.2.2 Propositional reference of *à* and *wò*

Both *wò* and *à* can refer to a proposition, an event or a state of affairs. The difference between them consists in that the personal pronoun refers to a proposition which is directly explicated in discourse, whereas a demonstrative refers to a proposition inferred from the discourse.

In Kakabe predicates which have a valency for a propositional argument, very frequently have a dummy object *à*, and the content is expressed after the verb by a clause, as in (2.180 a)-(2.180 c). The use of the dummy *à* is motivated by the tension between the impossibility to

28. The use of *à* in the possessor position within the DO *à lá sòéè* ‘his horse’ in (c) is explained by the fact that *wò* cannot be bound within the same clause (see 2.6.1.3).

express the propositional argument locally (a clause cannot easily fill the DO position), and the requirement to fill the position before the verb.

The pronoun *à* is used in the DO position, when it is coreferential with the content which is expressed directly in a complement clause after the verb. See (2.180 a)-(2.180 c) illustrate the use of such dummy pronoun with the verb *fɔ̃* ‘say’.

- (2.180) (a) *kàyéè náá fɔ̃ ì bét tágálá bìi yè*
kàyi-È ni à fɔ̃ ì béle tága-la bìi ye
 man-ART SBJV 3SG say 2SG COP.NEG go-GER today TRUTH.FOC

The man says: “No, you won’t go there!”

- (b) *mà náá fɔ̃ à dóní dùgù tígè yèn*
mà ni à fɔ̃ á dóni dùgu tígi-È yen
 1PL SBJV 3SG say 3SG transport earth owner-ART BNF

We say: carry it to the owners of the land.

- (c) *à káá †fɔ̃ nyè à nàtà kómìn nà*
à ka à fɔ̃ ò yen à nà-ta kómìn la
 3SG PST.TR 3SG say 1SG BNF 3SG come-PST.INTR how

She told me how she had arrived.

Differently from that, the demonstrative *wò* is used not to refer to the explicit content of the speech verb, but rather to a proposition interred from the discourse. Thus, in (2.181) *wò* refers to the general content of the whole.

- (2.181) {The old man who is in Beseko, he said that when it comes (the problem) we should come to him, and he would help us. Either in Mamu, Kindiya or Conakry, he would be with us.}

à bá' wò fɔ̃ **That's** what he said.

3SG PFV.OF that say

In (2.182) below, *wò* is associated with the proposition expressed in the preceding clause, but the propositional referent of *wò* does not fully coincide with it.

- (2.182) *nèèné áysátà sì nà dǒo bá à tí wò fɔ̃*
nèene Áysata si nà dǒo báy à báti wò fɔ̃
 mother NOM.F POT come here as 3SG PRF that say

Nene Aysata will come here. She said so.

The demonstrative *wò* is often used to refer to a reason which can be inferred from the preceding which can concern a rather long sequence of utterances. In (2.183) below *wò* represents as a reason an extensive section of the preceding discourse, given in the curled brackets.

- (2.183) *wò lè ká kòri mò ní †ó dèèman*
wò lè ka kòri mò ni ò dèèman
 that FOC PST.TR fail 1PL SBJV 2PL help

{You asked us to help us in the conflict with Keselin, but he has quarreled with my mother} That's why we didn't help you.

The situation is reminiscent of the analysis by Gundel et al. (2004) concerning the use of English *it* and *that* which have a non-NP antecedent referring to a proposition. They show that *it* is used when the non-NP antecedent, such as a clause, is its direct referent, *i.e.* has the same denotation/reference, whereas the interpretation of *that* depends on the antecedent, but is not co-referential with it.

2.6.2.2.3 Third person pronoun as impersonal and low-referentiality pronoun

The pronoun *à* in Kakabe can function as a weak pronominal expletive (term from Gast & Haas 2011: 160-161) similar to the French *il* in *Il semble que*. See examples below:

- (2.184) *à tárántá* It turned out that ...
 à tárántá It is that ...
 à máá mé after a while, litt.: “It didn’t last”.

The subject *à* in such utterances is non-referential, therefore, it can be considered as an instance of impersonal construction.

The weather statements is another type of impersonal predication. According to Malchukov and Ogawa (2011: 25), weather expressions do not license any arguments which creates a tension with the requirement for the filled subject position, characteristic of some languages. English resolves it by the introduction of a dummy subject *it*, as in *It rains*. Russian, on the contrary, chooses a content subject and a dummy verb, e.g. *Idet dožd’* (litt. “goes rain”). With this respect, languages like English can be called ‘verby’, since they locate the content in the verb, whereas languages as Russian are ‘nouny’ because they place the content in the subject noun, see Ogawa (2006); Malchukov & Ogawa (2011) on the ‘verby’ vs. ‘nouny’ opposition in impersonal constructions.

Kakabe chooses the nouny strategy for weather impersonal, see (2.185 a)-(2.185 c) below.

- (2.185) (a) *sángè bí nà-là*
 rain.ART be come-GER
 It is raining.
 (b) *wòséè bì bò-la*
 heat.ART be go.out-GER
 It is hot.
 (c) *bántà bátí kà*
 light.ART PFV.OF arrive
 It is dawn.

To sum up, Kakabe is nouny with respect to weather impersonals, but it uses a dummy subject pronoun *à* in the case for impersonal predications with phase or epistemic modality meanings (2.184).

As for the non-referential and the low-prominence use of *à*, apart from the subject position (2.184), it is also possible in object position, see (2.186) below. In all these utterances, the

objects refer to propositions (see also Section 2.6.2.2.2 above). Apart from that, they are redundant, because they double a proposition which is either pronounced in the previous (a) or following (b) discourse, or is inferred from the speech situation (c).

(2.186)

- | | | |
|-----|--|---|
| (a) | <i>̀̀n b́́t' à m̀̀èè</i>
1SG PFV.OF 3SG hear | ‘I understand’ [as an expression of an acknowledgment of what has been said]. |
| (b) | <i>̀̀i b́́t' à ỳ̀èn</i>
1SG PFV.OF 3SG see | ‘Do you see? [what I’m showing/saying to you]’ |
| (c) | <i>̀̀à b́́t' à f̀̀b́́ b́́ ỳ̀àn</i>
3SG PFV.OF 3SG say leave here | ‘He said: go away!’ |

As can be seen from the translations of the examples in (2.186), whereas Kakabe chooses the dummy pronoun *̀̀*, English simply omits the non-referential object.

Another type of construction used when the object is not prominent and referentially low is illustrated in (2.187) (a) and (c) below. Here the object is a non-prominent argument (and not a proposition as in 2.186). It is low in prominence either because it is vague and non-important, as in (2.187c), or because it is redundant, being easily recovered from the context (a). As we can see, contrary to the dummy-object strategy for propositional object chosen in (2.186), in this case Kakabe chooses the nominalization strategy. Here again, English simply omits the object.

- | | | |
|-------------|--|--|
| (2.187) (a) | <i>̀̀à b̀̀i d́́m̀̀ú-r̀̀è k̀̀è-l̀̀à</i>
3SG be eat-NMLZ.ART do-GER | ‘He is eating’. |
| (b) | <i>̀̀≠ à b' à d́́m̀̀ù-l̀̀à</i>
3SG be 3SG eat-GER | ‘He is eating it _{specific} ’ .
#‘He is eating’. |
| (c) | <i>̀̀à s̀̀i k̀̀àrà̀̀nè k̀̀è</i>
3SG be study.ART do | ‘He studies [e.g. at school]’ |
| (d) | <i>̀̀≠ à s' à k̀̀àrà̀̀n</i> | ‘He studies it _{specific} ’
#‘He is studying’. |

To sum up, in Kakabe, a low-prominence object is either referred to by a dummy *̀̀*, or is deleted through the nominalization strategy, but cannot be simply omitted.

The impossibility of object omission is a systemic feature of Kakabe grammar: in this language, the object slot always has to be filled. It should be noted that, cross-linguistically, the discursive omission of objects is very common. This phenomenon is referred to as object pro-drop in the generative tradition, following Rizzi (1986), or as A-lability (Dixon 1994), where A stands for agent.

Thus, Kakabe can omit neither the subject, nor the object and instead, it employs dummy pronouns in both positions. English, where, contrary to the object, the subject cannot be omitted, uses expletives in the subject position, e.g. *it* in *It means that he won't come*, or locative

expletives as *here* in *Here comes the sun*²⁹. By contrast, in Russian subject is omissible, resulting in utterances like (2.188) below:

(2.188) Russian: zero subject in impersonal predications

Značit, on ne prijedet.
 mean.PRS he not come.FUT
 It means that he will not come.

In line with that, in Kakabe, where neither of the slots can be empty, the dummy pronoun is used both in subject and in object positions.

The next question is why Kakabe treats differently propositional and non-propositional arguments in the choice of anaphor. As we have seen in Section 2.6.2.2.2 above, the object slot is filled with the dummy pronoun *à*, when it corefers with a proposition which is directly explicit next to this subject position. In contrast to that, the referential non-salient arguments is dispensed off through the nominalization of the verb, or through passivization (zero or morphological, depending on the dialect). The answer is that the choice of pronominal expressions depends on the semantic type of the predicate's argument. This is represented on Table 2.12 below.

		Nominal antecedent	Non-nominal antecedent
salient	new top.	<i>wò</i>	<i>wò</i>
	cont. top	<i>à</i>	
non-salient	low prominence	Ø (Nmlz/passive)	<i>à</i>

Table 2.12: Nominal vs. non-nominal (propositional) antecedent and the choice of anaphor

As I argue in Section 2.6.2.2.1, the pronoun used as anaphor to a nominal antecedent is, in most cases, *à*, and the demonstrative *wò* is chosen when a new referent takes the subject positions, thus, serving to keep apart two or more topical referents. When the nominal antecedent is not prominent, a detransitivizing operation is applied in order to eliminate the position: nominalization with dummy verb for the elimination of the object, and passivisation for the deletion of the subject.

When the antecedent is propositional, *wò* plays a different role compared to *wò* with a nominal antecedent. As I show in Section 2.6.2.2.2, it is used not to refer to a proposition directly expressed in discourse (either before or after), but rather to a proposition which is inferred from the adjacent clauses. The fact that the denotation of *wò* is not identical with the denotation of an adjacent expression and therefore carries an element of new information. Compared to that, the denotation of *à* is a full copy of that of its antecedent, so that the pronoun does not add any new meaning. It can be characterized as a dummy anaphor used when the real propositional complement cannot be placed in the syntactically required DO position.

29. Object dummy pronouns also exist in English, as *it* in *You can make it*, but they are lexically restricted and are much less frequent compared to dummy subject pronouns.

2.6.2.3 Irregular long forms of anaphoric demonstratives in NK

In NK the plural forms of *wò* and *kè* have the focalization forms *wǒn⁺délè* and *kě⁺lélè*, originating from the double addition of the focus particle *lè*.

But contrary to personal pronouns that have the long form with one *lè* marker and the focused form with two *lè* markers, the anaphors *wònu* and *kènu* in NK have only the double *lè* form, and the form with one *lè* does not exist. Besides, the vowel of the plural marker-*nu* is never realized, so that neither **wònú⁺lélè* nor **kènú⁺lélè* is possible. By contrast, the singular *wò* and *kè* combine with one *lè* only.

Northern Kakabe				
	SG		PL	
Simple	<i>wò</i>	<i>kè</i>	<i>wòn(ù)</i>	<i>kèn(u)</i>
with one <i>lè</i>	<i>wǒlè</i>	<i>kělè</i>	—	—
with double <i>lè</i>	—	—	<i>wǒn⁺délè</i>	<i>kě⁺délè</i>

Table 2.13: Paradigms of anaphors *kè* and *wò* in NK

No such irregularity is attested neither in WK nor in CK: *wò* and *kè* combine with only one *lè* in the singular and in the plural:

Central Kakabe and Western Kakabe				
	SG		PL	
Simple	<i>wò</i>	<i>kè</i>	<i>wòn(ù)</i>	<i>kèn(ù)</i>
with one <i>lè</i>	<i>wǒlè</i>	<i>kělè</i>	<i>wònú lè ~ wǒn dè</i>	<i>wùnù lè ~ wǒn dè</i>
with double <i>lè</i>	—	—	—	—

Table 2.14: Paradigms of anaphors *kè* and *wò* in CK and WK

As for the meaning of the *lè* forms of *kè* and *wò*, it is likely that in this case it signals not only focus, but also some other type of information structure role, similar to the meaning of the long form of personal pronouns, described in (2.6.1.6). See, for example, (2.189) below, where *wó lè*, apparently, does not mark focus. This would partly explain the irregular behavior of *lè* with the anaphors in NK. At any case, considering the complex distribution of *lè* which in certain syntactic positions can mark not only constituent focus, but also assertion, expletive and inferential focus (see 2.2.1), a much more detailed investigation is necessary in order to understand the function of *lè* with anaphors, than is possible to make within this limited space.

- (2.189) *̀̀ mání kùrèè mín fòyi wó ̀̀ bélé ⁺wó lè*
̀̀ mání^L kùrèè mín^L fòyi wó ̀̀ béle^L wò lè
 1SG COND stone-ART which shoot any 1SG COP.NEG that FOC
bònnà
bón-la
 fling-GER
 Every stone that I flinged, I missed it. (NK)

2.6.2.4 Indefinite pronouns

In Section 6.5.3 I argue that the referential type is marked through the intonational H-tone raising and tonal pattern, and I discuss in detail the discursive functions of the pronouns. Here I will limit myself to reproducing the paradigm of indefinite pronouns:

	indefinite pronouns	polarity items	question pronouns
	H	↑HL	H ^L
thing	<i>fɛn</i>	↑ <i>fɛnfɛn</i>	<i>fɛn^L</i>
proposition/manner	<i>kóo</i>	↑ <i>kóokò</i>	<i>mín^L</i>
person	<i>dóo</i>	↑ <i>dóodò</i>	<i>yón^L</i>

Table 2.15: Three series of indefinite pronouns

2.6.2.5 Interrogative pronouns

Table 2.5 represents the interrogative pronouns which are used in Kakabe:

Nominal	Person	<i>yón^L (dè)</i>	‘who’
		<i>mín^L (dè) N</i>	‘whose’
Nominal	Inanimate/ Proposition	<i>fɛn^L (dè)/</i> <i>mín^L (dè)/</i>	‘what?’
		<i>fɛn mín (dè)</i>	
Adnominal	Property	<i>nùman (dè)</i>	‘which’
Adnominal	Quantity	<i>jèlu (lè)</i>	‘how much/how many?’
Adverbial	Location	<i>mín^L (+ pp) (lè),</i>	
Adverbial	Manner	<i>kámà (lè),</i> <i>kómìn (nà)</i> <i>káamìn</i>	
Adverbial	Time	<i>wáttòè mín (tɔ),</i> <i>túma mín (tɔ)</i>	

Figure 2.5: Interrogative pronouns

The marker *mín^L* is the only expression used for questions about locations. The use of the postposition and of the focus marker is optional, see (2.190) below.

(2.190) *ì bì táálá mín (nà)*
ì bi táa-la mín^L la
 2SG be go-GER REL OBL

Where are you going?

By contrast, the use of *min^L* as a question word is restricted, since it rivals with the specialized question words *yón^L* for animates and *fěn^L* for inanimates. In my corpus the use of interrogative *min^L* occurs only the possessor position and never in the subject or direct object position. It is used in (2.191 a) and (2.191 b), where *fěn^L* and *yón^L* can be used also, but is rejected in (2.191 c).

(2.191) (a)

ì lè mù mín †déndén dè là / ì lè mù yón †déndén dè là
 ì lè mu mín^L dénden lè la
 2SG FOC IDENT REL child FOC OBL
 ‘Whose child are you?’

(b) *mín †lógó bí ì là / fěn lógó bi ì là?*
 mín^L lógó bi ì la
 REL wish be 2SG OBL
 ‘What do you want?’

(c) *yón †sáákú mú wò *mín †sáákú mú wò?*
 yón^L sáaku mu wò
 who bag INDENT that
 ‘Whose bag is that?’

The pronoun *min^L* can be used in a question serving to establish the identity of a referent under discussion through a proposition which is already associated with a particular referent in the mind of the interrogator, ‘X found a wife’ in (2.192), rather than questioning the identity of this referent with respect to this proposition.

(2.192) *mín ká mùséé sòtò*
 mín^L ka musu-È sòtò
 REL PFV.TR woman-ART get
 ‘It is the one who found a wife?’ #‘Who found a wife?’

In the attributive position *min^L* can be used interrogatively only after *fěn^L*, as in (2.193 a). Otherwise only *núman* ‘which?’ can be used, see (2.193 b).

(2.193) (a) *ì lè nù lá kàyéé wò ì fěn †mín báárálá*
 ì lè nín ì la kàyi-È wò bi fěn^L mín^L báara-la
 2SG LG and 2SG POSS man-ART 2PL be what? REL work-GER

You and your husband, what do you do for a living?

(b) *ì ká tàléè nùmàn lòn *ì ká tàléé mín lòn?*
 ì ka tàli-È nùman lòn
 2SG PFV.TR tale-ART which? know
 ‘What tales do you know?’

All the adverbial question words, except for *kámà* ‘how’, go back to the combination of a noun with *min^L* which, in some of the cases has lost its H tone:

<i>káamìn</i>	<	<i>káa</i> ‘thus, this way’ manner deictic
<i>kóomìn</i>	<	<i>kóo</i> generic word for ‘state of affairs’
<i>wáttòè mín</i>	<	<i>wáttu</i> ‘time’ + <i>-È</i> ART
<i>sááyè mín</i>	<	<i>sáayi</i> ‘time’ + <i>-È</i> ART
<i>tùmà mín</i>	<	<i>tùma</i> ‘time’

Apart from the interrogative contexts, these adverbials are widely used to introduce various types of dependent clauses, see Section 2.7.3.1.

2.7 Subordination and clause-linking

Defined in functional terms, subordination is the morphosyntactic expression of the link which exists between two states of affairs (Cristofaro 2003). These states of affairs are expressed by two predications where the first one (the main predication) is morphosyntactically more autonomous compared to the second, deranked predication (a term introduced by Stassen 1985: 76–82). A deranked form is explicitly marked as non-equal in rank with respect to a corresponding one used in an independent clause (Cristofaro 2003: 57). The deranking of the predication can be manifested in a variety of ways, cf. the scale of desententialization in Lehmann (2011), Generalized Scale Model in Malchukov (2004).

In Kakabe the finite categories is detached from the content verb, since in most cases they are expressed by a copula or an auxiliary in the post-subject position, see Section 2.1.4. Therefore, it makes more sense to speak about the deranking of the verbal predication construction than the deranking of a verb form.

In Kakabe, two types of deranked verbal predication can be distinguished. The first group includes verbal predications without any subject position: *kà* infinitives, gerund *-la* clauses, participial clauses with *-nden* ~ *-len* verb forms and nominalizations. They follow the ergative model of argument realization: the O argument is preserved (with the exception of the *-ri* antipassive nominalization), and the A argument is eliminated.

To the second group of subordinate predications belong the clauses with the auxiliaries *ni* and *máni*, relativized clauses with the relativizer *mín^L*, conditional clauses introduced by the conjunction *sì* and other types of adverbial clauses introduced by conjunctions. These clauses have a subject positions but cannot be used independently.

The subjectless dependent predications of the first group are embedded in the main clause in the argument, adnominal or adverbial position. By contrast, the constructions of the second group remain outside of the main clause. The only exception to it are the embedded relative clauses, yet they are very rare compared to the main, correlative strategy of relativization, as discussed in Section 2.7.5.3.2.

Thus, the position of an adverb and its scope is more free in the case of a main clause followed by a dependent clause with a subject, as compared to the clause with a subjectless non-finite clause. Let’s look at a complex sentence consisting of a main clause followed by a subjunctive *ni* clause. In this case, an adverb can occupy the position after the *ni* clause and

have the scope either over the *ni* clause only or over the whole complex clause, see (2.194 a). Alternatively, the adverb can occur after the main clause and have the scope over the main clause only, as in (2.194 b).

- (2.194) (a) *à ká kòréé sà̀n à ní tàbí̀rè kè kúnùn*
 à ká kòrɔ-È sà̀n à ni tàbí̀ri-È ké kúnùn
 3SG PFV.TR rice.ART buy 3SG SBJV perparing.ART do yesterday
 He bought rice in order to [prepare food yesterday]./ Yesterday, he bought rice to
 prepare food.
- (b) *à ká kòréé sà̀n kúnùn à ní tàbí̀rè kè*
 à ká kòrɔ-È sà̀n kúnùn à ni tàbí̀ri-È ké
 3SG PFV.TR rice.ART buy yesterday 3SG SBJV perparing.ART do
 Yesterday, He bought rice in order to [prepare food yesterday].

By contrast, in the case of a main clause followed by a gerund clause, the adverb can have the scope only over the whole complex predication and cannot be placed between the two clauses:

- (2.195) *à kà fóló kà̀rànnà kúnùn *à kà fóló kúnùn kà̀rànnà*
 à ka fólɔ kà̀rà̀n-la kúnùn
 3SG PFV.OF begin run-GER yesterday
 He started to study yesterday.

Gerund is by far the most frequent complementation strategy (in terms of Dixon 2006) involving same-subject complement. In (2.196) below I reproduce the semantic classification of complement-taking predicates by Noonan (1985) and the type of clause which corresponds in Kakabe to each semantic type of the main predicate. The infinitive complement is used only with the modal verb *kán* ‘have to’, see examples in 2.7.1.3. The complements of the rest of modals and all phasals which are numerous in Kakabe are expressed by gerund clause. Besides, same-subject complements of perception predicates, see Section 2.7.1.2. The wish is expressed by a non-verbal construction with the subjunctive *ni* clause as complement, see Section 2.7.2.

(2.196) Semantic type of the complement-taking predicate	Expression of the complement in Kakabe
modals (‘must’, ‘can’, ‘may’, ‘be able’, etc.)	gerund / infinitive
phasals (‘start’, ‘begin’, ‘stop’, ‘continue’, etc.)	gerund
manipulatives (‘order’, ‘allow’, ‘help’, etc.)	gerund / <i>ni</i> subjunctive clause
desideratives (‘want’, etc.);	<i>ni</i> subjunctive clause
perception (‘see’, ‘hear’, etc.);	gerund / finite
knowledge, propositional attitude, utterance	finite clause

Section (2.7.1) introduces the forms used in subjectless predications. In Section 2.7.2 I describe the clauses with the marker *ni* which can introduce purpose clauses but is also used in clause chaining. Section 2.7.4 analyzes the adverbial clauses belonging to the temporal-conditional continuum. Finally, the relativization strategies are described in Section 2.7.5.

2.7.1 Verb forms used in non-finite subjectless predication

Table 2.16 below shows the non-finite verb forms and constructions used in subjectless predication.

Construction	Description	Syntactic function within the main clause
V-nden CK; V-len WK, NK	stative-resultative participle	adnominal
V-la (-na after N)	gerund verb form	argument/adverbial
kà (DO) V	infinitive	argument/adverbial
V (+ -È)	zero-marked nominalization (verb combines directly with the referential marker -È)	argument
V(-ri-È)	antipassive nominalization	argument
V-dulà	purpose predication after motion verbs	adverbial

Table 2.16: Non-finite verbal forms and constructions in Kakabe

2.7.1.1 Stative-resultative participle

The stative-resultative participle can be used as an attribute within a noun phrase and combine with the article, see (2.197) below with the NP *sòbée yilannée* ‘the fried meat’ occupying the DO position. The combination is realized as *-nnéè ~ -néè* in CK and WK and *-léjè, déjè ~ dèè* in NK. The allomorphy pattern is described in Section 4.3.3.

(2.197) Adjectival use of the participle:

à bās [sòbée yilannée]_{NP} dàmù
à báti sòbo-È yilan-nden-ART dámu
3SG PFV.OF meat-ART fry-PC.ST-ART eat
He has eaten the fried meat.

The NP with the participle can have adverbial use, see *sálè bannéè* ‘the finished prayer’ used as a temporal adverb in (2.198) below:

(2.198) Adverbial use NP with a participle

[sálè bannéè]_{NP} àn kó kó mà náà jáákàrán
sáli-È bán-nden-È ànu kó kó mà ni à jáákàrán
prayer-ART finish-PC.ST-ART 3PL say say 1PL SBJV 3SG explain

When the prayer finished, they told us that we should explain [what he had come for].
Litt: “The prayer finished, they told us: “ ... ”

When somebody dies, he [his body] has to spend the night in the mosque [and not in a house].

It should be noted that the gerund form also occurs after the modal predicate *kán*, as in (2.205) below:

- (2.205) *ì kà kán dárdé filà sàlilà*
ì ka kán dárde fila sàli-la
 2SG PST.TR ought bow two pray-GER

You should make two bows [at the end of the prayer].

The *kà* clause can be used as a complement in the position of the subject with the experiential predicate ‘please’:

- (2.206) [*kà bànáánà dàmù*]_{SBJ} *máá dí jynè*
kà bànaana-È dámu máa dí ò yen
 INF banana-ART eat PFV.NEG please 1SG BNF

I don’t like to eat bananas.

Apart from that, the infinitive can be used in an independent utterance in which the subject is omitted due to it being obvious, easily recoverable from the context or generic, see (2.207 a) and (2.207 b) below:

- (2.207) (a) *àn táán kò fús tò(0.65) kà tága tún kà*
ànu téé ànu kó fús tò kà tága tún kà
 3PL POT.NEG 3PL give nothing to INF go only INF work
wáli
wáli
 INF

The didn’t give them anything. [they] just go and work!

- (b) *wò yáá kèlà kámà -kàà fálín wótè là*
wò bi à ké-la kámà kà à fálín wóti-È là
 2PL be 3SG do-GER how INF 3SG exchange money OBL

What do you do with [the gold]? Change it for money.

The use of the infinitive clause can be triggered by sentence-initial operators with the meaning of necessity *kóyi*, *fó* and *bé*, see (2.208) below, but the subjunctive *ni* clause is used after such operators much more frequently, see Section 2.7.2.

- (2.208) *fó kà wótè bò*
fó kà wóti-È bó
 NESS INF money

It is necessary to pay money.

The marker *kà* is most often used as sequential, as in (2.209) below.

- (2.209) *sáákékè kà déndéè jìgà kàà bilà sáákòè búùtò*
Sáákékè ka dénden-È jíga kà à bila sáaku-È búùtò
 Sakeke PFV.TR child-ART take INF 3SG put bag-ART in
 Sakeke took the child and put him in the bag

kà sáákòè lákìtì kà tágá kii dògòn kándò
kà sáaku-È la-kìtì kà tága kà ì dògon kándò
 INF bag-ART CAUS-tie INF go INF REFL cacher somewhere
 and tied the back and went and hid himself there

The sequential clauses with *kà* can follow any type of clause, including modals and imperatives as in (2.210) below:

- (2.210) *kùtáánù bò féw kàà làsá pán*
kùta-È-nu bó féw kà à la-sá pán
 clothes-ART-PL leave at.all INF 3SG CAUS-lie there
 Take off all the clothes and put them here.

kó kòyì kà dòn àn nà súsétè tò
kó kòyi kà dòn ànu la sùseti-È tò
 say it.should.be INF enclose 3PL POSS company-ART in
 They told to get enlisted in there association

2.7.1.4 The complement clause with -dulà

The suffix *-dulà* ~ *-diyà* The suffix *-dulà* goes back to the noun *dúla* ‘place’ combined with the referential marker *-È*. It is used mostly in purpose clauses after the motion verbs *tága* ‘go’, *dòni* ‘send’ and *wà* ‘go’, etc., e.g.:

- (2.211) *à bát tágá kùtáá kòdulà*
à báti tága kùta-È kò-dulà
 3SG PFV.OF go clothes-ART wash-place
 He went to wash the clothes.

More rarely, the *-dulà* ~ *-diyà* forms are used as adverbials with the meaning of simultaneity:

- (2.212) *àn tórɔta nùn kèlèkèèdulà*
ànu tórɔ-ta nùn kèlɛ-ké-dulà
 3PL suffer PST war-do-place
 They suffered while they fought.

The verb form with *-dúla*, apart from being used adverbially, can also occupy the position of the argument, as in (2.213) below:

- (2.213) *ì lá kè †sóenu màràdùlà ò nì nì jósó yítá ì*
ì la kè sòo-È-nu màra-dùla ò nì nì jósó yíta ì
 2SG POSS this horse-ART-PL hide place 1SG SBJV that show
là
là
 2SG

The place where your horses are hidden, I will show it to you.

Finally, the forms with *-dulà* can occur in the argument position with the meaning ‘place of an event’, as in (2.214) below:

- (2.214) *àn má†á fàgàdíyà yèn*
ànu máa à fàga-díyà yén
 3PL PFV.NEG 3SG die-place see
 They didn’t find the place of his death.

2.7.1.5 Zero-marked nominalization

Western Mande languages are known to have weak verb-noun differentiation, see the discussion in Lüpke (2005: 93-94). All verbs in Kakabe can be used in the argument position without the addition of any derivation marker. In this cases the verb almost always combines with the article which is a highly grammaticalized marker of referentiality, see Section 2.5.2. Example (2.216) illustrates the use of zero-nominalization *ràyi bóè* ‘the taking off of rails’ in the subject position.

- (2.215) *dèpí ràyi bóè fòlòtà*
dèpí ràyi bó-È fòlo-ta
 since rail take.off-ART begin-PFV.INTR
 Since the taking off of the rails started ...

Example (2.216) illustrates the adverbial use of the zero-derived nominalization:

- (2.216) *à dònéè bójè là à là kàá kà*
à dòn-È bòn-È la à la kàa-È ka
 3SG enter-ART house-ART POSS 3SG POSS snake-ART PST.TR
kilà bità
kíla-È bita
 road-ART start

Having entered the house, the snake took the way [further inside].

2.7.1.6 Antipassive -ri nominalization

The antipassive nominalization suffix *-ri* derives nominalizations from transitive verbs and eliminates the direct object, e.g. *dámu* ‘eat’ → *dámu-ri* ‘eating’. It is most commonly used in contexts with a generic or obvious object as the complement of the light verb *ké* ‘do’, e.g. *dámuri ké* ‘eat’, *tábiri ké* ‘prepare (food)’, *jìnìnkári ké* ‘ask [a question]’, etc.

2.7.2 Subjunctive *ni* clauses

Example 2.217 below illustrate the use of *ni* in a clause with purpose meaning:

- (2.217) *ì sí mò lálòn mò ní †mó prèpàrè kóóbèn*
ì si mò la-lón mò ni mò prèpare kóóbèn
 2SG POT 1PL CAUS-know 1PL SBJV 1PL prepare much
 You will let us know, so that we prepare ourselves.

ń kònòn ñ nì lógóndénnú jíní yàn
ñ kònòn ñ ni lógó-nden-nu jíní yàn
 1SG wait 1SG SBJV tree-DIM-PL look.for that
 Wait while I look for twigs.

Kakabe has no verb with the meaning ‘want’, instead, the desiderative meaning is expressed by the construction with the noun *lógɔ* (CK, WK) and *sógɔ* (NK): *à lógɔ bi X la ~ à sógɔ bi X la* ‘the wish is on X’ with *à* coreferent to the sentential complement, see (2.218 a) below:

- (2.218) (a) *fěn dè lógó bì là ì náá †fǒ jǎnè*
fěn lè lógɔ bi ì la ì ni à fǒ ñ yen
 thing FOC with be 2SG OBL 2SG SBJV 3SG say 1SG BNF
 What do you want to tell me?

- (b) *à lógó bí ñ nà àn náán sigí yàn*
à lógɔ bi ñ la ànu ni ànu sigí yàn
 3SG wish be 1SG OBL 3PL SBJV 3PL sit here
 I want them to sit down here.

The subjunctive *ni* clause is used with such predicates as *dèeman* ‘help’ and *tó* ‘let, allow’:

- (2.219) (a) *ànù sì †mó dèèmán mò nì sùgè sòtò*
ànù sì mò dèeman mò ni sùgu-È sòtò
 3PL POT 1PL help 1PL SBJV see-ART get
 They will help us to get the seeds.

- (b) *à tó ñ nì kélén mákàfú ì yèn*
à tò ñ ni kelen mákàfu ì yen
 3SG to 1SG SBJV one add 2SG BNF
 Let me do one more thing for you...

Its appearance is triggered by various types of conjunctions such as *háa* ‘until’, *sákkɔferɛɛ* ‘so as not to’, the necessity modal operator *fǒ*, *yànnin* ‘until’, etc.

- (2.220) *màà tó háa à nì kéndéyá*
mà à tó háa à ni kéndeya
 1PL 3SG wait until 3SG SBJV get.well
 Let’s wait until he gets well.

Finally, *ni* is used in clause chain constructions which start with the temporal-conditional *máni* clause followed by an indefinite number of *ni* clauses. Such chains are used to describe a habitual actions and, more specifically, texts describing the templates of behavior in certain situations, as in (2.221) below, see also Section 2.7.4.3.

- (2.221) *sáli wáttòè mán ké àn ní fùréé sáli àn*
sáli wattu-È máni ké ànu ni fùru-È sáli ànu
 pray time-ART COND arrive 3PL SBJV corpse-ART pray 3PL
náá dònì bérde tò
ni à dònì bérde-È tò
 SBVJ 3SG send cemetery-ART to

When the time of the day prayer comes (*máni*), they pray (*ni*) in front of the body and carry (*ni*) it to the cemetery [burial rite].

The use of *máni* → *ni* clause chains has been extended to simple narrative construction (without any generic or modal meaning meaning):

- (2.222) *à mánáá bòn kómìn ì ní wòléé yèn bòyilà*
à máni à bòn kómìn ì ni wòlo-È yèn bòyi-la
 3PL COND 3SG fling when 2SG SBVJ francolin-ART see fall-GER
mò ní wò tónbón mò náá sàá mò lá sáákóè tò
mò ni wò tónbon mò ni à sá mò la sáaku-È tò
 1PL SBVJ that take 1PL SBJV 3SG put 1PL POSS bag-ART in

When he shot (*máni*) at the bird, on could see (*ni*) it fall down, we picked it up (*ni*) and put (*ni*) it into the bag.

In Vydrina (2014) I claims that this extension has happened through the *máni* → *ni* clause chains with iterative meaning as in (2.223):

- (2.223) *à mání ké hódè mín mà wó à náá fǔ*
à máni ké hódò-È mín^L mà wó à ni à fǔ
 3SG COND arrive village-ART REL to any 3SG SBVJ 3SG say
yón mù n nàà là
yón^L mu n nàa la
 who.INTERR IDENT 1SG mother OBL

Every time when he came (*máni*) to a village, he asked (*ni*): “Who is my mother”?

2.7.3 Clauses introduced by conjunctions

2.7.3.1 Clause-final conjunctions from interrogative adverbials

Adverbial expressions that are used as question words, *káamìn* ‘where, how’, *wáttòè mín* ‘when’, *kámà* ‘how’, see Section 2.6.2.5, apart from the interrogative contexts, are widely used to introduce various types of dependent clauses. Thus, *kómìn* ‘how’ is used in as question word in (2.224 c), as a conjunction in a temporal adverbial clause in (2.224 a), and as a conjunction of complement clause of the *tòdiya* ‘be happy’ in (2.224 b).

(2.224) (a) Temporal adverbial clause

à yáá kùdùkùdùlà kómìn sòòlínù bì wúlílá kàá lò
 à bi à kúdukudu-la kómìn sòòlin-nù bi wúli-la kà à lò
 3SG be 3SG roll-GER how blade-PL be get.up-GER INF 3SG stop
 à kóòmà
 à kóoma
 3SG behind

While he was rolling [on the ground], the grass blades perked up behind him.

(b) Complement clause

wò t̀díyálén ǹn à ká wò bó j̀òyáá wò
 wò t̀-díya-len ǹn à ka wò bó j̀òya-È wò
 2PL REF-please-PC.ST but 3SG PFV.TR 2PL leave slavery-ART that
 t̀ kómìn
 t̀ kómìn
 in how

You are happy that he liberated you from this serfdom.

(c) Interrogative

wò ì lógè è̀b̀bilà kómìn nà ò náà f̀àrà?
 wò bi lógò-È é̀b̀bi-la kómìn là ò ni à f̀ara
 2PL be wood-ART measure-GER how OBL 2PL SBJV 3SG cut
 How do you measure the wood in order to cut it?

2.7.3.2 Clause-initial conjunctions

Kakabe has a small class of clause-initial conjunctions, such as *fí* ‘(in order) to’, *d̀èpi* ‘since’, *káa* ‘or (in interrogative utterance)’, *máa* ‘or (in affirmative utterance)’, *háa* ‘until’. The clause-initial conjunctions can combine with clause-final conjunctions, discussed in the section above. Thus, *fí* ‘(in order) to’ introduces a purpose clause alone in (2.225 a), and in (2.225 b) both the clause-initial *fí* and the clause-final *kómìn* ‘how’ are used:

(2.225) (a) wò káá l̀akòlò l̀è f̀í à ní s̀iyàyà
 wò ka à la-kòlo l̀è f̀í à ní siyaya
 2PL PFV.TR 3SG CAUS-grow FOC that 3SG SBJV be.numerous

You have bred them [your goats] so that they multiply.

(b) d̀óénu ní nà f̀í àn sáá s̀òtò kómìn
 d̀oo-È-nu ni nà f̀í ànu si à s̀òtò kómìn
 one-ART-PL SBJV come to 3PL POT 3SG get how

Others come in order to get [some profit].

Fí belongs to those conjunctions that can also introduce NPs (see Section 2.1.2 for other examples), cf. 2.226 a below:

- (2.226) (a) *fí yáárí tà máátè làkò hári ì báà fólàlà yàn*
fí yáari tà máati-È làko ì bi à fól-la yàn káa
 to next.year tomato-ART for 2SG be 3SG start-GER here this.way
káá lè
lè
 FOC
 For the tomatoes of the next year, you have to start [thinking to look for the seeds] right now.

2.7.3.3 The quotative

The conjunction *kó* which has developed from the defective verb *kó* ‘say’ (see Section 2.1.4) can introduce the clauses after utterance predicates, functioning as a quotative, as in (2.227 a)-(2.227 c) below.

- (2.227) (a) *ì sáá fǒ kó ò máni bó yàn*
ì si à fǒ kó ò máni bó yàn
 2SG POT 3SG say 1SG COND go.out here
 You will say, when I go out ...
- (b) *à mààmà káá *májinìnkà kó ì fén dè màlà*
à màama ka à maḵininka kó ì fén lè má-la
 3SG grandmother PFV.TR 3SG ask say 2SG what FOC do-GER
 His grandmother asked him, what will you do?
- (c) *fóó káà kòn kó kàrà[†]ḵé sòtò máá dí*
fóo ka à lón kó kàran-È sòto máa dí
 UNIV PFV.TR 3SG know say studies-ART get PFV.NEG be.easy
 Everybody knows that studying is not easy

Example (2.228) shows that *kó* has extended its usage to clauses without any utterance-related predicates:

- (2.228) *síikúlè lè káá là kérénu jìgà kó à ì*
síikuli-È lè ka à la kéri-È-nu jíga kó à
 goat-ART FOC PFV.TR 2SG hoe-ART-PL take say bi go-GER
tágálá nùméé bàtà
bi tága-la nùmu-È báta
 smith-ART place

The goat took the hoe and (said that he) went to the smith’s place.

The sentential complements of utterance verbs, such as *fǒ* ‘say’, *kó* ‘say’, *ḵininka* ‘ask’ are juxtaposed to the clause with the main verb, and are represented within the main clause by the dummy pronoun *à*, this is described in Section 2.6.2.2.2.

2.7.4 Temporal and conditional clauses

An antecedent in a temporal or conditional complex sentence is “a clause whose function is to build a background space within which the main clause holds” (Dancygier & Sweetser 2005: 46). The proposition building this background space can be characterized by varying degrees of certainty. I will use the term of Fillmore’s (1990) term epistemic stance of the speaker with respect to a proposition. It describes how the speaker evaluates the relation between a proposition P and the actual world:

positive epistemic stance: speaker judges P belongs to the actual world

specific: P is singular and specific

generic: P is generic (partly hypothetical)

neutral epistemic stance: speaker does not know whether P belongs to the actual world, P is hypothetical;

negative epistemic stance: speaker judges P distinct from the actual world; P is counterfactual.

The epistemic stance parameter intersects with aspect. For example, the genericity of the proposition makes it more hypothetical.

Thus, the opposition between a temporal and a conditional antecedent is rather gradual than binary, going from a more positive epistemic stance to a counterfactual. This can be seen on the example of Kakabe which has several formally distinct temporal/conditional antecedent constructions, the distribution between which can be accounted for in terms of the degree of epistemic certainty about the P in the antecedent. Table 2.17 below shows the correspondence between the formal type of the antecedent and its semantic type. The certainty of the occurrence of P in the antecedent diminishes from the top to the bottom of the table.

Antecedent markers	Epistemic stance towards P in the antecedent	Semantics of the complex sentence (antecedent + apodosis)	Analogue in English
<i>bá(yì) + báti</i>	positive (actual specific)	Evocative in narrative: tail-head construction	<i>When he arrived, nobody was there anymore.</i>
<i>sì + báti</i>	positive (actual specific)	Evocative construction in present	<i>Since he created this problem, it is up to him to resolve it.</i>
<i>máni</i>	positive (generic/habitual/future)	Temporal for generic-habitual or future: unconditional prediction	<i>When holidays start, tickets get more expensive.</i>
<i>sì + ka/-ta</i>	neutral (hypothetical)	Conditional prediction	<i>If it rains, we won't go out.</i>
<i>sì + ka/-ta + nùn</i>	negative (counterfactual)	Counterfactual conditional	<i>If it rained yesterday, we would have stayed home.</i>

Table 2.17: Temporal and conditional constructions in Kakabe

As argued in Section 2.2.3, *báti* is opposed to *ka/-ta* through the absence/presence of inherent operator focus. As can be seen from Table 2.17 above, in the context of a temporal/conditional antecedent clause, this opposition is substituted by the actuality opposition: *báti* is used to convey actual, realis propositions, whereas *ka/-ta* is used to refer to propositions disassociated from the actual world of the speaker. The conditional/temporal construction with *máni* is situated between the temporal constructions with *báti* antecedents, referring to actual completed events, and *ka/ta* hypothetical conditionals.

In the discussion below I proceed from the constructions describing events of epistemic certainty to counterfactuals.

2.7.4.1 Bridging construction

The antecedent with the conjunction *báyi* and the auxiliary *báti* is often used as the first element in a bridging construction which Dixon (2009: 8) describes as follows: “the last part of one sentence is summarized at the beginning of the next, as an aid to discourse continuity”. The extract in (2.229) below, describes a sequence of events from a narration. Each new event in the chain is rendered by the clause with *-ta*, in the middle of which clause (c) with *báti* creates a kind of short halt before continuing further.

- (2.229) (a) *mă bilàtà kùlúnè tò* We took a train
 (b) *kùlúnè pááné tá* and the train broke down.
 (c) *báyì à bítí pááné* When the train broke down,
 (d) *mă jìgítá* we got off
 (e) *táátá má kènéé là háá kíndí[†] yá fànéé tò* and went on foot to Kidiya.

<i>mă</i>	<i>bilàtà</i>		<i>kùlúnè</i>	<i>tò</i>	<i>kùlúnè</i>	<i>pááné tá</i>	<i>há</i>	
mà	bila-ta		kúlun-È	tò	kúlun-È	páane-ta	báyì	
1PL	go.into-PFV.INTR		train-ART	in	train-ART	break.down-PFV.INTR	as	
<i>à</i>	<i>tì</i>	<i>pááné</i>	<i>mă</i>	<i>jìgítá</i>		<i>mà</i>	<i>táátá</i>	<i>má</i>
à	báti	páane	mà	jìgi-ta		mà	tága-ta	mà
3SG	PRF	break.down	1PL	descend-PFV.INTR		1PL	go-PFV.INTR	1PL
<i>kènéé</i>	<i>là</i>	<i>háá</i>	<i>kíndí[†]</i>	<i>yá</i>	<i>fànéé</i>	<i>tò</i>		
kèn-È	la	háa	Kíndiya	fàne-È	tò			
foot-ART	OBL	as.far.as	Kindiya	place-ART	in			

We took a train, but it broke down. When it broke down, we went out and went on foot to Kidiya.

The *báyì bítí* antecedent is characterized by the evocative function in terms of Dancygier & Sweetser (2005): it activates an already known event from the preceding context which is relevant for the event of the main clause.

2.7.4.2 Factual conditional

The antecedent clause with the conjunction *sì* ‘if’ and the auxiliary *bátí* are used as the first part of relevance conditional. The *sì* clause expresses a situation under which the event in the apodosis is relevant (in contrast to a hypothetical conditional which describes a condition under which the consequent is claimed to hold). The relevance conditional is an instance of a factual conditional, where the proposition of the antecedent is presupposed to be true (Bhatt & Pancheva 2006: 671).

- (2.230) *sì ò tì próblémòè yèn à bì nàldélen*
sì ò bítí próblemu-È yén à bi nàldé-len
 if 2PL PRF ETRG.FR-ART see 3SG be be.astonished-PC.ST
 As you see the problem, [so, you can understand that] it is difficult.

2.7.4.3 Generic

The *máni* auxiliary is used to introduce a background clause with a generic or a potential/future reading. Thus, it is the counterpart of the *báyì ... bítí* creating bridging construction for propositions with specific time reference. The extract in (2.231) below is an answer to a question about how women usually prepare food for the night meal during the Ramadan. It consists of tail-head pairs, where each clause with *ni* is repeated by the following *máni* clause (accompanied by the pronominalization of the NP object of the *ni* clause)

- (2.231) (a) *fùtùrè mán mádòn* When the twilight approaches,
 (b) *mà ní mòðnéé †lájìgì* we take the porridge
 (c) *mà mán' áá †lájìgì* after that
 (d) *mà náá làkìmà* we cool it
 (e) *mà mánáá làkímá(0.32)* after that
 (f) *mà ní kàyéé†nú táà b̀̀* we take the men's part.

fùtùrè *mán* *mádòn* *mà* *ní* *mòðnéé* †*lájìgì* *mà* *mánáá*
 fùturo-È *máni* *mádòn* *mà* *ni* *mòðni-È* *la-jìgì* *mà* *máni* à
 twilight-ART COND come.up 1PL SBJV porridge-ART CAUS-descend
 †*lájìgì*
la-jìgì

When the twilight approaches, we take the porridge.

mà *náá* *làkìmà* *mà* *mánáá* *làkímá(0.32)* *mà*
mà *ni* à *la-kíma* *mà* *máni* à *la-kíma* *mà*
 1PL SBJV 3SG CAUS-be.cold 1PL COND 3SG CAUS-be.cold 1PL SBJV
ní *kàyéé†nú táà b̀̀*
ni *kàyi-È-nu táa-È b̀̀*
 man-ART-PL part-ART take
 after that, we cool it off, after that, we take the men's part.

The *máni* clause can also be used with future reference:

- (2.232) *dòè* *kó* *kò* *nà* *mání* *fàgà* *ì* *ní* *̀̀* *nà* *dénè*
 dóo-È *kó* *kó* *̀̀* *máni* *fàga* *ì* *ni* *̀̀* *la* *dén-È*
 one-ART say say 1SG COND die 2SG SBJV SBJV POSS child-ART
dànkùn
dánkun
 look.after
 She said “when I die, look after my child, I say this”.

2.7.4.4 Conditionals

Example (2.233) illustrates the conditional proper, or the hypothetical conditional, where the proposition expressed in the antecedent is construed as the condition for the proposition of the main clause to hold.

- (2.233) *sì* *̀̀* *ká* *wò* *f̂* *ò* *sí* †*̀̀* *bólókà*
 sì ̀̀ *ka* *wò* *f̂* *ò* *si* ̀̀ *bólokà*
 if 1SG PFV.TR that say 2PL POT 1SG leave
 If I say it, you will leave me?

The *sì* clause can follow the apodosis, as in (2.234) below, but this order is less frequent.

- (2.234) *ì sí yíidé à fê sì állà sòntà*
ì sì yíidε à fε sì állà sòn-ta
 2SG POT see 3SG with if GOD agree-PFV.INTR
 You will see her, if God wills.

In contrast to the *máni* constructions, *sì* conditionals introduce a proposition, an alternative to which is construed as possible. Even though *máni* clauses also construe a proposition as possible (since a future and generic contain an element of potentiality), the effectuation of the proposition is not under discussion, whereas the epistemic stance towards the *sì* clause in a hypothetical conditional is neutral, and both P and its alternative are equally possible.

2.7.4.5 Counterfactual conditionals

Whereas in the hypothetical conditional the antecedent proposition is hypothetical, in counterfactual conditional it is presupposed not to hold, accordingly its consequence is not realized either.

The counterfactual character of the condition is marked by *nùn* which otherwise signals the past time reference (see 2.1.6).

- (2.235) *sì ò bélé kéyélen nùn ò sì kámáren mògò sàbá*
sì ò béle kéye-len nùn ò si kámaren mògɔ sàba
 if 1SG be.NEG be.in.hurry PC.ST PST 1SG POT young.man man
lá sàndáà fɔ
la sànda-È fɔ
 three POSS story-ART
 If I were not in a hurry (but I am actually) I would have told you a story about three men.

See also (2.236), where *nùn* is used both in the protasis and the apodosis, because the latter refers to an event in the past:

- (2.236) *sìì máá †són nùn mà náá wà mà téé*
si ò máá sòn nùn mà ni à wà mà téé
 if 2SG PFV.NEG agree PST 1PL SBJV 3SG go 1PL POT.NEG
sòbéé sòtɔ nùn
sòbo-È sòtɔ nùn
 meat-ART get PST
 If you hand't allowed us to go [to hunt] we wouldn't have been able to find any fowl.

2.7.5 Relativization

2.7.5.1 Main relativizing strategy in Kakabe

The main relativizing strategy used in Kakabe is the correlative relativization, illustrated by (2.237) below.

- (2.237) [à kà dépènù mínù tò jóò]_i [ì nì wáttóyili
 à ka dén-È-nu mín^L-nu tò jóó ì nì wáttóyili
 3SG PFV.TR child-ART-PL which-PL leave that 2SG SBJV look.after
 ànù_i kò]
 ànu kò
 3PL after

You should look after the children that she left [after her death]. Litt: “She left those children, you should take care of them”.

It displays all the typical properties of the correlative relativization strategy, as described in (Lehmann 1986; Comrie 1998; Comrie & Kuteva 2013):

- (2.238)
- (a) Association between the clauses: Relative clause **adjoined** to the main clause
 - (b) Relative position of clauses: Relative clause **preposed** to main clause
 - (c) Position of head NP: Full-fledged NP **inside** relative clause
 - (d) Resumption: **Resumptive pronoun** in main clause.
 - (e) Presence of special marker: **Specialized relativization** marker *mín^L* after NP within relative clause

The correlative strategy, where the relative clause is adjoined to the main clause, belongs to the more ‘loose’ type of association between the two clauses, as opposed to the strategy of embedding the relative clause into the main clause³⁰. According to Lehmann (1986), the position of the relative clause and the position of the head NP are interrelated: the clause which is linearly first normally contains the full-fledged NP which is relativized³¹. Therefore, since in the correlative strategy the relative clause is usually preposed to the main clause, in most cases it contains the head NP. In Kakabe, the reverse order of clauses is possible, though much less frequent, and, importantly, in this case the full-fledged NP is within the main clause.

The head NP is repeated by a personal in the resumptive function which agrees in number with the NP in the relative clause (2.237). Finally, there is a specialized relativizer *mín^L* which occurs after the NP within the relative clause. Yet, as I show in what follows, the specialization of this marker is not total, as there are rudimentary uses of this marker as a demonstrative pronoun.

The resumptive pronoun can be either the personal pronoun, or the demonstrative *wò*.

Example (2.239) illustrates a free relative clause:

30. The adjoining and embedding strategies correspond to two major cognitive types that Kibrik (1992) proposes to distinguish for relative strategies: combining and inserting. The embedding strategy reflects the process of composing two propositions that existed in the speaker’s memory beforehand and happened to share an argument; the inserting strategy “corresponds to a process where a referent is first conceived through its participation in a certain event, and coded by a nominalized proposition, and then this complex nomination as a single whole, is inserted into another, broader event” (Kibrik 1992, 143–144).

31. See (Lehmann 1986: 674): “While the preposed RC almost always contains the head, the postposed one contains a pronoun referring back to the head in conformity with the rules of normal interclausal anaphora”.

- (2.239) *à sáà mà à kà mín fɔ*
à si à má à ka mín^L fɔ
 3SG POT 3SG do 3SG PFV.TR which say
 He will do what he has said.

2.7.5.2 The status of *mín^L*: parataxis or correlative strategy?

Apart from being a relativization marker, *mín^L* is also used as a question word, or as part of an interrogative NP (see 2.6.2.5). Furthermore, it occurs in utterances where it can be considered as a demonstrative, see (2.240):

- (2.240) *déndè mîn(0.71) à là kóó téé gàsé*
dénden-È mín^L à la kóó téé gàse
 boy-ART which 3SG POSS thing POT.NEG be.possible
 This boy, you can do nothing about him [he is uncontrollable]!

See also (2.241) below, where the first clause contains *mín^L* and it is semantically closely linked to the following clause. It could be paraphrased as ‘I bought a bicycle and clothes with the money I got’. The function of the first clause is, in fact, to highlight and describe a referent which plays a role in the event expressed in the second clause. Nevertheless, the second clause does not contain this argument, thus, it cannot be considered as case of relativization in syntactic terms.

- (2.241) *ń ká wótè mín sòtò ñ ká nègèsóé sàñ ñ*
ń ka wóti-È mín^L sòtò ñ ka nègesóo-È sàñ ñ
 1SG PFV.TR money-ART REL get 1SG PFV.TR bicycle-ART buy 1SG
ká kùtáá⁺ nú sàñ
ka kùta-È-nu sàñ
 PFV.TR clothes-ART-PL buy
 I got this money, and I bought a bicycle and clothes.

This brings the relativization in Kakabe close to the parataxis type. Paratactic relativization differs from correlatives by the absence of a special marker in the relative clause. In parataxis, the relative construction is a juxtaposition of two clauses which can be used independently which is partly a consequence of the absence of specialized marking either in the restricting clause or in the main clause. Thus, in parataxis the association between the two clauses is even more loose than in the correlative strategy.

Yet, the Kakabe relativization cannot be considered as a case of parataxis because *mín^L* in independent clauses is not parallel in meaning to *mín^L* in relative clauses. This is evident for the use of *mín^L* in interrogative utterances. As for the demonstrative *mín^L*, its use is very restricted, and it occurs mostly in contexts with mirative and exclamative connotation as in (2.240). Thus, in relativization constructions like (2.237), the first clause does not have any independent correlate, contrary to the second clause:

- (2.242) *à kà dénènù mínù tò ɲóò*
 à ka dén-È-nu mín^L-nu tò ɲóò
 3SG PFV.TR child-ART-PL which-PL leave there
 The children that she left... #She left those children.

ì nì wáttóyilí ànù kò
 ì nì wáttóyilí ànu ko
 2SG SBJV look.after 3PL after
 You should take care of them.

The demonstrative origin of the relativizer is very common cross-linguistically, see Heine & Kuteva (2002). Most of Manding-Mokole languages use the cognates of the Kakabe *mín^L* relativizer, and they show different stages on the shift from the demonstrative to the relativizer. The comparison between the relativization strategies in Koayaga and Bamana can be found in (Kuteva & Comrie 2006). In Koyaga, a Southern dialect of the Manding cluster, *mén* is freely used as a demonstrative and, at the same time, it is employed in the relative clause. Therefore, this language uses the paratactic relativizing strategy. Differently from that, *mín* in Bambara is used as a relativizer only. But at the same time, there are some dialects where *mín* is found as a demonstrative in independent clauses. Kakabe, thus, is located closer to the correlative endpoint, but is still rather flexible, allowing the constructions like (2.241) which do not comply with the syntactic restrictions of a correlative relativization construction.

2.7.5.3 Secondary relativizing strategies

2.7.5.3.1 Correlative with postposed relative clause

A less frequently type of correlative strategy is the one where the full-fledged NP appears in the main clause, and the relativizer occurs *in situ* within the relative clause, located to the right of the main clause³². Thus, in (2.243 a) below and (2.243 b), the full-fledged NP is external with respect to the relativized clause.

- (2.243) (a) [*kòndéé_i lè bɪ*] [*mín kina nónsinè kò*]_i
 kòndi-È lè bɪ mín^L kina nónsin-È ko
 bird-ART FOC be REL old chameleon-ART after
 There is a bird which is older than the chameleon.

- (b) [*déndè sɪ kóó_i yén*] [*kìnáà máá mín yèn*]_i
 dén-nden-È si kóo yén kina-È máá mín^L yén
 child-DIM-ART POT thing see old.man-ART PFV.NEG REL see
 A child can notice a thing that an old man won't notice.

In the classification of Comrie & Kuteva (2013) this construction is somewhat problematic. It resembles the pronoun retention strategy: the full-fledged NP is in the main clause, and

32. See Creissels 2009b for examples of the same strategy applied in Kita Maninka.

the position relativized is explicitly indicated by means of a resumptive personal pronoun. Yet, in the examples above, the relative clause contains a relativizer and not a non-specialized pronoun.

Another type, close to our case, is the relative pronoun strategy which covers cases where the full-fledged NP is inside the relative clause, as in English *The tomatoes_i [which_i you bought] are rotten*. The differing parameter is that the relative pronoun is supposed to be at the beginning of the relative clause.

Kakabe, as the most of Central Mande, is what can be called a radical *in situ* language: the interrogative phrases are not only allowed to be *in situ*, but this is actually the only possible option³³. This suggests that Kakabe disallows the clause-initial relative pronoun, the same way as it disallows the initial interrogative phrases. Thus, we can suppose that Kakabe has relative pronoun strategy with the postposition of the relative clause with respect to the main clause.

2.7.5.3.2 Embedded relative clause

The strategy with internally headed relative clauses where the head is represented by a full noun phrase inside the relative clause, and has no explicit representation in the main clause, is also attested, though it is not frequent in Kakabe³⁴.

- (2.244) (a) *mògò kélejè [mín bì tòlèn] kó:*
 mògò kélen-È mín^L bi tó-len kó
 man one-ART REL be remain-PC.ST say

The one man that was left, said: “...

- (b) *à jígitá kà sòbéè [mín dáá †yén] tà*
 à jígi-ta kà sòbo-È mín^L dí à yén tà
 3SG descend-PFV.INTR INF meat-ART REL pleasant 3SG BNF take

He went down and took the game that he liked.

- (c) *àn báá dilá mògòndènfinènù [mínnù téé nón à*
 ànu bi à dí-la mògòndenfin-È-nu mín^L-nu téé nón à
 3PL be 3SG give-GER person-ART-PL REL-PL POT.NEG can 3SG
ɲétè] yèn
 ɲètɛ yèn
 oneself for

They give it to people who can not provide for themselves.

See also some examples with free relatives, with the relative clause in the postpositional phrase:

33. See, for example, the discussion of Bamana with respect to this problem within the Government-Binding theory by Koopman (2000).

34. Clause-internal relatives are not typical for Western Mande (Nikitina 2012), in Kakabe they might have appeared due to the contact with Pular, see (Vydrin & Vydrina 2010).

- (2.245) àn ni dúbá [mínnù káàn nátànbi fɔ̃p] yèn
 ànu ni dúbá mín^L-nu ka ànu látànbi fɔ̃p yèn
 3PL SBJV bless REL PL PFV.TR 3PL die every
 They pronounced blessings for all those who died.

- ì náá jógɔ [à kà mín bààrà tùgùn] nà
 ì ni à yógɔ à ka mín^L báara túgun la
 2SG SBJV 3SG pay 3SG PFV.TR REL work again OBL
 You pay him what he has deserved with his work.

In all the embedded relatives that occur in my corpus, the relativized position is the subject, and since the subject occupies the rightmost position in the clause, there is no direct evidence that would make it possible to decide whether the head NP belongs to the main clause or to the relative clause. For example, the parsing in (2.244 b) above, could be either as in (2.246 a) or as in (2.246 b), where the NP belongs to the main clause.

- (2.246) (a) à jígítá kà [sòbéè mín dáá †yén] tà
 (b) à jígítá kà sòbéè [mín dáá †yén] tà

In elicitation both head-external (2.247 a) and head-internal (2.247 b) strategies are accepted for embedded relatives with relativized object.

- (2.247) (a) déndènù tì gátòè [àn néènè kà mín tàbì]
 dénden-È-nu báti gátò-È ànu nèene ka mín^L tàbì
 child-ART-PL PFV.OF cake-ART 3PL mother PFV.TR REL prepare
 jìmi
 jìmi
 eat

The children have eaten the cake, which they mother had made.

- (b) déndènù tì [àn néènè kà gátòè mín tàbì]
 dénden-È-nu báti ànu nèene ka gátò-È mín^L tàbì
 child-ART-PL PFV.OF 3PL mother PFV.TR cake-ART REL prepare
 jìmi
 jìmi
 eat

The children have eaten the cake, which they mother had made.

2.7.5.4 Accessibility hierarchy

In Kakabe all positions in the Accessibility hierarchy (Keenan & Comrie 1977)³⁵ are available to relativization, see Example (2.248 a), illustrating the relativization of *má lè* ‘us’ which is the object of comparison, and (2.248 b) for the relativization of the possessor.

35. Sbj > DO > OBL > GEN > Object of Comparison

- (2.248) (a) *ì bítí sòbò jú⁺má sòtó kà físà má lè [mín*
ì bítí sòbo júma-È sòtó kà fisa má lè mín^L
 2SG PRF meat good-ART get INF be.better 1PL FOC REL
táátá] kò
tága-ta kò
 go-PFV.INTR behind

You got better meat than we, who went hunting.

- (b) *déjè mín⁺tánè mání gbálá wò fóló lè*
dén-È mín^L tán-È mání gbála wò fóló lè
 child-ART REL POSS.EMPH-ART COND dry that first FOC
kínè dàmùlà
kíni-È dámu-la
 food-ART eat-GER

The one whose hands will dry [first], will eat first.

Part I

Segmental phonology

Chapter 3

Segmental features and phonotactic patterns

3.1 Introduction

This chapter gives an outline of the system of segmental features and the inventory of phonotactic patterns and it describes how they define the phonological shape of basic morphological units in the Kakabe lexicon. Thus, it leaves for the following chapter the dynamic aspects of segmental phonology and phonotactics, such as the realization of phonological segments in utterance. Here I describe the oppositions between phonological features, the alternations in the shape of the morphological forms and the distribution of allomorphs across dialects. I argue that Kakabe has developed a palatalization opposition with a limited scope. Palatalized consonants, as opposed to non-palatalized, originate, first, from the reinterpretation of a consonant followed by a front glide in the process of borrowing and, second, from the process of partial assimilation whereby the front feature of a vowel is transformed into secondary articulation.

Kakabe is a predominantly open-syllable language, syllables apart from CV / CVN / CVV are rare. The phonologically underspecified nasal N occupies a special place in the phonotactics of Kakabe. Apart from occupying the coda position, it can also be syllabic or form part of a complex onset. In general, the phonotactic patterns of morphemes are to a large extent conditioned by their grammatical category.

One of the general assumptions underlying the current analysis is that the origin of words and the level of their integration in the native lexicon may correlate with their phonological behavior (Itô & Mester 1995; Chitoran 2002; Friesner 2009). The idea that recently borrowed

words show different phonological behavior compared to words belonging to the core part of the lexicon, seems to be commonly accepted, but, nevertheless, it rarely occupies a central place in phonological descriptions. Recent borrowings may neglect some constraints which hold for the nativized part of vocabulary and they may make use of some consonants and vowels absent in the core lexicon. This aspect is important in Kakabe, a language which has a long history of intensive contact with Pular, and which now borrows heavily from French. The current phonological description systematically drives a distinction between the phonological constraints which are effective only for the core lexicon or for both the periphery and the core part of the lexicon.

The reader should keep in mind that, in this and the following chapter, the IPA-style notation is used which differs from the transcription in the rest of the thesis. The principles of notation are explained in 1.5.

The Chapter is organized as follows. Section 3.2 introduces the vowel and consonant inventories and discusses alternations between phonemes. Section 3.3 gives an account of the possible syllable types, at the underlying level and the surface level. In Section 3.4, I discuss the particularities of the ‘periphery’ part of the Kakabe lexicon which includes borrowings from French and Pular.

3.2 Phoneme inventory

3.2.1 Vowels

The vowel system of Kakabe is characterized by four levels of aperture and by the length opposition:

		front		back	
high	i i:				u u:
high-mid	e e:		(ə)	o o:	
mid-low		ɛ ɛ:		ɔ ɔ:	
low			a a:		

Table 3.1: Vowel inventory

Minimal pairs illustrating some of the possible oppositions between vowels are provided in (3.1):

(3.1) *kòlon* ‘mortar’ – *kəlɔn* ‘well (with water)’

kó ‘say’ – *kó* ‘give’
dénɲɔɔ ‘elder brother’ – *dénɲɔɔ* ‘friend’
joo ‘rightness, reason’ – *júu* ‘trunk’
káa ‘there’ – *kée* ‘this’
kéle ‘call’ – *kili* ‘egg’
kèn ‘foot’ – *kìn* ‘bite’
káa ‘there’ – *kóɔ* ‘back’.

Schwa has a marginal status in the vowel system: it is one of the possible realizations of the epenthetic vowel which appears in loanwords. Compare (3.2 a) where the epenthetic vowel is a schwa and (3.2 a) where the epenthetic vowel is realized as *u* and *i* respectively. Strategies of loanword adaptation are discussed in Section 3.4.

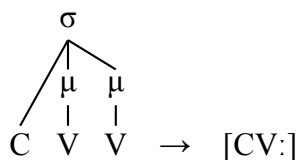
- (3.2) (a) *disrikə* ‘district’ < Fr. *district*
áwansə ‘advance (payment)’ < Fr. *avance*
- (b) *lámpu* ‘lamp’ < Fr. *lampe*
ráyí ‘rail’ < Fr. *rail*.

Example (3.3) is a minimal pair attesting the existence of a contrast between the vowels *i* and *u* and the epenthetic vowel realized as schwa.

- (3.3) *báaru* ‘sea’ vs. *báarə* ~ *bár* ‘bar’ < Fr. *bar*
léerí ‘swing’ vs. *léerə* ~ *lér* ‘hour’ < Fr. *l’heure*.

3.2.1.0.1 Vowel length

Kakabe is a moraic weight-measuring language. In the autosegmental model which is used in the current description, long vowels are phonetic realization of two adjacent identical vowels belonging to the same syllable. Thus, the term “long vowel” should be read as a shortcut for “phonetically long vowel resulting from the realization of two vowels belonging to one syllable”.



There is an opposition between long and short vowels in Kakabe. Length is transcribed in the practical orthography (and in the surface tone notation) by a double letter:

- (3.4) *sòsò* ‘contradict’ vs. *sàsò* ‘bean’
táata ‘elder sibling’ vs. *tátà* ‘take again’
nèene ‘mother’ vs. *nèèe* ‘iron’

There are lexemes where the vowel length is unstable, for example:

- (3.5) *nàani* ~ *nàni* ‘insult’
pósi ~ *póosi* ‘unripe’
bànána ~ *bànánaa* ‘banana’
dólin ~ *dóolin* ‘fishing rod’

The restrictions on the position of long vowels with respect to morpheme boundaries and the relation between length and morphological categories are described in Section 3.3.2. Vowel length also plays a special role in the adaptation of loanwords from French, see Section 3.4.

Under certain phonotactic conditions vowels can be realized as extra-short, see Section 3.3.1.1.

3.2.1.0.2 Alternations between front and back/non-front vowels

The high vowels *i* and *u* are in free variation in certain types of phonological and morphological contexts.

The variation *i* ~ *u* occurs in syllables with a sonorant onset preceded by *u*, as in (3.6).

- (3.6) *dúniya* ~ *dúnyu* ~ *dúniya* (but not **dúnyu*) ‘world’
wúli ~ *wúlu* ‘wake up’
júlirde ~ *júlurde* ‘mosque’
siikuli ~ *siikulu* ‘goat’.

Another context favoring this variation is the position between a labial consonant, on the one side, and an alveolar or palatal consonant on the other side:

- (3.7) *jáamiye* ~ *jáamu*ye ‘mosque’
làbutáani ~ *làbitáani* ‘hospital’
tùbáabu ~ *tùbáabu* ‘person with white skin’.

At the same time, the variation $i \sim u$ remains lexically conditioned, since the context as in (3.6) and (3.7) licenses it in some morphemes but not in others, cf. *wúlu* ~ *wúli* ‘get up’, but *wùlu* ~ **wùli* ‘dog’.

There are cases when i freely alternates with u in loanwords, if the source form has a final u or a final i which is not assimilated with the preceding consonant, cf. u after alveolar r and n in the Pular source form in (3.8 a) and (3.8 b) respectively, and i after the labial m in (3.8 c). The verb in (3.8 b) also attests the variation $i \sim u$ in the middle syllable. On the one hand, this can be explained as the fluctuation between the assimilation to the labial w vs. the assimilation with the alveolar n , making it analogous to the case in (3.7). It can also be compared to the cases illustrated in (3.6) where the vowel assimilates with the other u across the sonorant onset. If this is the case, then such a type of harmonization can also result in the assimilation of u to i , and not only of i to u as it is the case in (3.6).

- (3.8) (a) *háryi* ~ *háryu* ‘since, because’ < Pul. *bayru*
 (b) *néwuni* ~ *néwunu* ~ *néwini* ~ *néwni* ‘promise’ < Pul. *newnugol*
 (c) *àlmáami* ~ *àlmáamu* ‘imam’ < Pul. *almaami*.
 (d) *dàmuri* ~ *dàmuru* ‘eating’

The stem-final vowel can be fronted when the derivational suffix *-ya* is added to it:

- (3.9) *wútuya* ~ *wútiya* ‘be short’ < *wútun* ‘short’ + *ya* ABST
sútuya ~ *sútiya* ‘be short’ < *sutun* ‘short’
fàatɔya ~ *fàatiya* ‘be crazy’ < *fàatɔ* ‘crazy’
kòloya ~ *kòliya* ‘grow up’ < *kòlo* ‘big’
tóɔɔya ~ *tóɔɔya* ‘suffering’ < *tóɔɔ* ‘suffer’.

To sum up, all the cases of variation illustrated by Examples (3.6) - (3.9) can be explained as triggered by a harmonizing tendency, either with a vowel or with a neighboring consonant.

In (3.10) are represented verbs that attest a variation between a VyV or VyVn and a front vowel. I suppose that it is due to the deletion of y and spreading of the [+front] feature:

- (3.10) (a) *ɔyi* ~ *ee* *wɔyi* ~ *wee* ‘be mixed’
 (b) *oyi* ~ *ee* *bòyi* ~ *bèe* ‘fall’
 (c) *ayi* ~ *en* *gbáyi* ~ *gbén* ‘drive, turn out’
 (d) *ɔyi* ~ *en* *móyi* ~ *mén* ‘hear’.

Finally there is a variation where a non-front (any vowel except for *i* or *e*) vowel alternates with a front vowel *ɛ* or *e*:

(3.11) *jàka* ~ *jàkɛ* exclamative interjection

máde ~ *méde* ‘to be silent’

jále ~ *jéle* ‘to laugh’

málan ~ *mélen* ‘lightning’

mádèn ~ *médèn* ‘gather’

tègera ~ *tègere* ‘axe’

yàafa ~ *yàafɛ* ‘to forgive’

màgasán ~ *màgasén* ‘shop’ < Fr. *magasin*

yórkuntu ~ *yérekuntu* ‘chair’

kúnun ~ *kúnen* ‘wake up’

túnun ~ *túnen* ‘to hide’

tàran ~ *tèren* ‘find’

póton ~ *póten* ‘field covered with high plants’.

3.2.1.0.3 *Alternation* *tàran* ~ *tèren*

The verb ‘find’ *tàran* ~ *tèren* is very frequent in speech, since, apart from being used with its primary lexical meaning ‘find’, it is the main verb in the construction with evidential meaning ‘it turned out that’. The total number of occurrences of the verb *tàran* ~ *tèren* in my corpus is 370. Table 3.2 below shows the number of occurrences of the two variants across Kakabe villages. As can be seen, the distribution is partly conditioned geographically. In NK only the variant *tàran* is used. In WK villages Kouroupampa and Labiko, again, only *tàran* is used, yet, in Jinkoya, the third WK village in my corpus, only *tèren* is used. Finally, in CK villages Sokotoro, Nyamayara and Dogomet, *tèren* is more frequent, but *tàran* occurs as well. As can be seen on the map next to the table, in general, the variant with the mid-high is more frequent in the eastern part of the Kakabe area.

wò lè bi dúba-la ànu yen
 2PL FOC bi bless-GER 3PL for
 You pray for them.

The realization of the plural marker in combination with the [i] allomorph of the copula *bi* is discussed in 4.6.5.5.

3.2.2 Consonants

Table 3.3 represents the inventory of Kakabe consonants. When the symbol used for a consonant deviates from IPA conventions, its IPA representation is given in square brackets. The consonants in parentheses occur on the foreign non-assimilated vocabulary: they occur only in borrowings or are limited to certain word categories.

		labial	lab.-dent.	alveolar	palatal	velar	lab.-velar	phar.	glottal
obstruents	impl.	(b)		(d)	(y) [ʃ]				
	stops	-v. p		t	c	k			(ʔ)
		+v. b		d	j [ʃ]	g	gb [gb̃]		
obstruents	fric.	-v.	f	s				(h)	
		+v.	(v)	(z)					
sonorants	nasals	m		n	ɲ	ŋ			
	flap			r [r]					
	approx.	w		l	y [j]				

Table 3.3: Consonant inventory

3.2.2.1 Consonants belonging to the peripheral part of vocabulary

This subsection deals with consonants that occur in Kakabe only in non-nativized borrowings. Following the model of the ‘core-periphery’ organization of the lexicon (Itô & Mester 1995; Chitoran 2002; Friesner 2009) where borrowings “enter the language in the periphery and then optionally to become fully or partially nativized” (Friesner 2009: 115), this consonants are restricted to the periphery part of the vocabulary.

3.2.2.1.1 Implosives

appear only in borrowings from Pular, for example:

- (3.14) *hódo* ‘village’ < Pul. *hodo*
bórni ‘to dress’ < Pul. *bornulgol*
géeyé ‘evening prayer’ < Pul. *geeyé*.

3.2.2.1.2 *The palatal stop c*

appears as an independent phoneme in non-borrowed Kakabe words only in the expressive vocabulary, i.e. in ideophones and emphatic interjections:

(3.15) *càrakpíw* ‘hop! (imitates jumping)’

córr ~ *córcərcə* ‘drip-drip! (imitates the sound of dripping water)’

cándan ‘plop! (imitates falling into the water)’

cùdún ~ *cùrún* ‘plop! (imitates falling into the water)’

có ‘prut! (interjection expressing disdain)’.

It also occurs in borrowing from Pular:

- (3.16) *cúddi* ‘cloud’ < Pul. *cuddi*
cóora ‘exorcism’ < Pul. *coorawal*
cúraari ‘mist’ < Pul. *curaari*
láncan ‘break’ < Pul. *lancagol*.

Otherwise, *c* is the free palatalized variant of *k*:

(3.17) *kéeki* ~ *céeci* ‘waist’

kímaya ~ *cúmaya* ‘be cold’¹

kìti ~ *cìti* ‘tie’.

In borrowings from Pular containing either *k* or *c* preceding a front vowel in the Kakabe word *k* and *c* are also in free variation:

- (3.18) *kèku* ~ *cèku* ‘turtle’ < Pul. *kekuwal*
fêccere ~ *fèkkere* ‘half’ < Pul. *fekkere*
sínke ~ *sínce* ‘found’ < Pul. *sincugol*.

There is one example where *c* is in free variation with *t*: *cùrunkan* ~ *tùrunkan* ‘fling, hurl’.

1. The *ki* ~ *cu* alternation is reminiscent “feature shuffling” first described by Henderson (1985) for East-Asian languages. It consist in the transfer of a distinctive feature from one phoneme to another within a syllable.

3.2.2.1.3 *The consonant r*

can be realized as a trill [r] or as a flap [ɾ], the former variant appears at the beginning of a prosodic word.

This consonant is common in the internal position in lexical morphemes, e.g. *kàrɔn* ‘evil’, *bìri* ‘bury’. Otherwise, it can appear at the beginning of a grammatical morpheme, cf. the nominalization suffix *-ri*, or in morpheme-initial position in borrowings, for example:

- (3.19) *róndi* ‘carry on the head’ < Pul. *rondugol*
rónpi ‘finish’ < Fr. *rompre*
ràdíyɔnè ‘radio’ < Fr. *radio*

3.2.2.1.4 *Voiced fricatives v and z*

occur only in borrowings from French and alternate with *w* and *s* respectively:

- (3.20) (a) *lóosi* ~ *lóosi* ‘stay, live’ < Fr. *loger* [loʒe]
míniseya ~ *mínizeya* ‘carpentry’ *menuiserie* [mænuʒizɛʁi]
sípɔn ~ *zípɔn* ‘skirt’ *jupon* [ʒypɔ̃]
- (b) *wóyaz* ~ *vóyáz* ‘trip’ < Fr. *voyage* [vwajaz]
wítre ~ *vítre* ‘window pane’ *vitre* [vitʁ].

See Section 3.4.2.2 for discussion.

3.2.2.1.5 *Glottal stop ?*

occurs morpheme internally in words which ultimately come from Arabic (but the immediate source of borrowing can be Pular or some Mande language) where it is in free variation with some other consonant: *sáaʔi* ~ *sáayi* ‘time’, *àlʔurána* ~ *àlburána* ‘Quran’ < Pul. < Ar. Apart from that, it occurs in the interjections *òʔóyè* ‘no’ < Pul. and *áʔá* ~ *àáà* ‘yes’ (there are two more frequent variants of the interjection ‘yes’, *èéyì* and *hìì*).

Finally, it appears at the beginning of a vowel-initial morpheme when the latter occurs in the initial position in an intonation phrase. The function of glottal stop as the default onset is described in Section 3.3.1.4.

3.2.2.1.6 *The consonant h*

appears in borrowings from Pular, and in words which were borrowed from Arabic through other intermediate languages.

- (3.21) *hàkkíli* ‘reason’ < Ar. *‘aql*
hɛɛra ‘happiness’ < Ar. *xaira*
hácce ‘notice’ < Pul. *haccagol*
héndu ‘wind’ < Pul. *hendu*
kàrahán ‘with difficulty’ < Pul. *karahan*

3.2.2.1.7 Geminata as a phonemic feature

Tautomorphemic geminated consonants appear almost exclusively in borrowings from Pular where geminates are common in middle position only, e.g.:

- (3.22) *killi* ‘tickle’ < Pul. *killingol*
ɲóbbi ‘fold’ < Pul. *ɲobbagol*
ábbere ‘grain’ < Pul. *abbere*
nókkuɛ ‘district’ < Pul. *nokkure*
káɲɲe ‘gold’ < Pul. *kaɲɲe, kaɲɲe*
láɲna ‘ulcer’ < Pul. *lanna*

Geminated consonants in original Kakabe stems which are morphologically simple are very rare, and probably have also appeared at the morpheme boundary. For example, the geminated *nn* in the verb *kìnnóɔɔ* ‘sleep’ most probably stems from *nd*, compare Mogofin *kùndóɔɔ*, *kídóɔɔ*, Koranko *kìnoo*, *kindóɔɔ* and Vai *kĩ* ‘sleep’. Other non-borrowed simplex Kakabe words with a geminate are *kónnante* ‘jealous’; *kèɲna* ~ *kèɲamá* ~ *sèɲna* ‘time’; *nannin* ~ *sannin* ‘since then’, yet etymologically they are also likely to be compounds.

Otherwise, heteromorphemic geminates are common in Kakabe utterances, see Section 3.3.3.1.

3.2.2.2 Consonantal free alternations

3.2.2.2.1 *g* ~ *j* [j]

The free variation *g* ~ *j* is attested before a front vowel, with the more frequent variant marked with the letters “fq” in brackets:

<i>gii</i>	~	<i>jii</i> (fq)	‘water’	
<i>gidira</i>	~	<i>jidira</i> (fq)	‘old woman’	
<i>gila</i> (fq)	~	<i>jila</i>	‘since’	< Pul. <i>jilaa</i>
<i>génti</i> (fq)	~	<i>jénti</i>	‘listen’	< Pul. <i>jent-agol</i>
<i>gèrè</i> (fq)	~	<i>jèrè</i>	‘war’	
<i>gélé</i>	~	<i>jélé</i> (fq)	‘to laugh’	
<i>géeyé</i>	~	<i>jéeyé</i> (fq)	‘evening’	< Pul. <i>geeyé</i>
<i>yáage</i> (fq)	~	<i>yaaje</i>	‘be spacious’	< Pul. <i>yaaj-agol</i> .

Judging by the Pular source forms, this variation might be due either to palatalization, as *jéeyé* borrowed from the Pular *geeyé*, or to velarization, e.g. the Pular word *jent-agol* ‘listening’ resulting in Kakabe *génti*.

With the exception of *yáage* ~ *yaaje* ‘be spacious’ the variation *g* ~ *j* never occurs in the middle of a morpheme, e.g. *tègera* **tèjera* ‘axe’, *mògèè* **mòjéè* person-ART, *nègè* **nèje* ‘iron’, *sìgi* **siji* ‘sit’, etc.

Whereas almost every stem-initial *g* before a front vowel can be pronounced as *j*, there are a lot of lexemes starting with *j* and a front vowel that are never pronounced with *g*, e.g. *jíga* ‘take’, *jìgi* ‘go down’, *jíifa* ~ *jéefa* ‘pocket’, *jèlu* ‘how much’ etc. This asymmetry suggests that the cases of variation *g* ~ *j* in non-borrowed Kakabe words represent a process of palatalization *g* → *j* and not an non-directed variation.

3.2.2.2.2 *k* ~ *c*

The variation *k* ~ *c*, mentioned at the beginning of the section is parallel to the variation *g* ~ *j* in the sense that *c* has to be interpreted as a palatalization of *k* (Example (3.23) reproduces Examples (3.17) and (3.18)).

(3.23) *kéeki* ~ *céeci* ‘waist’

kímaya ~ *cúmaya* ‘to be cold’

kìti ~ *cìti* ‘to tie’

kèku ~ *cèku* ‘turtle’ < Pul. *kekuwal*

fèccèrè ~ *fèkkèrè* ‘half’ < Pul. *fekkere*

sínkè ~ *since* ‘to found’ < Pul. *sincugol*

The status of the variation *k* ~ *c* is different from *g* ~ *j*. First, the palatalization *k* ~ *c* is less frequent. Second, *c* is an independent phoneme only in expressive vocabulary or in borrowings from Pular see Section 3.2.2.1.2.

3.2.2.2.3 *k ~ s*

There are two examples of free variation *k ~ s*: *kèŋŋa ~ sèŋŋa* ‘time’, *bólokondin ~ bólosondin* ‘finger’.

3.2.2.2.4 *gb ~ b*

The labiovelar *gb* is in free variation with *b*, in morphemes listed in 3.24:

(3.24) *gbàlanga ~ bàlanga* ‘coffin’

gbèli ~ bèli ‘papaya’

gbèngbi ~ bèngbi ‘bed’

gbé ~ bé ‘be white’

gbèle ~ bèle ‘difficult’

gbólin ~ bólin ‘branch’

kùngbélen ~ kùnbélen ‘knee’.

Not all *gb* consonants alternate with *b*, e.g. *gbàsi* ‘beat’, *gbòlo* ‘skin’ are always pronounced with the labiovelar consonant.

3.2.2.2.5 *g ~ k*

There is a small number of morphemes where *g* is in free variation with *k*:

(3.25) *fàga ~ fàka* ‘to die’

sàaga ~ sàaka ‘sheep’

gírbite ~ kírbite ‘to burrow, to muzzle’

sígi ~ siki ~ sikki ‘song’.

3.2.2.2.6 *N ~ Ø*

The N coda is unstable in lexemes listed in (3.26):

(3.26) *tègera(n)* ‘ax’, *tíŋa(n)* ‘spoil’, *nò(n)* ‘be able to’, *ŋà(n)sin* ‘scratch’, *làtéri(n)* ‘quick’, *ŋíŋi(n)* ‘search’, *fólɔ(n)* ‘first’, *sətɔ(n)* ‘obtain’, *nàani(n)* ‘insult’, *róndi(n)* ‘carry on head’, *sàagi(n)* ‘return’, *mára(n)* ‘left (opposed to right)’.

Homorganic N as part of a complex onset is unstable in all original Kakabe words and often disappears in borrowings from Pular, see Section 3.3.1.5.

Besides, N regularly disappears before a sonorant consonant, before pause, and in some other cases. A detailed account of the realization of N is given in Section 4.2.

3.2.2.2.7 *g ~ Ø*

In some morphemes containing *g* in the second syllable, the velar consonant between two identical vowels can be omitted producing a long vowel: *m̀̀g̀g̀ ~ m̀̀g̀* ‘person’, *l̀̀g̀g̀k̀un ~ l̀̀g̀k̀un* ‘week’. One can suggest that the variants without *g* are borrowings from Maninka.

3.2.2.2.8 *r ~ l*

The consonant *r* can be replaced by *l* in certain context. The first example is the nominalization suffix *-ri*. This suffix becomes *-li* after verbs ending with *d*, *l* or *r*:

kárali ‘sowing’ < *kára* ‘sow’ + *-ri*

káwandili ‘advice’ < *káwandi* ‘advise’ + *-ri*

kílili ‘calling’ < *kíli* ‘call’ + *-ri*.

In (3.27) the discourse particle *ári* (< *hári* with deleted onset) is fused with the preceding word and *r* is realized as *l* because the onset of the preceding syllable is also an *r*, *táran* + *ári* > [tára:li] (the final *i*, in its turn is assimilated to the following *a*).

(3.27) [ì sá: tàrà:l à: dí:lá tún]

ì si à tàran hári à bi dí-la tún
 2SG POT 3SG find DISC 3SG be cry-GER just
 You would find him crying just like this.

There is one example of an *r ~ l* variation within a lexical morpheme: *s̀̀r̀rin ~ s̀̀l̀lin* ‘fingernail’.

3.2.2.3 *Dialectal variation between palatal consonants*

The three palatal consonants *j* [j], *ɲ* and *y* [j] stand in a relation of dialectal variation, as can be seen in Table 3.4. These consonants are the only “canonical” Kakabe palatals, as has been said above, the other two palatals, *c* and *y* appear as independent phonemes only in borrowings from Pular.

Table 3.4 represent the list of words that attest a variation between palatals.

		CK	WK	NK
<i>nète ~ yète ~ jète</i>	‘self’	<i>n</i>	<i>y</i>	<i>j ~ y</i>
<i>jenjema ~ yenyema</i>	‘tall, long’	<i>j</i>	<i>j</i>	<i>y</i>
<i>jàn ~ yàn</i>	‘far’	<i>j</i>	<i>j</i>	<i>y</i>
<i>jòn ~ yòn</i>	‘slave’	<i>j</i>	<i>j ~ y</i>	<i>y</i>
<i>jòo ~ yòo</i>	‘well (itj.)’	<i>j ~ y</i>	<i>y</i>	-
<i>nógo ~ yógo</i>	‘pay’	<i>n</i>	<i>y</i>	<i>y</i>
<i>núman ~ yúman</i>	‘which one’	<i>n ~ y</i>	<i>n ~ y</i>	-

Table 3.4: Dialectal variation in the realization of palatal consonants

The three palatals are ordered on the sonority scale $j [j] > n > y [j]$, the occlusive $j [j]$ being the strongest consonant and the approximant the weakest. Thus, this distribution in general can be described in geographical term as “stronger palatal consonant to the east, weaker palatal to the north-west”. Figure 3.1, reproducing the relevant part of the Kakabe map² (see the full map in Section 1.3), visualizes this generalization.

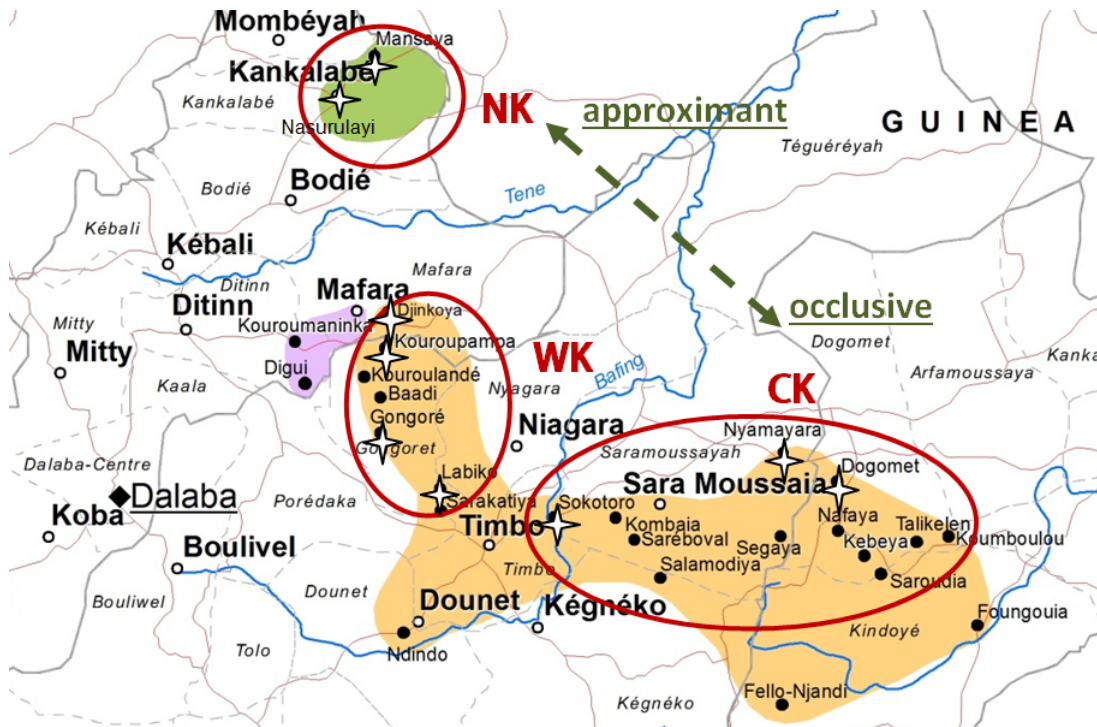


Figure 3.1: Kakabe dialects and the variation of palatals: approximant – occlusive

2. The star symbol highlights the villages where I collected the relevant data. For CK these are the villages of Nyamayara, Dogomet and Sokotoro, for WK the villages Djinkoya, Kouroupampa, Gongore and Labiko, finally, for NK the villages Mansaya and Nasurulayi.

Thus, in the case of adjectives *jenjema* ~ *yenyema* ‘tall, long’ and *jan* ~ *yan* ‘far’, the stronger palatal is attested in CK and WK, in NK these adjectives are pronounced with the palatal approximant. In the case of the noun *jòn* ~ *yòn* ‘slave’, the boundary is inside WK: again CK has the stronger palatal variant (a nasal *ɲ* this time), NK has the approximant palatal, and in WK the *ɲ* and *y* are in free variation for this verb. The verb *ɲógɔ* ~ *yógɔ* ‘pay’ separates CK, where the form *ɲógɔ* is used, from WK and NK where this verb is pronounced as *yógɔ*. The interjection *yóɔ* ~ *jóɔ* which is used to acknowledge the interlocutor’s answer is attested only in CK and WK. In CK *yóɔ* freely alternates with *jóɔ*, whereas in WK it is pronounced only as *yóɔ*.

Table 3.4 also includes the word *ɲúman* ~ *yúman* where the variation between the approximant and the nasal palatal is free and, therefore, is not conditioned geographically.

The case of the determiner *ɲète* ~ *yète* ~ *jète* ‘self’ deserves special attention. First, it establishes a direct link between all three palatals, the stop, the nasal and the approximant. The occurrence of the variant *jète* [jètè] with the palatal stop in the NK represents a deviation from the tendency “more sonorant to the north, more occlusive to the east”. But at the same time, this variant occurs in free variation with the approximant which is the weaker palatal and thus complies with the tendency.

The second circumstance which is of special interest in the case of this word is that along with the dialectal variation, it participates in a grammatically conditioned variation. The nasal palatal *ɲ* indicated in brackets is the allomorph which appears in WK and in NK in the context where it is preceded by an N coda, cf. (3.29 a).

As will be shown in Section 4.2.5, one of the morphological characteristics of clitics and bound morphemes distinguishing them from prosodically independent lexical morphemes is that in the context of a preceding N, their initial consonants are strengthened: approximant *l* is turned into *d*, cf. (3.28 b), or into *n*, cf. (3.28 a), the approximant *y* turns in to *ɲ*, cf. (3.28 c).

(3.28) (a) *kàntan* ‘guard’ + *la* GER → [kàntàɲ̀:à]

(b) *kùsan* ‘capable’ + *lè* FOC → [kùsàɲ̀ dè]

(c) *ɲ* 1SG + *yen* BNF → [ɲ̀:è].

In WK the variant with the palatal nasal *ɲète* ‘self’ appears when it is preceded by N, compare (3.29 a) where *ànu* 3PL + *yete* ‘self’ is realized as [áɲ̀:ètè], with the geminated *ɲ* and the nasalized *a*, and (3.29 b), from the same conversation where the determiner is preceded by the pronoun *mà* and realized with the approximant at the beginning:

(3.29) (a) [mògê:nù báci á ɲ̀:ètè másòtò]

mògɔ-È-nu báti ànu jète masòtɔ
 person-ART-PL PFV.OF 3PL self free
 The people freed themselves.

(b) [mà bání **má** jètè másòtò]

mà báti mà yète masòtɔ
 1PL PFV.OF 1PL self free
 We freed ourselves.

In NK, the morpheme in question appears in three allomorphs, *yète*, *jète* and *jète*. The first two are in free variation, and *jète* is conditioned by a preceding N, the same way as in WK.

(3.30) (a) [à sá: **j**ètè lámèsèjà]

à si à jète la-méseya
 3SG POT 3SG self CAUS-be.small
 He can make himself small.

(b) [à kó á **j**ètè mà]

à kó à yète ma
 3SG say 3SG self to
 He said to himself.

(c) [fó ànu **ná:** †**j**:été fàgà]

fó ànu ni ànu jète fàga
 NESS 3PL SBJV 3PL self kill
 They had to kill themselves.

Finally, in CK only the variant *jète* is used both after a vowel, cf. (3.31 a) and after N, cf. (3.31 b).

(3.31) (a) [wò sí kùtá: sà **wó** **j**ètè jè]

wò si kùta-È sà wò jète yen
 2PL POT clothes-ART buy 2PL self BNF
 You will buy clothes for yourselves.

(b) [mògɛ:nù bi bá:rálá **á** **j**:ètè làkò]

mògɔ-È-nù bi báara-la ànu jète làko
 person-ART-PL be work-GER 3PL self for
 People work for themselves.

3.2.2.4 Palatalization as a phonetic and a phonological feature

The feature of palatalization is active in different parts of the Kakabe phonetics and phonology. First, it is a contextually conditioned phonetic feature characterizing consonants before front vowels, e.g. *sìgi* [sʲigʲi] ‘sit’. Second, in loanwords palatalized consonants can appear before any vowels. French words containing the cluster [Cj] are adopted in Kakabe through the deletion of the glide. At the same time, the palatalization of the preceding consonant is retained in Kakabe:

(3.32) The deletion of the approximant [j] with the retention of the palatalization conditioned by the approximant.

$C_{j \text{ FRENCH}} \rightarrow C_{\text{KAKABE}}$

See some examples below:

(3.33) *dìmàns'ón* ‘dimesion’ < Fr. *dimension* [dimɑ̃sjɔ̃]
mékánis'én ‘car mechanic’ *mécanicien* [mekanisjɛ̃]
màtèr'él ‘equipment’ *matériel* [mateʁjɛ̃l]

This adaptation strategy results in the introduction of contextually free palatal consonants into the Kakabe phonology, see Section 3.4.5.1 for more examples and discussion.

Third, palatalized consonants, not followed by any front vowel can appear as a result of hiatus resolution. When a front vowel not belonging to an auxiliary is deleted before the pronoun *à* 3SG, *ànu* 3PL or *ò* 2PL, the palatalization is retained, see (4.151 a) below. This process is discussed in Section 4.6.3.4.8.

(3.34) [ɲ kà kʲɲ kà mʲɲ [↑]kʲá: jè]

ɲ ka kʲán kà mʲín^L ké à yen
 1SG PFV.TR be.obliged.to INF REL do 3SG BNF
 ... what I have to do for her...

The three types of palatalization are summarized in Table 3.5.

Palatalization type:		Context:
I.	Phonetic	before front vowels (automatic)
II.	In loanword adaptation	before any vowel except ɔ and ɛ (lexically bound)
III.	In hiatus resolution	before the pronouns à , ànu and ò (morphosyntactically conditioned)

Table 3.5: Types of palatalization and the context of its appearance

Types (II) and (III) are discussed in 3.4.5 and 4.6.3.4.8 respectively.

Table 3.6 represents how the three types of palatalization are distributed with respect to the following vowel.

	Hiatus- resolution Pal.	Loanword Pal.	Phonetic Pal.
a	Cia: ~ Ca:	Cia	*
ɔ		*	*
o	Cio:	Cio	*
u		n/a	*
ɛ		*	*
e		Cie	Cie
i		Ci	Ci

Table 3.6: Types of palatalization

In the case of the Hiatus resolution palatalization, this distribution is due to the fact that the pronouns triggering this kind of hiatus are à 3SG, ànu 3PL and ò , the 2PL pronoun or the demonstrative. Palatals in loanwords never precede the mid-low vowels ɔ and ɛ for the following reason: palatals stems from the Cj combinations in the source form and all Cj ɔ and Cj ɛ combinations are rendered as C ɔ and C ɛ respectively, cf. (3.33) which might be explained as the assimilation of the vowel to the palatalized consonant.

Finally, when the phonetic palatalization is at issue, consonants are palatalized before the front high and high-mid i and e but not before ɛ , a :

(3.35) (a) Alveolars

t / _ e	→	[tʃ]	<i>tée</i>	[tʃé:]	the negative potential auxiliary
t / _ ε	→	[t]	<i>téema</i>	[tɛ:mà]	‘between’
s / _ i	→	[sʃ]	<i>sìisèè</i>	[sʃi:sjê:]	‘chicken’
s / _ e	→	[sʃ]	<i>sìisèè</i>	[sʃi:sjê:]	‘chicken’
s / _ ε	→	[s]	<i>sòɔsèè</i>	[sò:sê:]	‘arguing’

(b) Labials and the labio-velar \widehat{gb}

b / _ e	→	[bʃ]	<i>sòbéè</i>	[sòbʃé:]	‘meat’
b / _ ε	→	[b]	<i>bòbéè</i>	[bò:bê:]	‘baby’
\widehat{gb} / _ i	→	[\widehat{gb} ʃ]	<i>gbèngbí</i>	[\widehat{gb} ʃèŋm \widehat{gb} ʃí]	‘bed’
\widehat{gb} / _ e	→	[\widehat{gb} ʃ]	<i>gbén</i>	[\widehat{gb} ʃéŋ]	‘chase away’
\widehat{gb} / _ ε	→	[\widehat{gb}]	<i>gbéé</i>	[\widehat{gb} é:]	‘white’

The contrast between the mid-high [e] and the mid-low [ɛ] is less clear-cut in the case of velars, see. (3.36). The latter are also palatalized before the mid-low [ɛ], though they are palatalized stronger before [e] and [i]. Probably, this difference is due to the phonetic nature of velars which are more distant from the front vowels from an articulatory perspective and thus, they need to be accommodated to all front vowels including [ɛ].

(3.36) Velar consonants

g / _ e	→	[tʃ]	<i>nìngéè</i>	[nʃiŋgʃé:]	‘cow’
g / _ ε	→	[t]	<i>nègèè</i>	[nègʃ(i)é:]	‘iron’
k / _ e	→	[kʃ]	<i>kéeta</i>	[kʃé:tá]	arrive-PFV.TR
k / _ ε	→	[k(i)]	<i>kéeta</i>	[k(i)é:tá]	become-PFV.TR

The data described here lead to the conclusion that palatalization has acquired a certain autonomy in Kakabe in two cases. First, it becomes free from the phonetic conditioning in the context of the concatenation between an onsetless pronoun and the preceding vowel. Second, this happens in borrowings when a phonological contrast between palatalized and non-palatalized consonants emerges. This can be illustrated by (3.37 a) which is not a minimal pair, yet shows that palatalization is free from phonological conditioning.

(3.37) (a)	<i>kèsʃion</i>	‘question’	< Fr. <i>question</i>
	<i>dimansʃion</i>	‘dimension’	< Fr. <i>dimension</i>

- (b) *kóson* ‘scorpion’
pilanson ‘plunge’ < Fr. *plonger*

The contrast between palatals and non-palatals is not possible before *i* or *e* because the palatalization is automatic here, and, consequently, the borrowings stemming from Cje, Cjɛ and Cji coincide with the sequences Ce and Ci in non-borrowed nouns³.

3.2.2.5 Weak consonants and consonant elision

In Kakabe the glides *w* and *y* tend to disappear in the intervocalic position with two exceptions. First, they don't disappear in the IP-initial position. Second, glides are always preserved when they are preceded by the homorganic nasal N, see Section 4.2.3.

Example (3.38) contains two instances of the underlying *y*. The first *y* is intervocalic and undergoes deletion, the second *y* follows an underlying N and is realized at the surface level, whereas the nasal itself disappears, see Section 4.2.3.2.

(3.38) [i b́átá:n:à dé̀nè dó é j̀àn:à]

ì b́áti ànu la dé̀n-È do yén ỳàn la
 2SG PFV.OF 3SG POSS child-ART some see there OBL
 Have you seen any of their children there?

A similar configuration is illustrated in (3.39), where in the noun *ỳàaye* ‘aunt’ only the first *y* is pronounced, because it is preceded by and underlying N. At the same time, the deletion of the glide is not obligatory in the absence N. Thus, in (3.39) the glide is realized is in [j̀èŋ], through there is no N before it.

(3.39) [à f̀ɔ̀: j̀â:è j̀èŋ]

à f̀ɔ̀ ñ ỳàaye ỳen
 3SG say 1SG aunt BNF
 He said to my aunt: ...

By contrast, in (3.40) below *y* disappears at the beginning of the verb *ỳén*.

(3.40) [i m̀ánj kén:dé́é è]

3. This might be considered as a particular case of lexical diffusion of a phonological change in terms of Labov (1994); Kiparsky (1995)

ì máa ñ kèn-nden-È yén
 2SG PFV.NEG 1SG foot-DIM-ART see
 Haven't you seen my little feet?

In (3.41) the whole verb *yén* 'see' disappears due to contraction: *tógɔndè + yén + an* > [tógɔ́n-dè: ʔǎn]⁴. In general, the glide elision is either optional in certain context, or it is defined by a complex algorithm which remains to be unveiled.

(3.41) [há: ʔǎŋ kà tógɔ́ndè: ʔǎn dòn tógè wò là]

háa ànu ka tógɔ-nden-È yén ànu ni dòn tógɔ-È wò
 until 3PL PVF.TR smithy-DIM-È see SBJV 3PL enter smithy-ART that
la
 OBL
 And then they saw a smithy and entered it.

In (3.42) *yan* is reduced to *a* (N is deleted because it immediately precedes an onsetless syllable, see Section 4.6.1.4). And *a* in its turn coalesces with the final vowel of the verb: *fɔlɔ + yan + o* → *fɔlɔ a o* → [fɔ́lá: ó].

(3.42) [wò ká: ⁺fɔ́lá: jàŋ ò sép:ítá há: kíndiyà]

wò ka à fɔlɔ yàn wò séppi-ta háa Kíndiya
 2PL PFV.TR 3SG start here 2PL go.on.foot-PFV.INTR until TOPON
 You start off here and you walk on foot until Kindiya [name of a town].

The deletion of [w] is illustrated by (3.43) where a whole syllable is deleted:

(3.43) *bi à wá-la* → *bâ: wàla* → [bâ:là]
 [àŋ:à déjènù bâ:là]

ànu la dén-È-nu bi à wà-la
 3PL POSS child-ART-PL be 3SG go-GER
 Their children go away.

4. The glottal stop appears due to IP boundary.

As argued in Sections 4.2 and 4.6, *N* produces a strengthening effect on the following consonant. It causes the gemination of the following sonorant. The glides *y* and *w* which otherwise can disappear altogether are optionally geminated. This can also be seen in a way that *N* before *y* and *w* optionally assimilates with the glides which results in glide gemination, or is deleted, but in the latter case preserves the glides from deletion.

$$G \rightarrow G \sim \emptyset / V_V$$

$$NG \rightarrow G \sim G: /V_V$$

We return to this question in Section 5.5.6.1, where the consonantal strength hierarchy is shown to affect a number of morphological processes.

Another consonant which can be characterized as weak is *h* which alternates with zero in certain words, e.g. the discourse particles *hári* ~ *ári*, *háyi* ~ *áyi* ‘even’. In general, *h* is a rare consonant (it occurs only in borrowings) and there is not enough data to make conclusions about its realization in different contexts.

Apart from that, consonant weakening can be restricted to certain morphological contexts. Thus, the consonant *b* systematically disappears in the existential copula *bi*, and the consonant *s* disappears in the potential auxiliary *si*, this is discussed in Sections 4.6.5 and 4.6.6 respectively.

Finally, sporadically, other consonants can also disappear, cf. (3.44 a) where *l* disappears at the beginning of the second focus marker, and (3.44 b), where *f* disappears at the beginning of the preposition *fí*.

(3.44) (a) [i lé è fùlà là]

i *lè* *lè* *fùla-È* *là*
 2SG LG FOC Fulbe-ART OBL
 You are Fulbe

(b) [à té lámúlúndé í állà]

à *tée* *la-múlun-nden* *fí* *állà*
 3SG NEG.POT CAUS-mix-PC.STAT for God
 This should not be confounded, for God’s sake.

3.3 Phonotactic patterns

Kakabe is a weight-measuring language (in terms of Hayes 1989 and Hyman 2003). It makes distinction between light syllables, containing one mora, and heavy syllables, containing two

moras. In Kakabe, syllables with a long vowel or a short vowel and a final consonant are treated as syllables with two moras. Mora functions as a tone-bearing unit.

In the current description I use the model of the phonotactic organization of utterance represented in (3.45), see Selkirk (1986), Nespor & Vogel (2007).

(3.45)	Utt	Utterance
	IP	intonation phrase
	PhP	phonological phrase
	PW	prosodic word
	Ft	foot
	σ	syllable
	μ	mora

Prosodic units listed in (3.45) have both tonal and segmental manifestation in Kakabe. The tonal characteristics of prosodic units, such as IP-final boundary tones, tone-leveling within PhP and many others are discussed in Chapters 5 and 6, see, in particular Section 5.3.4 which contains an overview of prosodic units as domains of tonal processes.

In this and the following chapter, I discuss only the segmental processes. Prosodic constituency defines the domains in which phonological processes are applied, e.g. the assignment of the glottal stop onset to underlyingly vowel-initial morphemes at the beginning of an intonation phrase. The evidence for phonotactic structuring into moraic feet is the fact that prosodically independent words consist minimally of two moras, with the exception of monosyllabic verbs that alternate the long-vowel and the short-vowel realization, see Section 3.3.2.1.1.

The metrical foot (Ft) is a prosodic constituent that intervenes between the syllable and the larger prosodic word (PW), containing those syllables (e.g. Liberman (1975); Liberman & Prince (1977); Hyman (1985) and many others). Parsing starts from the left boundary of PW. The notion of prosodic foot was created to account for the patterns of stress assignment. But early on in the development of the metrical theory it was proposed that foot can serve as the domain conditioning segmental allophony (Kiparsky 1979), and in the ensuing years additional foot-based phonological patterns have been uncovered in the languages of the world (for references and discussion see Bennet 2012). It has been shown that foot structure can be present in languages without phonetic stress. Kakabe is a language with moraic trochees, so that in a binary moraic foot, first mora is stronger. Another foot-based phenomenon is the allomorphy pattern of the diminutive suffix *-nden*, described in Section 4.3.4. Apart from that, the alignment of separating H tone can also be foot-sensitive, see Section 5.5.6.

The vowel elision of the type #CV.CV → CVC (see Section 3.3.1.1) is sensitive to the prosodic word boundary: vowels in PW-initial syllables are protected from deletion. Otherwise, PW is the domain of the segmental word-clitic adjustment described in Section 4.2.5.

In general, the phonotactic system of Kakabe is defined by a strong tendency for open syllables.

This part of the chapter gives an overview of the phonotactic patterns in simplex morphemes within the native Kakabe vocabulary. Section 3.3.1 provides an overview of the underlying types of syllables, first, the major types and then the minor types. The relation between the underlying phonotactic patterns and the types of morphological units is discussed in Section 3.3.2. Finally, Section 3.3.3 provides an account of the type of syllables which are attested in the surface realization, and which result from the interaction between morphemes.

3.3.1 Underlying syllables

The following types of syllables are possible in the underlying representation:

1. light open syllable CV;
2. heavy syllable with a long vowel or with a nasal coda: CV: and CVN;
3. syllable C(V) viable to nucleus deletion;
4. syllable (C)V viable to onset deletion;
5. syllabic N.

Apart from that, there are two minor syllable types which are rare in the non-borrowed Kakabe words (but common in borrowings):

1. syllables with complex onset NC;
2. syllables with the coda position filled by a geminated consonant which they share with the onset of the following syllable.

It should be underlined that this inventory concerns the underlying representation. Thus, geminates in the surface realization in Kakabe are very common, but geminates that are present at the underlying level as phonemic features occur almost exclusively in borrowings.

Below I discuss some of the underlying syllables which require special comment.

3.3.1.1 *C(V) syllable (weak syllable)*

In Kakabe, weak syllables, defined in (3.46) below, can undergo the reduction of its nucleus.

(3.46) Syllable C(V) is a weak syllable if it fulfills three conditions:

- (a) CV is of the type SV_{-LOW} : “sonorant (*n, r, w, l* or *y*) plus a non-low vowel”
- (b) CV is not PW-initial (PW-initial syllables are protected from deletion).
- (c) CV is monomorphemic (non divided by a morphemic boundary).

Thus, the notation C(V) and the term “weak syllable” which I will use henceforth is a shortcut for the syllable which fulfills the conditions in (3.46) above. The nucleus deletion process which the weak syllable can undergo is formulated in (3.47) below:

(3.47) The nucleus of a weak syllable can be deleted and its onset becomes the coda of the preceding syllable, or its nucleus can be reduced to an extra-short vowel:

Optional: $(C_{onset} V)_{weak \sigma} \rightarrow C_{coda} \emptyset \quad \text{or} \quad C_{onset} \check{V}$

According to (3.46) and (3.47), in Kakabe every underlying syllable, not divided by morpheme boundary, not PW-initial, and which consists of the *n, l, r* or *y* onset, and any short vowel other than *a can* undergo the reduction of its nucleus. The nucleus can be deleted or become extra-short:

(3.48) *káru fila* ‘two months’ \rightarrow [kárú filà] ~ [kárú filà] ~ [kár filà].

Example 3.49 illustrates the requirement for the syllable not to be PW-initial. The second syllable in the verb *kèlè* ‘quarrel’ can be reduced when followed by the suffix *-ta*, contrary to that, the reduction of the first syllable of the verb which is PW-initial is not possible.

(3.49) *kèlè* ‘quarrel’ + *-ta* PFV.INTR \rightarrow *kèlèta* ~ *kèlta* **klèta*

The trochaic foot does not play any role in vowel omission described here. Thus, vowel can be omitted not only in the second syllable of PW as in (3.49), but also in the third syllable of PW which is strong in a trochaic foot, see (3.50):

(3.50) *tábirilaa* ~ *tábirlaa* ‘cook’.

The contrast between (a) and (b) in (3.51) and (3.52) below illustrates the effect of the monomorphemic condition formulated in (3.46c). Thus, the second syllable cannot be reduced either in *bólè* ‘the hand’ or in *yólè* ‘tse-tse fly’, because it contains the vowel of the referential article and hence is divided by a morphological boundary.

- (3.51) (a) *wò* 2PL + *lè* FOC + *tùgun* ‘again’ → *wó* *lè* *tùgun* ~ *wól* *tùgun*
 (b) *bólo* ‘hand’ + *-È* ART → *bólè* *tùgùn* **ból* *tùgùn*
- (3.52) (a) *yèlè* ‘descent’ + *-la* GER → *yèlèla* ~ *yèlla*
 (b) *yóle* ‘tse-tse fly’ + *-È* ART + *là* OBL → *yólè* *là* **yól* *là*

For the same reason, the nucleus reduction is not possible when CV syllable contracts with the copula *bi* (this type of contraction is discussed in Section 4.6.5.3), compare (a) and (b) in (3.53).

- (3.53) (a) *ì* 2SG + *káni* + IMP.NEG + *bòri* ‘run’ → *ì* *káni* *bòri* ~ *ì* *kán* *bòri*
ànu 3PL + *bòri-ta* run-PFV.INTR → *ànu* *bòrita* ~ *àn* *bòrita*
 (b) *ànu* 3PL + *bi* ‘be’ + *bòri-la* run-GER → *ani* *borila* **an* *bóрила*.

A particular case of vowel elision is the realization of focused forms of personal pronouns in NK that have frozen in the reduced form, e.g. the focused 1PL is always realized as *mǝllè* < **mǝ* *lè* *lè*, see Section 2.6.1.7.

The term “weak syllable” which I use to refer to this phenomenon implies the possibility of the disappearance of the syllable as a whole, since when the nucleus is deleted, the remaining onset is resyllabified as a coda of the preceding syllable, as formulated in (3.47).

Contrary to this, the syllable with weak onset, (C)V which I discuss in Section 4.6 in Chapter 4 can lose its onset, but, in most cases, this does not lead to resyllabification (which also distinguishes the syllable with a weak onset from the onsetless syllable, see Section 4.6).

A phenomenon similar to the nucleus reduction in a weak syllable is the realization of the epenthetic vowel in borrowings. The epenthetic nucleus can also be realized as a short vowel, a super-short vowel or can be omitted, resulting in the same alternation CV ~ C \check{V} ~ C. But contrary to the nucleus reduction in a weak syllable, in the case of the epenthetic vowel, there are no restrictions either on the quality of the onset (it is not limited to *n*, *l*, *r*, *y*) or on the quality of the nucleus which can also be the vowel *a*, see Section 5.95.

3.3.1.2 Syllabic N

Kakabe has a syllabic N which is represented by the 1SG pronoun *n̩*, illustrated in (3.54).

- (3.54) *n̩* *dáa* [ndâ:] ‘my mouth’
n̩ *bàaba* [mbâ:bà] ‘my father’
n̩ *yáayε* [ɲjâ:yè] ‘my paternal aunt’
n̩ *kèpéè* [ɲkèpê:] ‘my foot’
n̩ *gbénkɛnè* [ŋm̩gbénkɛnè] ‘my skull’.

Its syllabic character is manifest in the fact that it bears its own tone. The pronoun *n̄* is realized as a syllabic N only when it occurs at the left edge of an intonation phrase. In other context *n̄* is syllabified as the coda of the preceding syllable, nasalizing its nucleus, cf. (3.55 a) and (3.55 b) below.

(3.55) (a) # *n̄* 1SG + *bólè* ‘hand’ → [n̄.bó.lè] ‘my hand’

(b) *kà* INF + *n̄* 1SG + *bólè* ‘hand’ + *bita* ‘seize’ → [kàm.bó.lè.bi.tà] ‘to seize my hand’.

When *n̄* occurs after the auxiliaries *máa* NEG.PFV and *tée* NEG.POT, the length of the vowel is lost:

(3.56) *máa* NEG.PFV + *n̄* 1SG + *tà* ‘take’ → [màn tà]

tée POT.NEG + *n̄* 1SG + *tà* ‘take’ → [tén tà].

Compare (3.57 a), with the shortening of the vowel in IP-internal position and (3.57 b), where the negative marker *máa* and the pronoun *n̄* are separated by IP-boundary, and the vowel length in *máa* is retained:

(3.57) (a) [ì má: n̄ dàmu]

(ì máa n̄ dámu)_{IP}
2SG PFV.NEG 1SG eat
You didn’t eat me.

(b) [pròblè m:á: n̄ bátâ: mèn]

(pròblèm máa)_{IP} (n̄ bátâ à mén)_{IP}
problem COP.NEG 1SG PFV.OF 3SG understand
No problem, I understand.

In contrast to that, when these auxiliaries combine with the 3PL pronoun in its short version, *ànu* > *àn*, the length of the vowel is preserved, and the nasal is placed in the position of the following onset:

(3.58) *máa* COP.NEG + *àn* 3PL + *tà* ‘take’ → [má:.ntà]

tée POT.NEG + *àn* 3PL + *tà* ‘take’ → [tá:.ntà].

At the same time, the vowel length in this context is unstable, and is often deleted. Besides, it remains unclear, whether NC sequences should be treated as complex onsets, or whether N occupies the coda position after a long vowel, thus creating a super-heavy syllable, see Section 3.3.3.2.

Under the circumstances, discussed in Section 4.2.3 N disappears before sonorants. If in the surface realization N is IP-initial, and, consequently, syllabic, its realization may differ from the realization of the coda N in that it is more resistant to deletion.

3.3.1.3 Syllables with N coda

As has been shown in Section 3.3.1, the underspecified nasal N has a special status in the phonotactics of Kakabe: it is the only phoneme that can be found in coda of an underlying syllable, form a separate syllable and create complex onset.

It assimilates with the following onset by the place of articulation and also partly by the manner of articulation. The process of assimilation is the same for N in coda position and for the syllabic N. At the same time, the assimilation is not automatic, but is defined by the boundary that separates the two syllables. The realization of N is described in 4.2.

3.3.1.4 Onsetless syllables

The case when onsetless syllables occur morpheme-internally are the sequences ε and oe , e.g. *dòè* ‘a little’, *móε* ‘hear’. These are the only tautomorphic vowel sequences allowed in Kakabe. The onsetless ε and e alternate with yi : *dòè* ~ *dóyi* ‘a little’, *móε* ~ *móyi* ‘hear’, *sòyi* ~ *sòe* ‘dig’, *wóyi* ~ *wóe* ~ *wée* ‘be kneaded’.

Diachronically, yi precedes ε and e , cf.:

Kakabe *bòe* ~ *bòyi*, Mandinka *bòyi*, Xasonka *bòyi*, Nyokolo Maninka *bòyi*,

Kakabe *mòyi* ~ *mòε*, Mandinka *mòyi*, Nyokolo Maninka *mée*, *móyi*.

The assimilation of i to o and ε by height is attested in the case of the pronoun i and the onsetless allomorphs [i] of the potential auxiliary si and the copula bi , as described in Section 4.6. Thus, the morpheme-internal onsetless e and ε result from the assimilation of yi to the preceding ε and o and the omission of y .

Onsetless morphemes include the referential article $-È$ and the pronouns \grave{i} 2SG, \grave{a} 3SG, \grave{anu} 3PL and, in NK, \grave{o} 2PL. When these pronouns occur at the beginning of a prosodic phrase, they are pronounced with a glottal stop onset. The article cannot initiate a prosodic phrase, it is always pronounced together with the preceding morpheme.

The copula *bi* and the potential auxiliary *si* can be pronounced as [i], their phonological realization is discussed in Sections 4.6.5 and 4.6.6.

Vowel initial lexical morphemes are represented mostly by borrowings, cf. (3.59).

(3.59)	<i>imáamu</i>	‘imam’	< Pul.	<i>imaamu</i>	< Ar.
	<i>írte</i>	‘unearth’	< Pul.	<i>irtugol</i>	
	<i>íidu</i>	‘Ramadan’	< Pul.	<i>iidiire</i>	< Ar.
	<i>áfiya</i>	‘state of health’	< Pul.	<i>aafiya</i>	< Ar.
	<i>èndére</i>	‘during’	< Pul.	<i>endere</i>	
	<i>úure</i>	‘smell good’	< Pul.	<i>uurugol</i>	
	<i>àbiyɔn</i>	‘plane’	< Fr.	<i>avion</i>	

There is at least one word starting with a vowel which is not a borrowing and it has a vowel-initial variant of pronunciation: *ùra* ~ *wùra* ‘evening’. It corresponds to the root with the initial *w* in other Mande languages, so this case results from the loss of the initial consonant.

Vowel-initial lexical morphemes most frequently occur at the beginning of a prosodic phrase and consequently are assigned a glottal stop at the onset, but they can also occur in internal position without onset and even fuse with the preceding vowel, see 4.6.1.1.

Section 4.6 contains a detailed account of how different types of vowel-initial morphemes or morphemes with unstable initial consonant are realized.

3.3.1.5 Syllables with NC onset

NC onsets occur in five original Kakabe words, and the nasal part is unstable in each of the five:

<i>ndólin</i> ~ <i>dólin</i> ~ <i>dólin</i>	‘fishing rod’
<i>ndònton</i> ~ <i>dònton</i>	‘cock’
<i>nbóɔ</i> ~ <i>bóɔ</i>	‘twin’
<i>ngbása</i> ~ <i>gbása</i>	‘lizard sp.’
<i>njà</i> ~ <i>jà</i>	‘dry up’.

Apart from that, N is part of the onset of the suffix *-nden* which marks the diminutive and the suffix *-nden* homonymous to it which marks the stative-resultative participle.

Otherwise complex onsets starting with N occur in borrowings from Pular, e.g.:

<i>ndánta</i>	‘plain’	< Pul.	<i>ndantari</i>
<i>ndòòku</i>	‘duck’	< Pul.	<i>ndookuwal</i>
<i>ndíkke</i>	‘recover’	< Pul.	<i>ndikkugol</i>
<i>nbúsu</i>	‘marrow’	< Pul.	<i>mbuso</i>
<i>nbúle</i>	‘blue’	< Pul.	<i>mbule</i>
<i>ngúlendi</i>	‘heat’	< Pul.	<i>nguleendi</i>
<i>njáarendi</i>	‘sand’	< Pul.	<i>njaareendi</i>
<i>njùn</i>	‘hammerhead (bird species)’	< Pul.	<i>njunwal</i>
<i>ndúguse</i>	‘young man’	< Pul.	<i>nduguseejo</i>
<i>ngàsi ~ gási</i>	‘okay’	< Pul.	<i>gasi</i>

The words *nbòò* ‘deaf’ and *nbàtu* ‘crowd’ are most likely secondary also borrowing of the Pular nouns *mbobo(jo)* and *mbatu* that came to Pular from Mande.

The nasal N in the onset of the source word is often lost in Kakabe:

<i>dáygu</i>	‘light’	< Pul.	<i>ndaygu</i>
<i>gáandi</i>	‘brain’	< Pul.	<i>ngaandi</i>

Morpheme-internal syllables with NC onsets are frequent in borrowings from Pular, see (3.60). Pular has prenasalized consonants, moreover, in (3.60) *ndi/nde* in the source forms are class suffix markers. These two circumstances point to the fact that the syllable boundary separates *nd* from the preceding long vowel. One can suppose that, even though the nominal class markers do not exist as such in Kakabe, and thus, the morphological structure is different, the syllabic structure might be the same as in the source word.

(3.60)	<i>gáandi</i>	‘brain’	< Pul.	<i>ngaandi</i>
	<i>háahaande</i>	‘bile’	< Pul.	<i>haahaande</i>
	<i>lówaande</i>	‘gunshot’	< Pul.	<i>loowannde</i>
	<i>máande</i>	‘sign’	< Pul.	<i>maande</i>
	<i>lóonde</i>	‘jug’	< Pul.	<i>loonde</i>
	<i>wúppóonde</i>	‘bladder’	< Pul.	<i>wuppoonde</i>
	<i>tíinde</i>	‘forehead’	< Pul.	<i>tiinde</i>

Finally, the stative-resultative participle suffix *-nden* and the homonymous diminutive suffix are represented by a syllable with NC onset. Importantly, when the stative suffix *-nden* attaches to the monosyllabic verb, the latter is always realized with a long vowel. See also Section 4.3.3 which describes the realization of *-nden* in combination with the referential article *-È*.

- (3.61) *fàanden* < *fàa* ‘to fill’ + *-nden* ‘PC.ST’
nàanden < *nàa* ‘to come’ + *-nden* ‘PC.ST’
bàanden < *bàa* ‘goat’ + *-nden* ‘DIM’.

Otherwise, when NC sequences are separated by a morpheme boundary, as in *sàn-ta* ‘buy-PFV.INTR’, N occupies the position of the coda. The same is true for morpheme-internal NC sequences, like in *kánka* ‘to steal’ which is supported by the fact that, apart from the cases like borrowings (3.60), such NC sequences are never preceded by a long vowel. See also Section 4.2.3.1.

3.3.2 Morphological constraints on the types of underlying syllables

3.3.2.1 Prosodic weight and grammatical categories

Morphemes can be subdivided into two groups according to their prosodic, phonotactic and grammatical proprieties. The first group consists of prosodically independent, prominent morphemes which include content morphemes, prominent functional morphemes and semi-grammaticalized morphemes. The second group includes morphemes which are prosodically dependent and fully grammaticalized.

Table 3.7 represents the phonotactic patterns of simplex morphemes of the first group compared to the phonotactic types of morphemes belonging to the second group.

content (heavy) morphemes	function (light) morphemes
CV:	CV
CVN	V
CVCV	(C)V
CV:CV	N
CVNCV	

Table 3.7: Major syllable structure types of content vs. function morphemes

All verbs, adverbs, adjectives belong to the first group. The second group includes verbal suffixes and prefixes, connectors, personal topical pronouns and grammatical markers, such as the plural marker, the possessive linker, the focus marker, etc.

The rest of the categories (excluding the special case of ideophones, see Section 3.3.2.3), *viz.* determiners, postpositions, auxiliaries and conjunctions can be either phonotactically heavy or light. This reflects the fact that these grammatical categories are often also heterogeneous with respect to the degree of grammaticalization, so that the less grammaticalized

morphemes are heavy and the fully grammaticalized morphemes light. Thus, for example, the postposition *búútɔ* ‘inside’ retains a close link to the source noun *búu* ‘stomach’ which is combined with the postposition *tɔ* ‘in’ (it can sometimes be even pronounced with the article as *búè tɔ*), while others, as the oblique marker *la are* fully grammaticalized and do not keep any trace of origin⁵.

Thus, the length of the vowel in a monosyllabic morpheme reflects its grammatical category.

3.3.2.1.1 Content morphemes

Table (3.8) provides a list of the phonotactic patterns for nouns and verbs.

Nouns			Verbs		
CV:	<i>kàa</i>	‘snake’	CV(:)	<i>fɔ(ɔ)</i>	‘say’
CVN	<i>sàn</i>	‘year’	CVN	<i>sàn</i>	‘buy’
CVCV	<i>káari</i>	‘month’	CVCV	<i>kèle</i>	‘call’
CV:CV	<i>káara</i>	‘shea tree’	CV:CV	<i>sàara</i>	‘pay’
CVCVCV	<i>kàlamá</i>	‘ladle’	CVCVN	<i>kàran</i>	‘study’
CVNCVN	<i>lúntan</i>	‘guest’	CVNCVN	<i>kàntan</i>	‘guard’
CV.CV:.CV	<i>tùbáabu</i>	‘white man’			
(N)CVCVN	<i>(n)dólin</i>	‘hook’			

Table 3.8: Phonotactic types of simplex lexical morphemes

Nouns, adjectives and adverbs consist of minimally two moras, which means that PW is subject bimoraic minimality condition, see, for example, Hyman & Mtenje (1999: 90) on the application of this condition in Chichewa.

3.3.2.1.2 Functional morphemes

Example (3.62) lists some typical monomoraic markers. It includes topical pronouns, semantically bleached postpositions with mainly syntactic function, such as the oblique markers *la* and *ma* used in a wide range of syntactic contexts, and the postposition *tɔ* used in many locative constructions.

5. One more reason of the heterogeneous prosodic and phonotactic behavior of these categories (which may be linked with the first one) might be that they regroup morphemes with diverse pragmatic functions. For example, the negative auxiliaries which, by definition, are the focus center of the utterance are bimoraic, cf. the negative potential marker *tée*, the negative perfective marker *máa*, the negative existential copula *béle*, whereas the background auxiliaries are monomoraic, cf. the marker of the perfective *ka*, the existential copula *bi*, the potential auxiliary *si*, see the discussion in Section 2.2.

(3.62)	CV	v.suff	-ta	PFV.INTR	CV	pp	la	OBL
	CV	v.suff	-la	GER	CV	pp	ma	OBL
	C(V)	prt	lè	FOC	CV	pp	tɔ	OBL
	V	pron	ì	2SG	C(V)	aux	ni	SBJV
	V	pron	à	3SG	(C)V	aux	(s)i	POT
	N	pron	ṅ	1SG	(C)V	aux/cop	(b)i	be

Monosyllabic demonstratives often have unstable long vowels, the CV: ~ CV phonotactic structure, where the heavy form is used when the referent of the demonstrative is more prominent, e.g.

kɛ ~ kéɛ ‘that’,

do ‘some, certain’ ~ *dóo* ‘the other’ etc.

Prosodically prominent markers include part of postpositions, heavy auxiliaries and derivational suffixes.

(3.63)	μμ	CV:	qnt	<i>wóo</i>	UNIV
	μμ	CV:	aux	<i>máa</i>	NEG.PFV
	μ(μ)	CV(N)	pp	<i>yen</i>	BNF
	μμ	CVN	dtm	<i>mín^L</i>	REL
	μμ	NCVN	v.suff	<i>-nden</i>	PC.STAT
	μ(μ)	(CV)(CV)	aux	<i>báti ~ tí ~ bá’</i>	PFV.OF aux
	μ(μ)	CV(CV)	aux	<i>béle ~ bé’</i>	be.NEG
	μμ	CVN(V)	aux	<i>máni</i>	COND aux
	μ(μ)μ	CV(:)CV	pp	<i>búùtɔ ~ bùtɔ</i>	inside

As can be seen in (5.63) and (3.64 b), derivational suffixes are mostly bimoraic, suffixes with generalized grammatical meaning are monomoraic.

(3.64) (a) Bimoraic suffixes

<i>-kaa</i>	suffix used to form names of inhabitants
<i>-baga</i>	agent noun suffix
<i>-bónɔ</i>	‘-less’, suffix with privative meaning
<i>-laa</i>	deverbal agent nominalization suffix
<i>-nden₁</i>	diminutive suffix
<i>-nden₂</i>	stative participle suffix
<i>-ɲɔgɔ, -nan, -ɲan</i>	ordinal numeral suffixes
<i>-dúla</i>	supine suffix

(b) Monomoraic suffixes and prefixes

- <i>la</i>	GER	<i>la-</i>	CAUS
- <i>ma</i>	PASS (NK)	<i>ta-</i>	REF
- <i>nu</i>	PL	<i>ma-</i>	VB.PL
- <i>ri</i>	TR.NMLZ	- <i>ma</i>	adjective suffix
- <i>È</i>	ART		

The presented data is in line with the widely accepted hypothesis, according to which the process of semantic bleaching and loss of syntactic autonomy is accompanied by phonetic erosion, see, for example, Hopper & Traugott (2006), Bybee et al. (1994).

3.3.2.2 Vowel length

In lexical morphemes, vowel length depends on the position of the vowel within the morpheme. Long vowels do not occur in the final syllable of nominal, adjectival and verbal morphemes that have two or more syllables. The (C)VCVV phonotactic pattern is represented by morphemes whose function as left-dislocated topics. These words usually have a (C)VCVV shape and L.HL, some of them are listed in (3.65).

Since a phonetically long vowel represents two tone-bearing units, at least for part of the cases, structurally, they represent two identical vowels.

(3.65) Left-dislocated morphemes with (C)VCV: pattern

<i>jàkàà</i>	‘exclamation of surprise’	interjection
<i>kòtèè</i>	‘now’, ‘and now...’	clause-initial adverb
<i>kàtáà</i> < <i>kà</i> INF + <i>táa</i> ‘go’	‘since’	conjunction
<i>sìnáà</i>	‘otherwise’	conjunction
<i>sòmáà</i> ~ <i>sìnáà</i>	‘however’	conjunction
<i>ènéè</i> ~ <i>ànèè</i>	‘hey!’ (address interjection)	interjection

Whereas a long vowel is unacceptable in the final syllable of a content morpheme, long vowels in the last syllable of words including several morphemes are common. If the last syllable of a word is a monosyllabic morpheme with a long vowel, the length is preserved in this context:

<i>náajii</i>	‘tear’	<	<i>náa</i> ‘eye’	+	<i>jii</i> ‘water’
(3.66) <i>jùsusáa</i>	‘anxiety’	<	<i>jùsu</i> ‘heart’	+	<i>sáa</i> ‘to put’
<i>kòotíuu</i>	‘riverside forest’	<	<i>kòò</i> ‘river’	+	<i>tíuu</i> ‘forest’

Under conditions described in Section 4.6.4 a long vowel appears in the last syllable of nouns when the article is attached to it e.g.:

(3.67) *dàga* ‘pot’ – *dàgáà* ‘pot-ART’

3.3.2.2.1 *Length of monosyllabic verbs*

Monosyllabic verbs can be realized as a light CV or as a heavy CVV syllable. They are regularly realized as CVV before the participle suffix *-nden* and before the derivational suffix *-láa* which serves to form agent nominalization from verbs:

- (3.68) *nàa-nden* come-PC.ST
láa-nden lie-PC.ST
wáli-kée-laa work-do-AG ‘worker’
bón-dáa-laa house-make-AG ‘builder’

Another case when monosyllabic verbs are regularly realized as CVV is when they host a boundary tone, see Section 6.4. In all other contexts, the CV and CVV realizations are in free variation, cf. the realization of *ké(ε)* ‘do’ in (3.69 a) and in (3.69 b) below, with short and long vowel in almost the same context (and in the same conversation). The light-syllable realization is, in general, more frequent. More precisely, as I argue in (Vydrina 2008), they can be realized phonetically as short, semi-long and long, with the first two types of realizations being more frequent.

- (3.69) (a) [mà í sènέ: lè kè:là]

mà bi sènε-È lè ké-la
 1PL be field-ART FOC do-GER
 We work in the field

- (b) [wò í sènέ: lè kèlà]

mà bi sènε-È lè ké-la
 1PL be field-ART FOC do-GER
 We work in the field

In the glossed examples, the line with the lexical form always features the short realization CV is given as the main allomorph.

3.3.2.2.2 *Vowel length in monosyllabic morphemes across Western Mande*

Western Mande languages vary with respect to the treatment of vowel length in their phonological systems. The summary for four of Western Mande gives an idea of the variation:

Mandinka	monosyllabic functional morphemes are light CV syllables; monosyllabic content morphemes are heavy CVV syllables with the exception of six CV(V) verbs with length changing depending on the morphological context (Creissels & Sambou 2013: 27)
Bamana	CVV monosyllabic morphemes mostly result from the deletion of intervocalic <i>g</i> . e.g. <i>táa</i> < <i>tága</i> ‘go’, otherwise there is a tendency for the CVV vs. CV contrast to disappear (Vydrin 2017a), (Green 2010: 23-24), (Creissels & Grégoire 1993)
Kita Maninka	vowel length contrast recently lost (Creissels 2009a)
Koranko	CV vs. CVV contrast, length is specified lexically (Kastenholz 1987b)

As can be seen, the case closest to Kakabe is Mandinka, where the light syllables are associated with functional morphemes and content morphemes are obligatorily heavy syllables, if they are monosyllabic. The CV ~ CVV variation is also associated with verbs, but whereas in Kakabe it characterizes the whole category of the verbs, in Maninka it is limited to six verbal lexeme: *bó(ó)* ‘go out’, *fó(o)* ‘say’, *jé(e)* ‘see’, *ké(e)* ‘do’.

In Bamana, a long vowel in a monosyllable is stable when it results from the deletion of the intervocalic *g* or *ɣ*, e.g. *tága* ~ *táa* ‘go’, *fàga* ~ *fàa* ‘die’, *dàga* ~ *dàa* ‘pot’. Otherwise, the contrast CVV vs. CV for monosyllabic morphemes is lost (it can reappear, though when a -CV article is added, Vydrin, p.c.). Thus, Creissels & Grégoire (1993) argue that it has disappeared in the idiolects of some speakers and is present in the idiolects of others, see also (Green 2010: 23-24), while according to (Vydrin 2017a), long vowels in monosyllables are only derivations from VgV or long vowels in monosyllabic morphemes with expressive meaning.

In this respect, it should be noted that the deletion of the intervocalic *g* is much less common in Kakabe, compared to Bamana. So far, I have found only two examples of such variation: *tága* ~ *tá(a)* ‘go’ and *tógɔ* ~ *tɔɔ* ‘name’. Contrary to Bamana, the variant *tá(a)* of the verb ‘go’ shows the same variation in the realization of length as ordinary monosyllabic verbs, cf. (3.70 a) and (3.70 b) below.

(3.70) (a) [m̀ bì **tá:lá** lè há: lèk:ól †búùtò]

ǹ bi tá(ga)-la lè háa lèkkól-È búùtɔ
 1SG be go-GER FOC as.far.as school-ART in
 I go to school.

(b) [àni **tála** wàjá:sè là]

ànu bi tága-la wàyaase-È là
 3PL be go-GER trip-ART OBL
 They are going on a trip.

Kita Maninka is more advanced than Bamana in the loss of the vowel length opposition: it is absent all contexts, not only in monosyllables.

In Koranko, on the other hand, the vowel length contrast is the most intact out of the languages discussed; see the minimal pairs in (3.71). Note that there is no grammatical conditioning of the vowel length, monosyllabic verbs and nouns can be either long or short.

(3.71) Koranko, vowel length minimal pairs Kastenholz (1987b: 67)

<i>wóɔrɔ</i>	‘six’	<i>wórɔ</i>	‘plough’ (v.)
<i>tóɔrɔ</i>	‘to be mistaken’	<i>tórɔ</i>	‘suffer’
<i>sóo</i>	‘firewood’	<i>só</i>	‘place’ (n.)
<i>tóg</i>	‘cover’	<i>tó</i>	‘law’

To conclude, in the languages closely related to Kakabe, the vowel length in monosyllabic morphemes is associated with the grammatical properties of the morpheme, and this contributes to the loss of long-short vowel opposition.

3.3.2.2.3 *The abstract suffix*

The suffix *-ya(a)* in Kakabe is a polysemous and a polyfunctional marker which serves to derive nouns from verbs and nouns or verbs from nouns. It is variably realized as CV or as CVV with the following distribution. When *-ya(a)* is part of a noun, the length of the vowel of the suffix differs across lexemes. It can be short (3.72a), variably short or long (3.72b) or have a stable long vowel (3.72c).

(3.72) Monomoraic suffixes and prefixes

(a)	<i>jónba-ya</i>	‘marriage’	<	<i>jónba</i> ‘bride’
	<i>bèrɛ-ya</i>	‘the appropriate’	<	<i>bèrɛ</i> ‘measure’
	<i>kíila-ya</i>	‘envoy’	<	Mande * <i>ki</i> ‘send’
	<i>jùla-ya</i>	‘trade’	<	<i>jùla</i> ‘seller’
	<i>dénba-ya</i>	‘family’	<	<i>dén</i> ‘child’, - <i>baa</i> AUGM
(b)	<i>síubaga-ya(a)</i>	‘sorcery’	<	<i>síubaga</i> ‘sorcerer’
	<i>tóɔɔ-ya(a)</i>	‘problem’	<	<i>tóɔɔ</i> ‘suffer’
	<i>mínizéya(a)</i>	‘carpentry’	<	<i>mínize</i> ‘carpenter’
	<i>náafigi-ya(a)</i>	‘swindling’	<	<i>náafigi</i> ‘swindler’
(c)	<i>dénde-yaa</i>	‘childhood’	<	<i>dénden</i> ‘child’
	<i>kilantɛ-yaa</i>	‘fear’	<	<i>kilantɛ</i> ‘coward’
	<i>súnkutu-yaa</i>	‘young age (for a girl)’	<	<i>súnkutun</i> ‘unmarried girl’
	<i>séede-yaa</i>	‘evidence’	<	<i>séede</i> ‘witness’
	<i>kèn-kélé-yaa</i>	‘being one-legged’	<	<i>kèn</i> ‘foot’ + <i>kélen</i> ‘one’
	<i>míniterɛ-yaa</i>	‘military porfession’	<	<i>míniter</i> ‘military man’ < Fr.
	<i>sófɛrɛ-yaa</i>	‘driver’s profession’	<	<i>sófɛrɛ</i> ‘driver’ < Fr.
	<i>dépité-yaa</i>	‘deputy mandate’	<	<i>dépité</i> ‘deputy’ < Fr.
	<i>bándi-yaa</i>	‘crime’	<	<i>bándi</i> ‘criminal’ < Fr.

The deletion of the second *a* may be the effect of the lexicalization of the form with *-ya(a)*. Thus, forms containing nominal roots which are recent borrowing which excludes lexicalization are pronounced with the long allomorph, e.g. *dépité-yaa* ‘deputy’, *sófɛrɛ-yaa*, ‘driver’s profession’.

Another parameter is the frequency of the occurrence of the form in the speech. Thus, according to the lexical diffusion theory (Labov 1994; Kiparsky 1995), a sound change spreads from high-frequency to low-frequency forms. If we assume that the long allomorph is the primary one, then, in this perspective, it is logical that, for example, *kénkele-yaa* ‘the state of being one-legged’ (*kèn* ‘foot’ *kélen* ‘one’ -*yaa*) has the long allomorph, since, apparently, it is not a very frequent word. By contrast, *dénbaya* ‘family’ which contains the short allomorph of the suffix is very frequent in speech, being part of conventional greeting formulas apart

from simply referring to notion which is frequently discussed.

Related to this, the words with the short allomorph may be less transparent morphologically. Thus, the meaning of *dénbaya* ‘family’ is not predictable from its components, *dén* ‘child’ and the augmentative suffix *-baa* ‘big’. Note also, the shortening of the vowel in the suffix *-baa*. The noun *kiilaya* cannot be segmented synchronically, but it is related to common Mande root **ki* ‘send’, cf. *kiilaa* ‘messenger, prophet’ in Mandinka, *kila* ‘send, commission’ in Kagoro.

The fact that *-yaa* is underlyingly long is confirmed by the fact that when nouns with *-ya(a)* appear in the form with the diminutive suffix *-nden*, *-ya(a)* is always realized as CVV. Compare the realization in the first columns vs. the realization before *kélen* ‘one’ and in the form with the article *-È* in (3.73) below:

(3.73)	<i>-nden</i> DIM	+ <i>kélen</i> ‘one’	<i>-È</i> ART
‘family’	<i>dénba-yaa-nden</i>	<i>dénba-ya kélen</i>	<i>dénba-yà</i>
‘envoy’	<i>kiila-yaa-nden</i>	<i>kiila-ya kélen</i>	<i>kiila-yà</i>
‘marriage’	<i>jónba-yaa-nden</i>	<i>jónba-ya kélen</i>	<i>jónba-yà</i>
‘problem’	<i>tóɔɔ-yaa-nden</i>	<i>tóɔɔ-ya(a) kélen</i>	<i>tóɔɔ-y(a)à</i>
‘evidence’	<i>séede-yaa-nden</i>	<i>séede-yaa kélen</i>	<i>séede-yàà</i>

Contrary to nouns, in verbs containing the suffix *-ya(a)*, the length of the latter does not differ across lexemes. But, similarly, to nouns, there are morphological contexts when it is always long.

The realization of *-yá(a)* follows the same pattern as monosyllabic verbs described in Section 3.3.2.2.1 above. It is always long before the stative participle *-nden*, and variably short, long or semi-long in all other contexts:

(3.74)	<i>-nden</i> DIM	<i>-ta</i> PFV.INTR	<i>báti</i> PFV.OF
‘be crazy’	<i>fàatɔyaa-nden</i>	<i>fàatɔ-ya(a)-ta</i>	<i>báti fàatɔ-ya(a)</i>
‘be bitter’	<i>kúna-yaa-nden</i>	<i>kúna-ya(a)-ta</i>	<i>báti kúna-ya(a)</i>
‘be big’	<i>kòlo-yaa-nden</i>	<i>kòlo-ya(a)-ta</i>	<i>báti kòlo-ya(a)</i>

In Mandinka the corresponding suffix is a heavy syllable *-yaa* (Creissels 2013), in Bamana it is always short *-ya*. In Section 3.3.2.2.2 it was already mentioned that in Mandinka monosyllabic content morphemes are always CVV, and functional monosyllabic morphemes are CV. Thus, in this respect, Mandinka categorizes *-yaa* as content morpheme which is possible since it is a derivational marker. In Bamana the vowel in all monosyllabic morphemes tends to become short which explains the short vowel of *ya* in Bamana compared to *-yaa* in

Mandinka and *-ya(a)* in Kakabe. This, and what has been said above about the realization of *-ya(a)* in Kakabe, leads to the conclusion that the suffix is originally long. In Kakabe it is at the stage of reduction which spreads following, first, the pattern of lexical diffusion, from more frequent to less frequent forms. Second, this reduction in Kakabe shows sensitivity to grammatical context, with the diminutive suffix *-nden* and the participle suffix *-nden* favoring long realization.

In this subsection it has been shown that the suffix *-ya(a)* phonotactically groups together with verbs which show the same dependency between the vowel length and the morphological context. To compare the situation in Kakabe with other Western Mande languages, in Mandinka *-yaa* is also grouped with verbs which don't differ in this respect from monosyllabic nouns and are all CVV. In Bamana, on the other hand, all monosyllables are short, disregarding the grammatical category of the morpheme. This is summarized in Table 3.9.

	monosyll. nouns	monosyll. verbs	<i>-ya(a)</i>	func. morphemes
Bamana	CV	CV	CV	CV
Mandinka	CVV	CVV	CVV	CV
Kakabe	CVV	CV(V)	CV(V)	CV

Table 3.9: Monosyllabic morphemes in Kakabe, Mandinka and Kakabe

To conclude, in Kakabe monosyllabic verbs, as well as the derivational suffix *-ya(a)* in terms of prosodic weight are between nominal monosyllabic nouns and functional morphemes. Apart from the instability of their length (in the case of the monosyllables), as I argue in Section 5.6.1.4 in Chapter 5, verbs often lose their lexical tone in the surface realization.

3.3.2.3 Grammatical categories with special phonotactic characteristics

The phonotactic restrictions described in this section are not applicable to intensifiers, a special category of adverbs each of which is associated with one individual verb or with a small set of verbs and enhances their meaning. They are realized at a raised pitch level ↑, see Section 6.5.1.2.

(3.75) ↑*fás* intensifier for the verbs with positive meaning

↑*pét* intensifier for verbs with the meaning component 'exactness'

↑*téf* intensifier for the verb *fá* in the meaning ‘to be full’

ké↑*lét* intensifier for the verb *fá* in the meaning ‘to be full of people’.

The phonotactic restrictions in question aren’t valid either for ideophones which can have an obstruent consonant as a coda, consist of a sonorant only or contain a diphthong:

(3.76) *mè*↑*gés* ‘swish!’ (imitates the sound produced by a knife)

↑*sót* ‘swish’ (imitates the sound produced by a whip)

m̄m ‘buzz’ (imitates the sound produced by bees)

pì↑*ríw* ‘hop!’ (imitates jumping).

3.3.3 Surface syllables

In the previous sections we have discussed the inventory of the underlying phonotactic patterns (Section 3.3.1) and how these phonotactic units are organized in morphological units (Section 3.3.2). Now I will describe the phonotactic units which occur in the surface realization and provide an overview of the phonotactic units occurring in speech and their differences from the underlying syllables.

The wider range of syllabic types which occur in the surface realization in comparison to underlying syllables is due to the following phonological processes:

1. fusion between open syllables with the preceding vowel (Section 4.6);
2. vowel deletion in weak syllables occurring in positions defined morphologically, rhythmically and syntactically (Section 4.4);
3. realization of the homorganic N in the coda position (Section 4.2);
4. variability in the phonological form of borrowings (Section 3.4);
5. epenthetic vowel with possible zero realization (Section 3.4.3).

3.3.3.1 Heavy syllable

Heavy syllables contain two moras and, in contrast to the light syllable, it can host two tones in Kakabe. The following types of surface heavy syllables are possible in Kakabe:

- syllables with the N coda, CVN;

- syllables with a sonorant in the coda position, resulting from vowel deletion, CVC < CVC(V);
- syllables with a geminate, CVc;
- syllables with long vowels, CV:.

3.3.3.1.1 *Vowel length*

The vowel length reflects a range of phonological phenomena:

- Length as a contrastive phonemic feature, see Section 3.2.1.0.1.
- Length as a phonemic feature conditioned morphologically: lexical monosyllabic morphemes always have a long vowel, the vowel length in this function is discussed earlier, see 3.3.2.2.
- Long vowel as a result of vowel coalescence in heteromorphemic V-V sequences, see Section 4.6.

3.3.3.1.2 *Gemination*

In Kakabe a geminated consonant occupies two positions in the syllable structure at a time. It can occupy the coda position and the position of the following onset, as [n:] in (3.77 a). Besides, an IP-initial nasal geminate is possible, in this case it occupies the position of the onset and the whole syllable before it. This occurs when the 1SG pronoun *n̄* is pronounced IP-initially and is followed by a morpheme starting with a nasal, as in (3.77 b).

(3.77) (a) à mán nà → [ʔà.mán:à] ‘when he comes’

(b) #n nà-ta → [n̄:â:tâ] ‘I came’.

Geminated consonants in original Kakabe words appear almost exclusively at the morpheme boundary as in (3.78).

(3.78) *kùmma* ‘on (postposition) *kùn* ‘head’ + *mà* ‘on’
káŋŋa ‘time, moment’ *kán* ‘place’ + *-ya* ABST
kánnabɔ ‘inform, let know’ *kán* ‘place’ + *la-* CAUS + *bɔ* ‘go out’

In (3.79) a geminated *l* results from vowel omission (see Section 4.4 for the discussion of vowel omission).

- (3.79) *mállè* ~ *mà lè lè* 1PL + FOC + FOC
mállà ~ *mà lè la* 1PL + FOC + OBL
jéllè ~ *jèlu lè* ‘how many’ + FOC

The nouns *sállun* ‘holiday’ and *tólladen* ‘ear ring’ which are always pronounced with a geminate are morphologically complex, at least etymologically:

- (3.80) *sállun* ‘holiday’ < *sáli* ‘pray’ + *lún* ‘day’
tólladen ‘ear ring’ < *tólo* + *la* OBL + *dén* ‘child’

Gemination appears morpheme-internally only in Pular borrowings, and in a small number of original Kakabe words which are likely to be complex etymologically, see the end of Section 3.2.2.1. Besides, gemination is used as a minor loanword adaptation strategy, see Section 3.4.4.2.

Another important source of geminates is the reduced realization of the auxiliary *báti* and the negative copula *béle*, whereby the reduction of the second syllable (*ti* or *le*) is accompanied by the gemination of the first consonant of the syllable belonging to the next word, and here any consonant can be geminated, e.g. *báti* + *tága* ‘go’ → *bá’ tága* [bá t:ágá]. For details see Section 4.5.

One more source of geminates is the realization of N. When N precedes a sonorant *r*, *w*, *l* or *y*, the combination of the two underlying segments is realized as the gemination of the sonorant, see Section 4.2 for a detailed account of this phenomenon.

3.3.3.2 Super heavy syllable, complex onset or syllabic N?

There are cases when a long vowel is followed by a geminate, see the realization of *lólolu lè* as [lól:l:è] in (3.81) below (this is the result of vowel deletion described in 4.4).

- (3.81) [múgá l:ól:l:è]

múgan lóolu lè
 twenty five FOC

It costs twenty five thousand francs. (Litt.: “It is twenty five.”)

Since Kakabe doesn’t have underlying syllables with a geminate in the onset, the only option for cases like (3.81) is to postulate the presence of a super-heavy syllable on the surface level.

On the other hand, in sequences of the type CV:N, the absence of the vowel nasalization points to the fact that N belongs to a different syllable. The sequence [a:n], as in (3.82), is

very frequent in speech. It arises when the short version of 3PL *àn* (< *ànu*) occurs inside an intonation phrase and thus fuses with the preceding vowel, see Section 4.6.2 about the strategies of hiatus resolution. So far, I don't have arguments to decide, whether N in this case belong to a heavy onset [tó:rá:.n tò], or is forms a separate syllable [tó:rá:.n. tò].

(3.82) [jólè má: dó: *dó tó:rá:.n tò]

yólɔ-È *máa* *dóodò* *tóɔɔ* *ànu* *tɔ*
 tsetse.fly-ART PFV.NEG UNIV.HUM bother 3PL in
 The tsetse fly didn't bother anybody among them.

There is a contrast in length between [ka:.n] < *ka* PST. + *ànu* 3PL, cf. (3.83 a), and [kan] < *ka* PST + *ñ* 1SG, cf. (3.83 b).

(3.83) (a) [à ká:n tètɛ̀ɛ̀] ~ [à ká:nú tètɛ̀ɛ̀] ~ [à ká:nú tètɛ̀ɛ̀]

à *ka* *ànu* *tètɛ̀ɛ̀*
 3SG PFV.TR 3PL find
 He found them.

(b) [à kán tètɛ̀ɛ̀]

à *ka* *ñ* *tètɛ̀ɛ̀*
 3SG PFV.TR 1SG find
 He found me.

As it is argued in Section 3.3.1.5, there are underlying syllables with complex NC onsets, e.g. the participle [láá.ndén] 'lying', *ndúguse* 'young man'. One can suppose that in cases like (3.82) *n* after the long vowel is part of a complex onset: [jólè má: dó:dó tó:rá:.n tò].

3.4 Segmental features and phonotactic patterns specific to loanwords

The two main sources of loanwords for Kakabe are Pular and French. Following the already mentioned distinction core vs. periphery vocabulary (Itô & Mester 1995; Chitoran 2002; Friesner 2009), this part of the chapter describes the particularities of the Kakabe phonology restricted to the periphery part of vocabulary that contains non-nativized loanwords. It

gives an account of phonological phenomena specific to the loanword vocabulary, such as high variation in the phonological representation of borrowed morphemes, deviations from phonotactic patterns applied in the core part of the lexicon, and the presence of a number of specific phonemes, either imported with the source forms or being part of the adaptation strategy.

The phonemes specific to the loanword vocabulary were mentioned at the beginning of the chapter, in Section 3.2.2, containing the overview of the consonantal system. Here I give a more systematic description of the correspondences between the source forms and the Kakabe forms.

The description of loanword adaptation (henceforth LWA) proceeds as follows. It starts with the comparison between the Kakabe-Pular and Kakabe-French contact situation. In Section 3.4.2 I describe the adaptation of phonemes which do not exist in the Kakabe phonological system and Section 3.4.4, deals with the LWA strategies aiming at complying with the phonotactic restrictions of Kakabe. The tonal adaptation is discussed in Chapter 5.

3.4.1 Comparison between the adaptation of Pular and French vocabulary

In general, the Pular source forms undergo less important modification than French source forms when they are borrowed in Kakabe. Thus, as shown later, the vowel length in Pular is more or less faithfully rendered by the Kakabe vowel length. On the other hand, in French loanwords there is no systematic correspondence between the vowel length in the borrowed forms and the phonetic vowel length in the source forms. Instead, the vowel length in this case accompanies vowel epenthesis. French source forms often undergo deletion of consonants or of full syllables, this almost never happens with Pular source forms. This difference is due both to structural phonological factors and to sociolinguistic ones.

The first reason of this difference is the fact that Kakabe is closer to Pular than to French in its phonotactic system. Thus, Pular allows only sonorant in the coda of the syllable, cf. Diallo (2000), whereas French has much less restrictions on the syllabic structure than Kakabe and Pular. As a consequence, apart from the vowel epenthesis which is the main LWA strategy and which is used for both Pular and French source forms, Kakabe also applies to French source forms minor adaptation strategies such as the deletion and the assimilation of consonants (Section 3.4.4).

The second reason is the difference in the intensity of the contact. There are twice as many borrowings from Pular than from French: out of 3100 Kakabe vocabulary units, 624 can be

identified as borrowings from Pular and 257 as borrowings from French. Since the end of the 18th century Kakabe have been culturally and politically dominated by Pular speakers, and now Kakabe is a minority language geographically localized in an almost exclusively Pular area. The contact between Kakabe and Pular is characterized by widespread bilingualism, most Kakabe are fluent in Pular and use it regularly in ordinary communication. Thus, it is a joint-community contact situation (see (Thomason & Kaufman 1988: 65-67) for the criteria defining the intensity of language contact). The contact between Kakabe and French is less intense and also more recent, with only part of the Kakabe community being to some extent fluent in French, mostly due to school education. It should be mentioned that Kakabe are also exposed through French through television and radio⁶.

The transfer of certain phonemes and phonotactic structures may be considered a particular case of structural borrowing as opposed to lexical borrowings: even if this transfer happens via lexical borrowing, the result is the presence of new structural elements in the phonological and phonotactic system, but only within the peripheral part of the lexicon. According to Thomason & Kaufman (1988), structural borrowings are possible in the situation of intense contact between the source language and the borrowing language. Thus, the difference in the type of contact situation between Kakabe and Pular, on the one hand, and French and Kakabe, on the other hand, might be responsible for the difference in the phonological aspects of LWA strategies.

3.4.2 Adaptation of vowels and consonants absent from the Kakabe phonological system

The phonological inventory of Pular is replicated directly by Kakabe. Pular does not have a single vowel that is not present in the Kakabe phonology. As for the Pular consonants, those of them which were not present in the original consonantal inventory of Kakabe, have been imported into it. Thus, borrowings from Pular have introduced implosives *b*, *d*, *ɟ*, see Section 3.2.2.

On the other hand, the French phonological system includes elements that do not have an equivalent in the Kakabe phonological system and that were not imported into Kakabe.

6. The broadcasts in French of Radion France International (RFI) are very popular radio station all over Guinea

3.4.2.1 Adaptation of French vowels absent from the Kakabe phonology

The French vowels *y*, *œ*, *ə* and *ø* don't exist in the Kakabe phonological system. Examples (3.84 a)-(3.84 c) illustrate how they are adapted into Kakabe. The vowel *y* always gives *i*, cf. (3.84 a). The vowels *œ*, *ə* and *ø* are in most cases represented by *ɛ*, cf. (3.84 b). Apart from that, I found two examples, cf. (3.84 c) where the French *ə* is rendered by the vowel *o* (the first *o* in *pòromiye* is the epenthetic vowel which copies the following full vowel, see 5.95).

(3.84) (a) *y* → *i*

<i>dèpìte</i>	‘deputy’	< Fr.	<i>député</i>	[depyte]
<i>tèni</i>	‘uniform’		<i>tenue</i>	[təny]
<i>l'niwersite</i>	‘university’		<i>l'université</i>	[lɛniversite]
<i>sú ~ zú</i>	‘juice’		<i>jus</i>	[ʒy]

(b) *œ*, *ə*, *ø* → /*ɛ*/

<i>tèni</i>	‘uniform’	< Fr.	<i>tenue</i>	[təny]
<i>fèrmətir</i>	‘fastening’		<i>fermeture</i>	[fɛʁməty:ʁ]
<i>résanse</i>	‘identify’		<i>recenser</i>	[ʁəsāse]
<i>mòtɛr</i>	‘engine’		<i>moteur</i>	[mɔtœ:ʁ]
<i>sòfɛr</i>	‘driver’		<i>chauffeur</i>	[ʃɔfœ:r]
<i>dézɛr</i>	‘two o'clock’		<i>deux heures</i>	[døzœ:ʁ]
<i>névɛr</i>	‘nine o'clock’		<i>neuve heures</i>	[nœvœ:ʁ]

(c) *ə* → *o*

<i>ròbel</i>	‘rebel’	< Fr.	<i>rebelle</i>	[rəbɛl]
<i>pòromiye</i>	‘first’		<i>premier</i>	[prəmje]

Nasal vowels are interpreted in Kakabe as N in the coda position, cf. (3.85 a) which, once adapted into Kakabe, manifests the same behavior as N in native Kakabe words: it is realized as the nasalization of the preceding vowel plus homorganic nasal, and it disappears before sonorants, as described in Section 4.2. Nasalized vowels in French are rendered by VN in Kakabe, (3.85 a) and (3.85 b). The referential article combines with such N in a regular way (see Section 4.6.4), i.e. N is realized as *ɲ*:

(3.85) (a) nasal vowels → VN

<i>énfite</i>	[ɛ̃mfite]	< Fr.	<i>inviter</i>	[ɛ̃vite]
<i>pánpulumusu</i>	[pá̃mpúlúmúsú]		<i>pamplemousse</i>	[pá̃ pləmus]
<i>àngere</i>	[à̃ŋgéré]		<i>engrais</i>	[à̃ gʁɛ]

(b) nasal vowels → VN + ART

<i>présidan</i>	+ ART	→	<i>présidanè</i>	< Fr.	<i>président</i>	[pʁezidɑ̃]
<i>kùran</i>	+ ART	→	<i>kùránè</i>		<i>courant</i>	[kuʁɑ̃]
<i>bàsen</i>	+ ART	→	<i>bàsénè</i>		<i>basin</i>	[bazɛ̃]
<i>kàmiyɔ̀n</i>	+ ART	→	<i>kàmíyɔ̀nè</i>		<i>camion</i>	[kamjɔ̃]
<i>pòn</i>	+ ART	→	<i>pònèè</i>		<i>pont</i>	[pɔ̃]

3.4.2.2 Adaptation of French consonants not present in Kakabe

The French consonant *v* in borrowings is usually pronounced as a bilabial *w*, but *v* can be optionally retained as a free variant of *w*, cf. (3.86 a). Besides, there is one example where *v* is adapted as *b*, cf. 3.86 b.

- (3.86) (a) *v* → *w* ~ *v*
- | | | | |
|---------------------------------|------------|-------|-----------------|
| <i>wàyas</i> ~ <i>vàyas</i> | ‘trip’ | < Fr. | <i>voyage</i> |
| <i>vitamín</i> ~ <i>vitamín</i> | ‘vitamine’ | | <i>vitamine</i> |
- (b) *v* → *b*
- | | | |
|----------------|-------|--------------|
| <i>àbíyɔ̀n</i> | < Fr. | <i>avion</i> |
|----------------|-------|--------------|

The palatal consonants *ʒ* and *ʃ* and the alveolar *z* are all represented by *s* in Kakabe. The voicing can be retained in the case of *ʒ* and *z* giving an alternation *s* ~ *z*:

- (3.87) (a) *ʒ* → *s* ~ *z*
- | | | | | |
|-----------------------------|-------------|-------|-----------------|-----------|
| <i>páasaasɛ</i> | ‘passenger’ | < Fr. | <i>passager</i> | [pasazɛ] |
| <i>súye</i> ~ <i>zúye</i> | ‘play’ | | <i>jouer</i> | [ʒwe] |
| <i>wàyas</i> ~ <i>vàyas</i> | ‘trip’ | | <i>voyage</i> | [vwaja:ʒ] |
| <i>bùzi</i> ~ <i>bùsi</i> | ‘candle’ | | <i>bougie</i> | [buʒi] |
- (b) *ʃ* → *s*
- | | | | |
|----------------|-----------|-------|------------------|
| <i>sánburu</i> | ‘room’ | < Fr. | <i>chambre</i> |
| <i>sínuwa</i> | ‘Chinese’ | | <i>chinois</i> |
| <i>sòfɛr</i> | ‘driver’ | | <i>chauffeur</i> |
- (c) *z* → *s* ~ *z*
- | | | | | |
|-----------------------------------|-------------|-------|------------------|-------------|
| <i>prèsidan</i> ~ <i>prèzidan</i> | ‘president’ | < Fr. | <i>président</i> | [pʁezidɑ̃] |
| <i>òrganisɛ</i> ~ <i>òrganizɛ</i> | ‘organize’ | | <i>organiser</i> | [ɔ̃ʁganizɛ] |

3.4.3 Vowel epenthesis

It is important to underline that the open-syllable requirement operates at the level of the underlying representation but not necessarily in the surface realization, as it is shown in Sec-

tion 3.3. This means that the underlying representation of each morpheme consists of open syllables or CVN syllables, but if certain phonological processes apply, this gives rise to a closed syllable, cf. the vowel deletion in $y\grave{e}l\epsilon\text{-}ta \rightarrow y\grave{e}l\text{-}ta$ ‘ascend-PFV’. Importantly, for all morphemes the full realization, $y\grave{e}l\epsilon\text{-}ta$ in this case, is always possible.

This discrepancy between the phonotactic principles defining the underlying representation and the surface representation have a direct effect on the phenomenon of vowel epenthesis.

With the exception of N, an epenthetic vowel (EpV henceforth) can be inserted after each consonant which would otherwise create a closed syllable (another way to deal with a closed syllable is to delete it, see 3.4.4.1). This means that all such consonants can potentially form the onset of a syllable with EpV. The realization of the EpV in speech depends on the position of the consonant on the sonority scale: the closer it is to the approximant endpoint of the sonority scale, the more frequently it is realized without EpV. For example, *mínit(i)* ‘minute’ and *grúp(u)* ‘group’ are more often pronounced with the final EpV than without it, whereas *sòfèrə* ‘driver’, or *pél(u)* ‘shovel’ are more often pronounced without any EpV, though EpV in this position is always possible in elicitation.

EpV has the same phonotactic realization as the vowel of a weak syllable, as described in Section 3.3.1.1: it can be realized as a short vowel, as an extra-short vowel or as zero, e.g.:

- (3.88) (a) *kóɔlu* [kó:lu ~ kó:lũ ~ kó:l] ‘collar’ < Fr. *col*
 (b) *jámu* [jám ~ jámũ ~ jám] ‘peace’ < Pul. *jam*
 (c) *dèpansə* [dèpansə ~ dèpans] ‘expenses’ < Fr. *dépenses*

Qualitatively, EpV can be realized as any non-epenthetic vowel (3.88a and b) or as schwa, as *dèpansə* in (3.88c) above which is otherwise absent from the vocalic inventory of Kakabe. Thus, the LWA introduces schwa, a new element in the Kakabe vocalism, different from the consonants that are borrowed from the phonological system of the source language, such as the implosives *b*, *d*, *y*.

Schwa is not necessarily always short phonetically, cf. (3.89) where it undergoes intonational lengthening:

- (3.89) [i si lérá: sàbà ń̩n dóǹd̀ń̩n ḱ̩: j̩́ń̩]

ì si léřə sàba ń̩n dóǹd̀ń̩n ḱ̩ yàn
 2SG POT hour three and little do here

It will take you more than two hours (Lit.: “You will make three hours and something here”).

can be seen, the schwa-realization is possible only before the numeral, since the noun and the numeral constitute each a PW and, consequently, they are separated by the PW prosodic boundary. The absence of EpV is always possible except for the form with the diminutive suffix *-nden* where it would create a cluster *rnd*. The *u* realization is possible when the next syllable within the same PW contains a back vowel. The two partially acceptable variants before *fila* and are probably conditioned by *f* in the case of *m̀̀teru fila* and by *i* in the case of *m̀̀teri fila*.

	EpV → ə	EpV → Ø	EpV → u	EpV → i
before #	<i>m̀̀terə fila</i>	<i>m̀̀ter fila</i>	? <i>m̀̀teru fila</i>	? <i>m̀̀teri fila</i>
before <i>-nu</i>	*	<i>m̀̀ternu</i>	<i>m̀̀terunu</i>	*
before <i>-nden</i>	*	*	*	<i>m̀̀teriinden</i>
before an adj.	*	<i>m̀̀ter kóronden</i>	<i>m̀̀teru kóronden</i>	<i>m̀̀ter kóronden</i>

Table 3.10: Realization of vowel epenthesis with respect to the PW boundaries

Thus, the rules of EpV realization depend on its position with respect to the PW boundary and on the quality of the neighboring vowels and consonants. The realization of EpV in the PW-final position and the PW-internal position, with a following vowel, differs also in other aspects.

3.4.3.2 PW-final and PW-internal epenthesis

Table 3.11 summarizes the realization of EpV when it occurs PW-finally and, in the right half of the table, when EpV occurs PW-internally. As has been said before, theoretically, three strategies of vowel epenthesis are possible: default vowel insertion, vowel harmony and consonantal assimilation. The vowel harmony strategy is represented by the first line (a), the consonantal assimilation strategy by the lines (b - d) and the line (e) corresponds to the default vowel strategy, applied when any of the triggers of the other two strategies are absent. The order of rules is not random. Thus, the strategy in (a) is hierarchically higher than all the other strategies: it is always applied when the required vowel is present in the neighboring syllable (any back vowel or any labial consonant in the case of the PW-final epenthesis and *u* or *w* in the case of the PW-internal epenthesis). The consonantal assimilation strategies in (b - d) apply only if the vowel harmony is not possible. Finally, the default epenthetic vowel in (e) is assigned in the absence of conditions triggering the vowel harmony or the assimilation with the neighboring consonants.

The realizations of the EpV in the PW-final and in the PW-initial positions are equivalent

in the general outline. The difference between them can be characterized by how much space they leave for the default (e) strategy after the V-harmony and the C-assimilation. The harmonic *u* is triggered by any back vowel within the PW in the case of the PW-final epenthesis and only by the adjacent vowel in the case of the PW-internal epenthesis. The C-assimilation is triggered by all labials, labio-dentals and all palatals PW-internally, and only by the approximants *w* and *y* in the case of the PW-internal epenthesis.

EpV in the PW- final position	vs.	EpV in the PW- internal position
(a) prec. V is back → <i>u</i> → if not then:		(a) prec. V = <i>u</i> → <i>u</i> → if not then:
(b) after C _{lab./lab.-dent.} → <i>u</i>		(b) next to <i>w</i> → <i>u</i>
(c) after C _{palat.} → <i>i</i>		(c) next to <i>y</i> → <i>i</i>
(d) after <i>l</i> → <i>i ~ u</i>		(d) next to <i>l, n</i> → <i>i</i>
(e) → if not then: → <i>ə</i>		(e) → if not then: → V copy ⁸

Table 3.11: Realization of EpV

3.4.3.3 PW-final epenthesis

When EpV is PW-final, the Vowel harmony strategy applies after all back vowels. If the preceding consonant is a labial, a palatal or the alveolar *l*, EpV assimilates to this consonant. Finally, in the remaining cases EpV is realized as schwa. Table 3.12 reproduces the realization of the word-final EvP, accompanied by references to the examples that follow.

Vowel harmony	prec. V is back → <i>u</i> (3.92) → if not then:
Consonantal assimilation	after C _{lab./lab.-dent.} → <i>u</i> (3.93 a) after C _{palat} → <i>i</i> (3.93 b) after <i>l</i> → <i>i ~ u</i> (3.94)
Default strategy	→ if not then: → <i>ə</i> (3.95)

Table 3.12: Realization of the word-final EpV

Epenthetic *u* is inserted if the preceding vowel is back *ɔ, o, u*⁹:

9. There are borrowings that seem to be exceptions to this. Thus the word *pónpi* ‘water pump’ ends with an epenthetic *i*, though the preceding syllable contains a back vowel and the consonant preceding EpV is *p*. But it seems more likely that its direct source is Pular *pompi* which is initially borrowed from French.

(3.92)	<i>pánpulumusu</i>	‘grapefruit’	< Fr.	<i>pamplemousse</i>
	<i>drógu</i>	‘drugs’		<i>drogue</i>
	<i>lèkkòlu</i>	‘school’		<i>l’école</i>
	<i>tránsþoru</i>	‘transport’		<i>transport</i>
	<i>tórsu</i>	‘flashlight’		<i>torche</i>
	<i>kúpu</i>	‘competition’		<i>coupe</i>
	<i>g(u)rípu</i>	‘group’		<i>groupe</i>
	<i>róbu</i>	‘dress’		<i>robe</i>
	<i>ánpulu</i>	‘light bulb’		<i>ampoule</i>
	<i>sítornu</i>	‘tank truck’		<i>citerne</i>
	<i>dónku</i>	‘so, well’		<i>donc</i>

If there is no back vowel in the preceding syllable, then the quality of EpV is due to the spreading of the feature from the last consonant: *u* is inserted after labial and velar consonants, cf. (3.93 a), and *i* is inserted after palatal consonants, cf. (3.93 b).

(3.93)	(a)	<i>séefu</i>	‘boss’	< Fr.	<i>chef</i>	
		<i>fòtografu</i>	‘photographer’	< Fr.	<i>photographe</i>	
		<i>jáamu</i>	‘piece’	< Pul.	<i>jam</i>	
		<i>lámpu</i>	‘lamp’	< Fr.	<i>lampe</i>	
		<i>prògramu</i>	‘programm’	< Fr.	<i>programme</i>	
	(b)	<i>ráayi</i>	‘rail’	< Fr.	<i>rail</i>	[ʁa:j]
		<i>láayi</i>	‘garlic’	< Fr.	<i>l’ail</i>	[la:j]
		<i>péeyi</i>	‘comb’	< Fr.	<i>peigne</i>	[pɛɲ]
		<i>búyi</i>	‘a lot’	< Pul.	<i>buy</i>	[buj]
		<i>póyi</i>	‘intensifier (clean)’	< Pul.	<i>poy</i>	[poj]
		<i>góyi</i>	discourse intensifier	< Pul.	<i>goy</i>	[goy].

Borrowings with a final *l* are represented in our data only by nouns whose source forms are the Pular nouns from the class NGAL, and thus ending with the class suffix represented by one of the allomorphs *-al*, *-ngal* or *-wal*. In this case EpV is realized either as *i* or as *u* which are in free variation with each other in some lexemes.

(3.94)	<i>sáaragàlu</i>	‘shovel (to stir peanut)’	< Pul.	<i>saaragal</i>
	<i>báafali</i>	‘door’	< Pul.	<i>baafal</i>
	<i>jínbali</i>	‘wall’	< Pul.	<i>jimbal</i>
	<i>jáballi</i>	‘part’	< Pul.	<i>jábal</i>
	<i>ndáarogalu</i>	‘mirror’	< Pul.	<i>ndaarogal</i>
	<i>tàábali ~ tàábalu</i>	‘table’	< Pul.	<i>taabal</i> < Fr.
	<i>kàatətáli ~ kàatətálu</i>	‘centipede’	< Pul.	<i>kaatatal</i>
	<i>káwutali</i>	‘neighbor’	< Pul.	<i>kawtal(jo)</i> .

Finally, if none of the preceding conditions is true, EpV is realized as *ə*:

(3.95)	<i>báarə</i>	‘canteen’	< Fr.	<i>bar</i>
	<i>súkkarə</i>	‘sugar’	< Pul.	<i>sukkar</i>
	<i>símindəferə</i>	‘railroad’	< Fr.	<i>chemin de fer</i>
	<i>pásuwarə</i>	‘colander’	< Fr.	<i>passoire</i>
	<i>kùrasə</i>	‘courage’	< Fr.	<i>courage</i>
	<i>wítesə</i>	‘speed’	< Fr.	<i>vitesse</i>
	<i>àsiransə</i>	‘insurance’	< Fr.	<i>assurance</i>
	<i>dísrikə</i>	‘district’	< Fr.	<i>district</i> .

3.4.3.4 Morphological status of the stem-final *u* as EpV

When the epenthetic *u* is licensed by a back vowel in the preceding syllable or by a labial consonant, cf. (3.92) and (3.93 a), it displays the same morphological behavior as the non-epenthetic *u*. On the other hand, the epenthetic *u* which is in variation with the *i* realization after the consonant *l* (see (3.94)) behaves differently.

This is manifested by the fact that when the *u*-realization of an EpV is licensed by a labial consonant, then the vowel is retained after the addition of the referential article (though assimilated to it by height), cf. (3.96). As shown in Section 4.6.4, non-epenthetic stem-final *u* is also preserved in this context.

(3.96)	<i>prógramu</i>	‘programme’	+ ART	→	<i>prógramòe</i>	< Fr.	<i>programme</i>
	<i>fótografu</i>	‘photographe’	+ ART	→	<i>fótografòe</i>	< Fr.	<i>photographe</i>
	<i>lámpu</i>	‘lamp’	+ ART	→	<i>lámpòe</i>	< Fr.	<i>lampe</i>
	<i>jámu</i>	‘peace’	+ ART	→	<i>jámòe</i>	< Pul.	<i>jam</i>

By contrast, the epenthetic *u* which appears after *l* and alternates with *i* is not retained when the article is added:

(3.97)

<i>káatatalu</i>	‘centipede’	+ ART	→	<i>káatatàle</i>	< Pul.	<i>kaatatal</i>
<i>kónɔ̀ndɔ̀lu</i>	‘throat’	+ ART	→	<i>kónɔ̀ndɔ̀le</i>	< Pul.	<i>konondol</i>
<i>cùbalu</i>	‘span’	+ ART	→	<i>cùbàlè</i>	< Pul.	<i>cubal</i>
<i>ndáarogalu</i>	‘mirror’	+ ART	→	<i>ndáarogàle</i>	< Pul.	<i>ndaarorgal</i>
<i>tàábali ~ tàábalu</i> ¹⁰	‘table’	+ ART	→	<i>táabàle</i>	< Pul.	<i>taabal</i>

As shown in Section 4.6.4, the final back vowel is not retained after the addition of the article if another back vowel is present in the preceding syllable. Thus, the disappearance of the epenthetic *u* in cases like (3.99), is part of the general pattern of the article realization.

(3.99) <i>lèkkɔ̀lu</i>	‘school’	+ ART	→	<i>lèkkɔ̀lè</i>	< Fr.	<i>école</i>
<i>tórsu</i>	‘flashlight’	+ ART	→	<i>tórsè</i>	< Fr.	<i>torche</i>
<i>g(u)rúpu</i>	‘group’	+ ART	→	<i>g(ú)rupè</i>	< Fr.	<i>groupe</i>
<i>ánpulu</i>	‘light bulb’	+ ART	→	<i>ánpulè</i>	< Fr.	<i>ampoule</i>

Thus, the unstable *u* is, in general, not preserved when the article vowel is combined with it.

3.4.3.5 PW-internal epenthesis

When EpV occurs in the internal position in PW, the Vowel harmony strategy applies only after *u* (and not after all back vowels as in the case of PW-final epenthesis), and the assimilation with the consonant is triggered only by the sonorants *w*, *y*, *l* and *n*. In all the remaining types of context the default strategy is applied which in this case is the copy of the preceding or the following vowel.

Vowel harmony	preceding V = <i>u</i>	→	<i>u</i>	(3.100 a)
	→ if not then:			
Consonantal assimilation	next to <i>w</i>	→	<i>u</i>	(3.100 b)
	next to <i>y</i>	→	<i>i</i>	(3.101 a)
	next to <i>l</i> , <i>n</i>	→	<i>i</i>	(3.101 b)
Default strategy	→ if not then:	→	V copy	(5.95), (5.96)

Table 3.13: Realization of the PW-internal EpV

10. There is one more case involving the stem-final *i ~ u* variation, where *u* disappears after the addition of the article. The nominalization suffix *-ri* is optionally realized as *-ru* after roots ending with an *u*, and when the article is added, it disappears:

(3.98) <i>dámu-ru ~ dámu-ri</i>	‘eating’	+ ART	→	<i>dámurè</i>
<i>sànbá-ru</i>	‘giving present’	+ ART	→	<i>sànbàrè</i>
<i>tègè-ru</i>	‘harvesting’	+ ART	→	<i>tègèrè</i>

EpV is realized as *u* if the a neighboring syllable contains an *u*, as in (3.100 a), or next to the approximant *w*, as in (3.100 b).

- (3.100) (a) *húruge* ‘enclose’ < Pul. *hurgugol*
 (b) *háwure* ‘find’ < Pul. *hawrugol*
háwuje ‘be hurried’ < Pul. *hawjugol*
néwure ‘roof’ < Pul. *niwre*
sínuwa ‘Chinese’ < Fr. *chinois*
pásuwaru ‘colander’ < Fr. *passoire*
gáwuru ‘pearl millet’ < Pul. *gawri*
sáwuru ‘whip’ < Pul. *sawru*
sàrúwusi ‘service’ < Fr. *service*

EpV is realized as *i* next to *y*, cf. 3.101 a, and the sonorants *l*, *n*, cf. 3.101 b. In addition to the epenthesis strategy, the approximant [j] can be transformed into palatalization, see Section 3.4.5 for details.

- (3.101) (a) *wàyiɛ* ‘say goodbye’ < Pul. *wayn-ugol*
*miliyɔn ~ mil'on*¹¹ ‘million’ < Fr. *million*
ràdiyɔn ~ rád'ɔ ‘radio’ < Fr. *radio*
àbiyɔn ‘plane’ < Fr. *avion*
mètiye ‘profession’ < Fr. *métier*
píye ‘foot (of a table)’ < Fr. *piéd*
pòromiye ~ prémiye ~ prém'è ‘first’ < Fr. *premier*
- (b) *kàlikile* ‘calculate’ < Fr. *calculer*
kílási ‘(glass) bottle’ < Fr. *glasse*
pìɛ ‘tyre’ < Fr. *pneu*
kìle ‘screw driver’ < Fr. *clé*
pìlan ‘plan’ < Fr. *plan*
fìɛɛter ‘window’ < Fr. *fenêtre*

The default strategy in the case of PW-internal epenthesis is copying the most closed vowel from an adjacent syllable (be it the preceding or the following one), cf. (5.95). When there are two adjacent vowels, it is the higher one that is copied cf. (5.96).

11. on palatalization see ??

(3.102) (a)	<i>dáraadeli</i>	‘bedcover’	< Fr. <i>drap de lit</i>
	<i>àparanti</i>	‘apprentice’	< Fr. <i>apprenti</i>
	<i>dàraapó</i>	‘flag’	< Fr. <i>drapeau</i>
	<i>fáran</i>	‘franc (money)’	< Fr. <i>franc</i>
	<i>Farans</i>	‘France’	< Fr. <i>France</i>
	<i>méetərə ~ méetərə</i>	‘school teacher’	< Fr. <i>maître</i>
	<i>léterə</i>	‘letter’	< Fr. <i>lettre</i>
	<i>sèkére</i>	‘secret’	< Fr. <i>secret</i>
	<i>pàséké ~ pàse</i>	‘because’	< Fr. <i>parce que</i>
	<i>kèreyón</i>	‘pencil’	< Fr. <i>crayon</i>
	<i>fèren</i>	‘brake’	< Fr. <i>frein</i>
	<i>kóntərəl</i>	‘control’	< Fr. <i>contrôle</i>
	<i>pátərən</i>	‘boss’	< Fr. <i>patron</i>
	<i>pòromiye</i>	‘first’	< Fr. <i>premier</i>
	<i>pìri</i>	‘price’	< Fr. <i>prix</i>
	<i>símindefər</i>	‘railroad’	< Fr. <i>chemin de fer</i>
(b)	<i>pánpulumusu</i>	‘grapefruit’	< Fr. <i>pamplemousse</i>
	<i>àngeré</i>	‘manure’	< Fr. <i>engrais</i>
	<i>kóreye</i>	‘door hinge’	< Fr. <i>charnière</i>
	<i>bàtirí</i>	‘battery’	< Fr. <i>batterie</i>
	<i>kónpirime</i>	‘pill’	< Fr. <i>comprimé</i>
	<i>kíliyan</i>	‘client’	< Fr. <i>client</i>

The variation between *u* and *i* in (3.103) below suggest that the presence of *i* in the following syllable may enter in competition with the approximant *w*.

(3.103) *néwuni ~ néwunu ~ néwini* ‘to promise’ < Pul. *newnugol*.

3.4.3.6 Double epenthesis

When the source form contains a word-final consonant cluster or a word-internal cluster of three consonants at a time, as Fr. *pamplemousse* [pãplmus] in (3.104), then two identical EpVs can be inserted, in compliance with the rules presented in Table 3.11 earlier in the section.

(3.104)	<i>séefulu</i>	‘whistle’	< Fr. <i>siffle</i>	[sɪfl]
	<i>fizébùlu</i>	‘fuse’	< Fr. <i>fusible</i>	[fyzɪbl]
	<i>líwuru</i>	‘book’	< Fr. <i>livre</i>	[li:vɛ]
	<i>túruwa</i>	‘three’ ¹²	< Fr. <i>trois</i>	[tɛwa]
	<i>pánpulumusu</i>	‘grapefruit’	< Fr. <i>pamplemousse</i>	[pãplmus]
	<i>wíitərə</i>	‘window pane’	< Fr. <i>vitre</i>	[vi:tɛ]
	<i>méetərə</i>	‘teacher’	< Fr. <i>maître</i>	[mɛ:tɛ]
	<i>minísərə</i>	‘minister’	< Fr. <i>ministre</i>	[ministr] ¹³
	<i>lítərə</i>	‘litre’	< Fr. <i>litre</i>	[li:tɛ]

In speech, words with double epenthesis can be realized in a large number of ways. This is due to the fact that, as has been shown above, the quality of the epenthetic vowels depends on many aspects, such as PW boundary, the quality of the surrounding consonants and vowels, etc. Some of these possibilities are illustrated in (3.105 a)-(3.105 d), coming from a conversation about school, on the example of the noun *méetr* ‘teacher’.

(3.105) (a) [ɲ ká mà **mé:térè** lɔŋ]

ɲ ka mà méeter lɔn
 1SG PFV.TR 1PL teacher know
 I know our teacher.

(b) [i là **mé:trə** máni: tàkili à í tèrè ì bi jɔ̀:]

i la méetr máni i takili à si tèrèn i bi jɔ̀
 2SG POSS teacher COND 2SG call 3SG POT find 2SG be there
 When your teacher calls you, are you usually present?

(c) [mà **mé:téri** jâ: ná:fɔl â:nù jè]

mà méetr bi à náafɔ-la ànu yèn
 1PL teacher be 3SG explain-GER 3PL BNF
 Our teacher explains it to them.

(d) [wò là **mé:trə** wò tógó kámá lè]

wò la méetr wò tógó káma lè
 2PL POSS teacher DEM name how be
 Your teacher, what is his name?

12. Used for naming years.

13. *t* is deleted, see 3.4.4.1

The realization of the epenthetic schwa complies with the rule formulated in (3.90) at the beginning of the section and reproduced here for the sake of convenience:

(3.106) Schwa cannot be separated from the right PW boundary by any full vocalic element.

The realizations in (3.105 a) - (3.105 d) are licensed by this rule: two neighboring schwas PW-finally in (3.105 d), one full vowel and a final schwa in (3.105 a), one final schwa as in (3.105 b).

The full spectrum of possibilities is represented in Table 3.14 (analogous to Table 3.10 earlier in the section, where the realization of PW-final EvP is discussed). It shows the realization of the noun *méetV_{ep}rV_{ep}* followed by a PW-boundary, marked by #, before the plural marker *-nu* and before the diminutive suffix *-nden*. Table 3.14 is based on my corpus data completed by elicitation from one speaker (Ansoumane Kamara). For a full and more reliable account, elicitation with a big sample of speakers or a much bigger corpus would be required. To mention just some of the uncertainties, so far, nothing can be said about the distribution between the variants *méetərə#* ~ *métrə#* ~ *méetər#* ~ *méeterə#*, the variant *méeter-nden* characterized as “bizarre” by the present speaker might be considered fully unacceptable or, on the contrary, appropriate by other speakers.

Nevertheless, some tendencies can be identified from the available data. Analogously to *məterV_{ep}* (see Table 3.10) *-nu* and *-nden* licence the *u-* and *i-*realizations of EpV respectively, and schwa is not possible in this context. When EpV is realized between *t* and *r* it copies the preceding vowel, cf. line (g), unless it is realized as schwa, cf. cell (Ic).

	EpV ₁ -EpV ₂	(I) PW-finally	(II) before <i>-nu</i>	(III) before <i>-nden</i>
(a)	ə-ə	<i>méetərə#</i>	*	*
(b)	Ø-ə	<i>métrə#</i>	*	*
(c)	ə-Ø	<i>méetər#</i>	*	*
(d)	Ø-V	<i>métrɛ#</i>	<i>métru-nu</i>	<i>métrɪ-nden</i>
(e)	V-Ø	<i>méeter#</i>	<i>méeter-nu</i>	? <i>méeter-nden</i>
(f)	V-ə	<i>méeterə#</i>	*	*
(g)	V-V	*	<i>méeteru-nu</i>	<i>méeterɪ-nden</i>
(h)	*ə-V	*	*	*

Table 3.14: Realization of forms with potential double epenthesis

3.4.4 Other phonotactically conditioned LWA strategies

Apart from the vowel epenthesis, described in Section 3.4.3 above, Kakabe applies other strategies which adapt loanwords to the phonotactic restrictions of Kakabe phonology: dele-

tion of consonants or syllables (Section 3.4.4.1) and two minor strategies: gemination (Section 3.4.4.2) and nasalization (Section 3.4.4.3). Finally, vowel lengthening can be an addition to any of the adaptation strategies (Section 3.4.4.4).

3.4.4.1 Deletion of consonants and syllables

A consonant cluster in the source form can be simplified through the deletion of one of the consonants (on the deletion of the approximant [j] see the following subsection), see (3.107). Sometimes the source form is simplified by the deletion of a whole syllable, see (3.108).

(3.107)

deletion of <i>r</i> :	<i>órdu</i>	‘order’	< Fr. <i>ordre</i>	[oʁdʁ]
	<i>kóreɲe</i>	‘door hinge’	<i>charnière</i>	[ʃaʁɲje:ʁ]
	<i>pé(r)minansə</i>	‘country club’	<i>permanence</i>	[pɛʁmanɑ̃s]
deletion of <i>k</i> :	<i>à(k)sidan</i>	‘accident’	<i>accident</i>	[aksida]
deletion of <i>t</i> :	<i>tùrisi</i>	‘tourist’	<i>touriste</i>	[tuʁist]
	<i>zùrnalisi</i>	‘journalist’	<i>journaliste</i>	[juʁnalist]
	<i>dístrikə</i>	‘district’	<i>district</i>	[distʁikt]
	<i>mìnisərə</i>	‘minister’	<i>ministre</i>	[ministʁ]
	<i>sàsʃɔn</i>	‘station’	<i>station</i>	[stasjɔ]
	<i>kəsʃɔn</i>	‘question’	<i>question</i>	[kestjɔ]
deletion of <i>l</i> :	<i>résita</i>	‘result’	<i>résultat</i>	[resyлта]

(3.108) deletion of	<i>désʃɔn</i>	‘decision’	< Fr. <i>décision</i>	[desizjɔ]
a syllable:	<i>kòmposʃɔn</i>	‘essay’	<i>composition</i>	[kɔpozisjɔ]
	<i>pàse ~ pàsɛke</i>	‘because’	<i>parce que</i>	[paʁskə]

There is one example where a consonant in a cluster undergoes assimilation:

(3.109) *sètteɛrə* ‘sector’ < Fr. *secteur* [sɛktœ:ʁ].

3.4.4.2 Gemination in LWA

A voiceless stop before EpV can be geminated see (3.110), see also (3.109) in Section 3.4.4.1. It might be relevant that in French, in this position, the vowel preceding the voiceless stop is short unlike before a voiced stop¹⁴.

14. One can also suppose that the gemination in these examples might be the effect of an influence of the orthography, with the geminated *t* rendering the double *tt*, and the geminated [k:] rendering the orthographic sequence *qu*, see, for example Smith (2010) on the effect of orthography information in loanword adaptation. At the same time, the familiarity of Kakabe with the French orthography is not very strong.

(3.110) *bíkki* < Fr. *bic*

bóttu < Fr. *botte*

mísikki < Fr. *musique*

fùrséttə < Fr. *fourchette*

sìgaréeti ~ *sìgarettá (fila)* < Fr. *cigarette*

Probably, the gemination happens if the voiceless stop and the surrounding vowels are not harmonized, compare *grupu*, *búku*, *kúpu*, *miniti* with no gemination vs. *bóttu* and *bíkki*. Still, there are not enough data to confirm this hypothesis.

3.4.4.3 Nasalization in LWA

A borrowing may be integrated into Kakabe through the nasalization of the final syllable, cf. (3.111 a). This nasal can be unstable, cf. (3.111 b), (3.111 g), (3.111 h), besides, in (3.111 g) it alternates with *l*). As can be seen, in five cases out of the eight, a nasal coda appears at the end of a borrowing if the penultimate syllable of the source word contains a nasal coda, cf. (3.111 d) - (3.111 h).

(3.111) (a) *píyon* ‘lion’ < Pul. *piyoori*

(b) *ràdyon* ~ *ràdyo* ‘radio’ < Fr. *radio*

(c) *dàgan* ‘arrow’ < Pul. *dàgawal*

(d) *pìlansən* ‘plunge’ < Fr. *plonger*

(e) *lančan* ‘split’ < Pul. *lanc-agol*

(f) *póntin* ‘nail’ < Pul. *ponti(iri)*

(g) *kónəndəlu* ~ *kónəndən* ‘throat’ < Pul. *konondol*

(h) *finton* ~ *finto* ‘spitting cobra’ < Pul. *finto(ori)*.

3.4.4.4 Vowel length in LWA

Vowel length in borrowings from Pular systematically reflects long vowels of the source form, e.g.:

kàatətáli ~ *kàatətálu* ‘centipede’ < Pul. *kaatatal*.

As for the French borrowings, vowel length is related to vowel epenthesis: the insertion of an EpV is often accompanied by the lengthening of the adjacent vowel, cf. (3.112 a) and (3.112 b). The connection between the lengthening and the epenthesis is also supported by the fact that when the noun is pronounced without any EpV, the lengthening tends to be also absent, e.g. *kláasə* ~ *klás* ‘class’, *ráayi* ~ *ráy* ‘rail’, *dàraapo* ~ *dràpo* ‘flag’, etc. One can suppose that the lengthening of the vowel serves to enhance the contrast between the full vowel and the EpV.

(3.112) (a) Lengthening in CV:CV_{ep} morphemes

<i>séefu</i> ~ <i>séf</i>	‘boss’	< Fr.	<i>chef</i>
<i>kláasə</i> ~ <i>klás</i>	‘class’		<i>classe</i>
<i>léerə</i> ~ <i>lér</i>	‘hour’		<i>l’heure</i>
<i>ráayi</i> ~ <i>ráy</i>	‘rail’		<i>rail</i>
<i>láayi</i> ~ <i>láy</i>	‘garlic’		<i>l’ail</i>
<i>péeni</i> ~ <i>péɲ</i>	‘comb’		<i>peigne</i>
<i>dáamu</i> ~ <i>dám</i>	‘checkers (game)’		<i>dames</i>
<i>kóolu</i> ~ <i>kól</i>	‘collar’		<i>col</i>
<i>kúuru</i> ~ <i>kúr</i>	‘yard’		<i>cour</i>
<i>míirə</i> ~ <i>mír</i>	‘wall’		<i>mur</i>
<i>gáaru</i> ~ <i>gar</i>	‘station’		<i>gare</i>

(b) Vowel lengthening in polysyllabic morphemes

<i>méētər</i>	‘teacher’	< Fr. <i>maître</i>
<i>bàraasə ~ bàrás</i>	‘checkpoint’	<i>barrage</i>
<i>sìgareeti ~ sìgaretti</i>	‘cigarette’	<i>cigarette</i>
<i>pàswaarə ~ pàs(u)war</i>	‘colander’	<i>passoire</i>
<i>dàraadeli ~ dradeli</i>	‘bedcover’	<i>drap de lit</i>
<i>dàraapo ~ dràpo</i>	‘flag’	<i>drapeau</i>
<i>làspèerə ~ làsper</i>	‘sling shot’	<i>lance-pierre</i>
<i>sètteerə ~ sètter</i>	‘sector’	<i>secteur</i>
<i>fòtograafu ~ fòtograf</i>	‘photographer’	<i>photographe</i>
<i>kùlèerə ~ kùler</i>	‘color’	<i>couleur</i>
<i>sùdèerə ~ sùder</i>	‘welder’	<i>soudeur</i>
<i>míniteerə ~ míniter</i>	‘serviceman’	<i>militaire</i>
<i>bàraas ~ bàras</i>	‘checkoint’	<i>barrage</i>
<i>fìnèetər</i>	‘window’	<i>fenêtre</i>
<i>wíitərə</i>	‘window pane’	<i>vitre</i>
<i>sééfulu</i>	‘whistle’	<i>sifflet.</i>

Such lengthening never happens in a syllables with a coda, e.g.:

(3.113) <i>lámputu</i>	‘lamp’	< Fr. <i>lampe</i>
<i>tórsu</i>	‘flashlight’	<i>torche</i>
<i>sánburu</i>	‘room’	<i>chambre.</i>

In general, though, the lengthening is not regular, cf. words without lengthening in (3.114).

(3.114) <i>pánpulumusu</i>	‘grapefruit’	< Fr. <i>pamplemousse</i>
<i>drógu</i>	‘drugs’	<i>drogue</i>
<i>kúpu</i>	‘competition’	<i>coupe</i>
<i>grúpu</i>	‘group’	<i>groupe</i>
<i>róbu</i>	‘dress’	<i>robe</i>
<i>prògramu</i>	‘program’	<i>programme</i>
<i>brùeti</i>	‘wheelbarrow’	<i>brouette</i>
<i>míniti</i>	‘minute’	<i>minute</i>
<i>fizebulu</i>	‘fuse’	<i>fusible</i>
<i>líwuru</i>	‘book’	<i>livre.</i>

3.4.5 Adaptation of glides

The adaptation of glides occurring in the source forms in clusters with other consonant or in the coda position can be accompanied by two specific processes which distinguish them from the adaptation of other consonants. First, after the deletion of the glide *y* the palatalization of the preceding consonant is retained as secondary articulation (Section 3.4.5.1) which introduces contextually free palatalized consonants into Kakabe. Second, the deletion of a glide can be accompanied by the compensatory lengthening (Section 3.4.5.2).

3.4.5.1 Adaptation of CyV clusters and palatalization

Contrary to Pular which avoids complex onsets, French source forms can have the glide *y* [j] as part of a complex onset, e.g. *avion*, *délégation*, etc. Two adaptation strategies are possible in Kakabe for this type of forms. The first strategy, the vowel epenthesis, is already described in Section 3.4.3: an additional syllable is created through vowel epenthesis and the glide becomes the onset of the syllable syllable with EpV. Apart from that, the glide can be deleted, and no new syllable is created, compare Examples (3.115 a) and (3.115 b).

(3.115) (a)	<i>àbiyɔn</i>	‘plane’	< Fr.	<i>avion</i>
	<i>mètiye</i>	‘profession’		<i>métier</i>
	<i>píye</i>	‘foot (of a table)’		<i>pied</i>
(b)	<i>òperasʷon</i>	‘operation’	< Fr.	<i>opération</i>
	<i>kèsʷon</i>	‘question’		<i>question</i>
	<i>sòsʷete</i>	‘society’		<i>société</i>
	<i>átalʷe</i>	‘studio’		<i>atelier</i>

As I argue in Section 3.2.2.4, the contextual palatalization of the consonant preceding the glide in the source form is retained in Kakabe after the deletion of the glide, e.g. *òperasʷon* ‘operation’ < Fr. *opération* [opeʁasiʝɔ̃] in (3.115 b) above. This adaptation strategy introduces into Kakabe phonology contextually free palatalized consonants, see Section 3.2.2.4 for the discussion of palatalization.

The choice between vowel epenthesis, as in (3.115 a), and the glide deletion with the retention of the palatalization, as in (3.115 b), is partly conditioned by the quality of the consonant before *y*. After the fricatives *s* and *z* the glide is always deleted, cf. (3.116 a). After other consonants the epenthesis and the deletion strategy are in free variation or lexically bound, cf. (3.116 c) - (3.116 d).

(3.116) (a) Alveolar fricatives: sj → sʝ

<i>dɛlɛgasʝon</i>	‘delegation’	< Fr.	<i>dɛlɛgation</i>
<i>dimasʝon</i>	‘dimesion’		<i>dimension</i>
<i>ɔpɛrasʝon</i>	‘operation’		<i>opération</i>
<i>prɛzantasʝon</i>	‘presentation’		<i>présentation</i>
<i>nàsʝonal</i>	‘national’		<i>national</i>
<i>sàsʝon</i>	‘station’		<i>station</i>
<i>kèsʝon</i>	‘question’		<i>question</i>
<i>sòsʝete</i>	‘society’		<i>société</i>
<i>mékanisʝen</i>	‘car mechanic’		<i>mécanicien</i>

(b) Alveolar fricatives: zj → zʝ

<i>sizʝem</i>	‘sixth’	< Fr.	<i>sixième</i>
<i>mènizʝe</i>	‘carpenter’		<i>menuisier</i>

(c) Alveolar non-fricatives

<i>átalʝe</i>	‘studio’	< Fr.	<i>atelier</i>
<i>rènʝon</i>	‘meeting’		<i>réunion</i>
<i>màterʝel</i>	‘equipment’		<i>matériel</i>
<i>mílʝon ~ mílʝɔn</i>	‘million’		<i>million</i>
<i>rútʝe ~ rutiye</i>	‘transport’ (attr.)		<i>routier</i>
<i>vàrʝete ~ vèriyete</i>	‘variety (theatre)’		<i>variété</i>
<i>míliʝɔn ~ mílʝon</i>	‘million’		<i>million</i>
<i>ràdiʝon ~ rádʝo</i>	‘radio’		<i>radio</i>
<i>pòromiye ~ prémiye ~ prémʝe</i>	‘first’		<i>premier</i>
<i>mètʝe</i>	‘profession’		<i>métier</i>

(d) Labials

<i>úbʝàn</i>	‘or, alternatively’	< Fr.	<i>ou bien</i>
<i>bʝen</i>	‘fine’		<i>bien</i>
<i>névʝem</i>	‘ninth’		<i>neuvième</i>
<i>pàpʝé</i>	‘paper’		<i>papier</i>
<i>prémʝé</i>	‘first’		<i>premier</i>
<i>àbiʝɔn</i>	‘plane’		<i>avion</i>
<i>píyè</i>	‘foot (of a table)’		<i>pied.</i>

3.4.5.2 *Adaptation of glides and compensatory lengthening*

The glide can disappear and the vowel next to it can be lengthened (unless there is N in the coda and the syllable is already heavy, as in *swéndi* ~ *sóndi*)¹⁵, cf. (3.117).

(3.117) CVG.CV / CGV.CV → CV:CV

<i>séetine</i> ~ <i>séytine</i>	‘be angry’	< Pul.	<i>seytingol</i>
<i>sáytañe</i> ~ <i>séetane</i> ~ <i>séytane</i>	‘devil’		<i>seytaane</i> (< Ar.)
<i>gáyne</i> ~ <i>géene</i>	‘to finish’		<i>gaynugol</i>
<i>swéndi</i> ~ <i>sóndi</i>	‘whisper’		<i>sowndagol</i>
<i>sùutade</i>	‘twin’		<i>siwtaado</i> .

The approximant [j] can be eliminated without compensatory lengthening at the end of a disyllabic word:

(3.118) <i>fàmiy</i> ~ <i>fàmi</i>	‘family’	< Fr.	<i>famille</i>	[famij]
<i>àpare</i>	‘photocamera’		<i>appareil</i>	[aparej]
<i>úti</i>	‘tool’		<i>outil</i>	[uti].

3.4.5.3 *Overview of the glide adaptation*

Apart from the epenthesis strategy which avoids closed syllables by creating a supplementary syllable with a glide in the onset and EpV in its nucleus, glides can be deleted. The way the deletion strategy is implemented depends on the phonotactic position of the glide in the syllable and on the phonotactic structure of the morpheme in general. This is summed up in Table 3.15. When the glide occurs in the coda position stem-internally in the source form, its deletion is accompanied by a compensatory lengthening¹⁶ (indicated by (L)). The absence of compensatory lengthening when the syllable with the coda glide is stem-final is due to the constraint on long stem-final vowels, discussed in Section 3.3.2.2. Finally, when the glide [j] follows an occlusive consonants and forms part of the onset, then [j] is deleted but it palatalizes the preceding syllable which is abbreviated as (P) in the table.

The deletion of the coda glide and the transformation of the glide [j] in the onset cluster into palatalization are unequal in their propagation scale. Whereas the first strategy is limited to a handful of borrowings, and the vowel epenthesis remains the main strategy for glides in

15. The alternation GV ~ V: might be not restricted to borrowings, cf. *gwéki* ~ *góoki* ‘baboon’ which is probably not a borrowing from Pular.

16. The fact that a morpheme can have an underlying representation of the type *seyitine* ~ *seytine* ~ *seetine* is another proof of the phonotactic equivalence between the heavy syllable and two light syllables in Kakabe, and, in general, a manifestation of the quantity-measuring moraic nature of Kakabe.

the coda position, the latter strategy with palatalization is as frequent as the vowel epenthesis, and after some consonants it is the only strategy available.

		epenthesis	glide deletion	
			stem-intern.	stem-finally
coda	CVj	+	+ (L)	+
	CVw	+	+ (L)	-
onset	CjV	+	+ (P)	-
	CwV	+	-	-

Table 3.15: Strategies of glide adaptation

3.4.6 Summary

As stated at the beginning of the section, there are some general differences between the Kakabe adaptation of loanwords from Pular and from French. It is probably due, first, to the fact that the contact situations were not the same, and, second, to the difference in the degree of similarity between the phonotactic systems, Kakabe being in several aspects closer to Pular than to French.

The main adaptation strategy is vowel epenthesis which allows loanwords to comply with the open-syllable constraint of the Kakabe phonology. This strategy introduces a schwa to the vocalic system of Kakabe. The realization of schwa depends on the prosodic boundaries and on the quality of the neighboring segments. Apart from the introduction of schwa, LWA also contributes to the autonomy of palatalization as a phonological feature, by rendering [j] in onset clusters in the French source forms as palatalization.

Chapter 4

Segmental and phonotactic processes

4.1 Introduction

The way from the abstract lexical representation of a morpheme to its segmental realization in speech is a complex trajectory, shaped by a wide range of conditions and principles. Many of the processes which are analyzed in this chapter have probabilistic, rather than categorical nature, therefore the only way to account for them was to investigate the distribution of the linguistic forms in real speech. I am aiming at a model of description “in which predictable patterns are not separated from representation, where lexicon and grammar are interwoven as are the specific and the general” Bybee (2007: 7).

A surface segmental realization can differ considerably from the underlying phonological representation. Example (4.1) gives an idea of the possible distance between the two levels of representation, where only the 1PL pronoun *mà* does not undergo any modification on the way to the surface realization.

(4.1) [mà ná: †fá: j:è]

mà ni à fɔ̀ ànu yen
1PL SBJV 3SG say 3PL BNF

We should say it to them.

Processes that intervene between the underlying phonological representation and the surface phonological representation of the utterance in (4.1) (the tone is not taken into account here) are listed in (4.2).

(4.2) UR: /ma ni a fə anu jen/ → Application of the phonological processes:

- | | | |
|-----|--------------------------------|--|
| (a) | ma ni a fə an jen | nucleus deletion in a weak syllable,
(Section 4.4) |
| (b) | ma ni a fə an je | deletion of N before pause, (Section 4.2.6) |
| (c) | ma ni a fə aj :e | assimilation of N to the following [j]
(Section 4.2.3.2) |
| (d) | ma na : fə aj :e | assimilation of V ₁ in VV in aux+pronoun
group, (Section 4.6.2) |
| (e) | ma na: f a :j:e | assimilation of V ₁ in VV in verb+pronoun
group, (Section 4.6.3) |

The processes vary as to their optionality. For example, the rule in (4.2d) is obligatory and the assimilation between the verb and the IO pronoun in (4.2e) is optional.

In the present chapter the phonological processes are grouped into three categories: 1) the realization of the syllabic N or N in the coda position (Section 4.2), 2) the realization of syllables that can undergo reduction of the nucleus (Section 4.4) and 3) the realization of syllables with weak onsets (Section 4.6). I argue that the three processes are related through the phenomenon of consonantal strength. N has consonantal realization next to a strong onset and disappears next to a weak onset or a syllable without onset (Section 4.2). At the same time, an underlying N can have a strengthening effect on the following onset. First, the copula *bi* and the auxiliary *si* which can have obstruent or non-obstruent realization, have the stronger occlusive onsets more frequently when preceded by N (Section 4.6). The second category of morphemes whose initial onset is strengthened by N are clitics with an underlying *l* onset: after N they are pronounced with the *n* or *d* onset (both of which are stronger consonants than *l*). Further on, I claim that there are three derivational types of N characterized by different degrees of resistance to deletion. From the less resistant N to the most resistant N it goes as follows: simple N coda < N coda derived from an N(V) syllable < syllabic N. This hierarchy yields an account both for the realization of morphemes with a varying onset, and also for the variability in the survival of N before morphemes with stable onsets. Section 4.4 describes the realization of syllables that can undergo reduction, in particular N(V) syllables that give rise to the second type of nasal. Finally, there are two case studies of dialectal distribution of two groups of allomorphs. In Section 4.3 I describe the realization of the diminutive suffix *-nden*, and the stative-resultative participle *-nden* ~ *-len*, and suggest that the phonological form of the latter could have been influenced by the allomorphy pattern of the former. Section 4.5 discusses the reduction forms of the auxiliaries *báti* and *béle* which involve assimilation of

different scope in NK and WK.

4.2 Realization of N

The homorganic N in Kakabe is a phoneme with a low level of specification. It is specified only for two features: [+coda] at the skeletal tier and [+nasal] at the nasality tier. It obtains its specification on other tiers by the spread of the feature from the following consonant. If no consonant follows, it fails to be specified and is deleted.

Another circumstance which defines the realization of N in Kakabe is the ban on declining sonority between a coda and a following onset within one prosodic word:

(4.3) Coda has to be more sonorant than the following onset.

To comply with this constraint, N copies the place feature from the following stop and is assimilated to a following approximant by the manner assimilation and undergoes the deletion of the nasality feature. The deletion of the nasality feature is due to the fact that nasal approximants are ruled out in Kakabe.

In this Section the realization of N is analyzed with respect to the phonological and morphosyntactic contexts. As shown in 4.2.3.3, N can be deleted after having triggered vowel nasalization before the approximants *w* and *y*. See also Section 4.6.5.6, where I show that surface *n* can have different phonotactic effects depending on the underlying configuration that it corresponds to: N which originally occupies the position in the coda, N which becomes a coda due to vowel elision and syllabic N. Vowel is nasalized only if the following N is in the same syllable.

4.2.1 Realization of N before obstruents

When N precedes an obstruent, it is realized as an obstruent nasal of the same place of articulation:

N + Labial	p, b, f	→	mp, mb, mf
N + Alveolar	t, d, s	→	nt, nd, ns
N + Palatal	c, j	→	ɲc, ɲj
N + Velar	k, g, h	→	ŋk, ŋg
N + Labio-velar	ɡ̃b	→	ŋmɡ̃b

Table 4.1: Realization of N before obstruents

Below the realization of N is illustrated with the example of possessive nominal groups with the 1SG pronoun *n̄* for the sake of uniformity, the same mechanism is true for N in the coda position.

$N \rightarrow m / _ C_{\text{Labial}}$

n̄ pórɔntà → [mpórɔntà] ‘my insult’

n̄ bóè → [mbóè] ‘my stomach’

$N \rightarrow \text{ŋ} / _ C_{\text{Labio-dental}}$

n̄ fàsáà → [ŋfàsá:] ‘my vein’

$N \rightarrow n / _ C_{\text{Alveolar}}$

n̄ dáà → [ndá:] ‘my mouth’

n̄ tólè → [ntólè] ‘my ear’

n̄ síisè → [nsí:sè] ‘my breast’

$N \rightarrow n / _ C_{\text{Palatal}}$

n̄ céecè → [ɲcé:cè] ‘my waist’

n̄ jùsèè → [ɲjùsê:] ‘my heart’

$N \rightarrow n / _ C_{\text{Velar}}$

n̄ kàawu → [ɲkà:wù] ‘my uncle’

n̄ gòrogòrè → [ɲgòrògòrè] ‘my scratch (a scratch that I had)’

n̄ háahaandè → [ɲhá:há:ndè] ‘my bile’

$N \rightarrow n / _ C_{\text{Labio-velar}}$

n̄ gbólèè → [ɲm̄gbòlê:] ‘my skin’

4.2.2 Realization of N before implosives

When N occurs before the implosives *ḍ* and *ḅ* it is realized as [n] and [m] respectively. As for the implosive itself, it often becomes a simple obstruent.

n̄ bìreta → [mbìrètà] ~ [mbìrètà] ‘I am angry’

pán ḍũn → [pándũŋ] ~ [pándũŋ] ‘over there’.

4.2.3 Realization of N before sonorants

N assimilates with the place of articulation of the following nasal sonorant, resulting in a geminated nasal:

(4.4) $N + C_{[Nasal]} \rightarrow C:$

n màama → [m̃:à:mà] ‘my grandmother’

n nèene → [ñ:è:nè] ‘my mother’

n òsínè → [ñ:àsínè] ‘my claw’

n jàà → [j̃:â:] ‘my eye’.

When N precedes a non-nasal sonorant, in some cases N fully assimilates with the sonorant which results in a geminate of the latter and the disappearance of nasality.

(4.5) $N + C_{[Non-nasal, sonorant]} \rightarrow C:$

kà n rónɔ → [kà:r:ónɔ] ‘to carry me on the head’

kà n lɔ → [kà:l:ɔ] ‘to stop me’

kà n wótɔ → [kà:w:ótɔ] ‘to scratch me’

kà n yén → [kà:j:éŋ] ‘to see me’.

There is a difference in phonetic behavior between the approximants *w* and *y* on the one hand, and *r* and *l* on the other hand. Contrary to the gemination of *l* and *r* which is stable and perceptually prominent, the gemination of the approximants *y* and *w* is optional and when it does occur, it is much less prominent.

Along with the disappearance of N, the other possibility is the retention of nasality. One context when the full disappearance of nasality never happens is when N is syllabic which is possible only IP-initially, see Section 3.3.1.2. When the nasality is retained it is realized as a nasal occlusive *n* before *l* and *r*, whereas before the approximants *w* and *y* it is mostly realized as a nasalized approximant, though the occlusive realization also occurs.

(4.6) *n rónɔ* → [ñ:rónɔ] ‘carry me on the head’

n lɔnden → [ñ:lɔ:ndɛŋ] ‘I stopped’

n wúlita → [m̃w:úlítá] ~ [w̃:úlítá] ‘I got up’

n yàayɛ → [j̃jà:yè] ~ [j̃:à:yè] ‘my paternal aunt’.

When N is preceded by a vowel (which in this case is the only alternative to a pause) the realization of nasality is also different for approximants and non-approximants. Before *l* and *r* it is realized as a homorganic nasal and the nasalization of the preceding vowel, cf. (4.7 a). In the case of *w* and *y* it is realized only as vocalic nasalization, cf. (4.7 b).

(4.7) (a) [kà: dòn lú:mè tò]

kà à dòn lúumɔ-È tɔ
 INF 3SG send market to
 to send it to the market

(b) [â ní dɔ wòè là]

à ni dòn wó-È la
 3SG SBJV enter burrow-ART OBL
 He would enter into the burrow.

(c) [m̀ b́átí †d́á j̀ám bú̀tùŋ]

̀n b́átí d̀àn ỳàn bú̀tun
 1SG PFV.OF stop there first
 I stop there at first.

In what follows I represent the results of the corpus investigation. The results showed that the retention of nasality varies importantly depending on the sonorant.

4.2.3.1 Realization of N before *l*

In the case of N occurring before *l*, there are 55 cases where *l* is geminated and nasality is deleted, and 28 cases where the nasality is preserved (in the form of a nasal consonant and the nasalization of the preceding vowel).

The nasality is retained before *l* only when the nasal coda is in the syllable whose onset is nasal as well, see the realization of *mín^l* in (4.8 a), the reduced form of the conditional auxiliary *máni* > *mán* in (4.8 b), *nán* < *náni* ‘four’ in (4.8 d).

(4.8) (a) [ŋ ká tàlê: ḿín l̀ŋŋ]

̀n ka tàli-È mín^l l̀ŋn
 1SG PFV.TR tale-ART REL know
 The tale that I know...

(b) [wò má n là:rê: bò]

wò máni làari-È bó
 2PL COND rubber-ART pick
 When you collect rubber...

(c) [i ká sànda: jùmà n lòn]

i ká sànda-È yùman lón
 2SG PVF.TR tale-ART which know
 Which tale do you know?

(d) [wá bí:nà n lò:lù]

wáa bì-náani lóolu
 thousand ten-four five
 forty five thousand

The nasality can also be retained at the end of the suffix *-nden* which is an additional argument to consider that, in this suffix, *n* before *d* belongs to the onset together with *d* and not to the coda of the previous syllable, see Section 3.3.1.5.

(4.9) [m bí sànda.ndèn làlà wò jèn]

n bi sànda-nden lá-la wò yen
 1SG be tale-DIM tell-GER 2PL for
 I'm telling you a tale.

By contrast, N before *l* is not retained after NC sequences separated by the syllable boundary, as in (4.10) below. In this example, the /Nf/ sequence is divided by the syllable boundary, and the final N of *fěnfěn* 'nothing' is not preserved before *l*.

(4.10) [m má: fěm.fɛ l:ɔŋ gòyi]

n máa fěnfěn lón gòyi
 1SG PFV.NEG PI.thing know DISC
 I don't know anything.

The presence of a nasal in the onset of the syllable to which N belongs is a necessary but not sufficient condition for the retention of nasality, cf. *mán* < *máni* in (4.11 a), *mín^L* in (4.11 b), *nín* in (4.11 c), to cite some examples.

(4.11) (a) [mà má:l:èkòl-kóè fò]

mà máni lèkòl-kóo-È fò
 1PL COND school-thing-ART say
 When we discuss the school affairs

(b) [kè já:míjè mí †l:ó:lé jàŋ]

kè jáamiye-È mín^L ló-len yàn
 this mosque which build-PC.STAT here
 This mosque which is built here...

(c) [mílijón tá n:ì l:ò:lù]

míliyón tán^L nín lólu
 million ten and five
 fifteen millions

Otherwise, if there is no nasal in the onset, the nasality always disappears, e.g. in context between a noun and a verb, cf. (4.12 a), between two numerals (4.12 b), between a noun and a verb cf. (4.12 c), and also if the nasal is the only phoneme representing a morpheme, cf. the realization of the optative auxiliary *ni* > *n* in (4.12 d), etc.

(4.12) (a) [mà má: fɛ̃ l:óŋ]

mà máa fɛ̃n lón
 1PL NEG.PFV thing know
 We don't know anything.

(b) [wá mùga l:ó:lú lè]

wáa mùgan lólu lè
 thousand twenty five be
 It is twenty five thousand.

(c) [mà í nègèsánsá l:à]

mà si nègèsánsan lá
 1PL POT iron-fence make
 We can make an iron fence.

(d) [mà l:á:fɛ̃pè làdà]

mà ni láafɛ̃n-È ladá
 1PL SBJV bed-ART fabricate
 We would fabricate beds.

4.2.3.2 Realization of *N* before *y* [j]

There is a total of 71 occurrences of *N* in the context before *y*. Nasality is retained only in 6 cases, and it is deleted in 65 cases.

When nasality does not surface, *y* is geminated, cf. (4.13), (4.14), but short *y* also occurs (4.15). The long [j:] and the simple [j] are in free variation in this context, compare (4.14) and (4.15) where *yen* is pronounced with a long [j:] and then with a short [j].

(4.13) [wò sí dà j:àn:étò]

wò si dàn yànnétò
2PL POT stop here
You will stop here.

(4.14) [à lè níŋ kàjê: té: à n:ógò j:èŋ]

à lè níŋ kàyi-È téé ànu nógòn yen
3SG LG and man-ART NEG.POT 3PL each.other see
He and the man, they won't see each other.

(4.15) [wò té: nógò jè wó]

wò téé nógòn yén wó
2PL NEG.POT each.other see UNIV
You won't ever see each other.

Contrary to the case of *N* preceding the sonorant *l*, when *N* precedes *y* the nasality of the onset of the preceding syllable does not play any role. For example, the relativizer *mín^L* is realized as [mí:] in all nine occurrences when it is followed by the approximant *y*, e.g.:

(4.16) [wò sì mí: jità má là]

wò si mín^L yita mà la
2PL POT REL show 1PL OBL
What you will show to us, ...

The utterances in (4.17 a) represent those exceptional cases where *N* is retained before *y* [j]:

(4.17) (a) [à nâ:n jògò fɛ̃ n:à]

ànu ni ànu yógo fɛ̃n nà
 3PL SBJV 3PL pay what OBL
 How much do they pay them?

(b) [mín:ɔ̃n já: hédilà wòn †dé lè já: fà:mùlà]

mínnu nɔ̃n bi à hédì-la wò-nu lè lè bi à
 REL-PL DISC be 3SG listen-GER that-PL FOC FOC be 3SG
fāamu-la
 understand-GER
 Those who listen, they understand it.

(c) [bó jàŋká: àm béla: sà:ràlà jàŋká:]

bón yàkàa ànu béle à sàara-la yànkàa
 well now 3PL be.NEG 3SG pay-GER now
 Well, now... they don't pay him now.

(d) [m̀ b́tí d̀à j̀ám bú̀tùŋ]

̀n b́tí d̀àn ỳàn bú̀tùŋ
 1SG PFV.OF stop there first
 I stopped there at first.

(e) [wò sí kìnâ: dó:n t̀ùg̀ù j̀é wò f̀ɛ̃]

wò sí kìnâ-È dóo-nu t̀ùgun ỳén wò f̀ɛ̃
 2PL POT adult-ART some-PL also see 2PL with
 You can also see some adults with you.

(f) [à f̃ɔ̃ : já:è j̀èŋ]

à f̃ɔ̃ ̀n ỳàayɛ ỳén
 3SG say 1SG aunt BNF
 He said to my aunt: ...

In (4.17 b) there is a combination of three morphemes *mín^L* REL + *-nu* PL + *nɔ̃n* DISC which gives *mín:ɔ̃n* through two processes: 1) the deletion of the vowel in *-nu*, see (4.4), and 2) the simplification of a sequence of identical consonants, *nnn* in this case (on the question of N deletion in consonant sequences see 3.3.1.2): *minnu nɔ̃n* → *minn nɔ̃n* → *min:ɔ̃n*.

The pronunciation of the 3PL pronoun *àn* in (4.17 a) is an exception: as shown in Section 4.4.5, the pronoun *ànu* is almost never realized in the reduced form *an* when it is followed by a morpheme starting with *y*. Therefore, the exceptional retention of *n* is marginal for a different, independent reason, discussed in the mentioned section.

In (4.17 c) the retention of nasality may be due to the fact that *bón* ‘well’ is an interjection which can be followed by IP-boundary. There is no special reason for the nasality realization neither (4.17 d) nor in (4.17 e). As for (4.17 f) the fact that N is the only phoneme in the morpheme, does not prevent it from disappearance, cf. (4.18):

(4.18) [à máni jéŋ ká:mì wó]

à máni ò yén káamìn wó
 3SG COND 1SG see when UNIV
 Each time when he sees me...

4.2.3.3 Realization of *N* before *w*

In the case of *w* the retention vs. deletion of N is less predictable compared to N before *l* and *y*.

My corpus contains 51 occurrences of N immediately preceding an onset with *w* (not separated from it by a hesitation pause or any other kind of pause). Nasality disappears without any trace in 36 tokens (6.129 b) - (4.19 c), in 15 tokens it is retained and realized as a nasalization of the preceding vowel.

Contrary to other sonorants, I could not identify any regularities explaining the deletion or the retention of nasality when N is realized before *w*. For example in (4.19 d) *sàn* ‘buy’ is pronounced without any nasalization, whereas in (4.20 a) the vowel in the same verb is nasalized.

(4.19) (a) [à kà fɛ̃ w:àli]

à ka fɛ̃n wáli
 3SG PFV.TR what make
 What did he do?

(b) [mí: ⁺wó kè:ndè]

mín^L wò ké-nden
 REL that do-PC.STAT
 The one who has done it.

(c) [bitúgú m:á w:úlí]

bitúgun ò máni wúli
 again 1SG COND get.up
 And then again, when I get up...

(d) [wò sí kùtá: sà wó jètè jè]

wò si kùta-È sà wò jètè yen
 2PL POT clothes-ART buy 2PL self for
 You can buy clothes for yourselves.

Nasality of the onset before N plays no role in its retention before *w*, unlike in the case with N before *l*, see 4.2.3.1. Here it is possible both in a syllable with a nasal consonant cf. (4.20 b) and with a non-nasal consonant, cf. (4.20 a).

(4.20) (a) [wò nì fě̀n-È dò sǎ̀ wò n:à]

wò ni fě̀n-È do sǎ̀ wò-nu la
 2PL SBJV thing-ART some buy that-PL OBL
 You should buy something with it.

(b) [à nǐ̀ wùlê:]

à nín wùlu-È
 3SG and dog-ART
 and the dog

4.2.3.4 Realization of N before r

There are only four examples of N before *r* in my corpus. This scarcity of occurrence is due to the marginal status of *r* as a morpheme-initial consonant, see 3.2.2.1. Besides, there are no lexemes with *Nr* in morpheme-internal position. As can be seen, in three examples out of four, the *Nr* combination is realized as a geminated *r* and the nasality does not surface, and in one occurrence (4.21 d) *Nr* is realized with the nasalization of the vowel and a consonantal nasal *n*.

(4.21) (a) [kè ɲó̀gò̀n kí: lè tùgù r:ò̀ndi]

kè ɲó̀gò̀n ka ì lè tugun ró̀ndi
 that like PST.PFV 2SG LG also carry.on.head
 A one like that carried you on his head.

(b) [i ní r:óndí há: kó:dá: là]

i ni ñ rónði háa kóɔ dáa-È la
 2SG SBJV 1SG carry.on.head until river bank-ART OBL
 Carry me on your head until the river bank.

(c) [kómíníkè bá t:àmbí nú r:ádíjòè bú:tò]

kóminike-È báti tãmbi nùn rádyo-È búùtò
 communiqué-ART PFV.OF pass PST radio-ART on
 A communiqué was transmitted on the radio.

(d) [kálá kà: lɔ̃n ràyì kálá gbìlì]

kàla ka à lón ràyi kàla gbìli
 every PFV.TR 3SG know rail every heavy
 Everyone knows that each rail is heavy.

4.2.3.5 Summary

To sum up, before sonorant N can be realized either with the retention of nasality or without any nasality in the surface realization which is schematized below:

1) disappearance of nasalization:

$VN + l, r \rightarrow$ full assimilation of N

$VN + w, y \rightarrow$ deletion / full assimilation of N

2) retention of nasality:

$VN + l \rightarrow \tilde{V}_n + l$

$VN + r \rightarrow \tilde{V}_n + r$

$VN + w \rightarrow \tilde{V} + w$

$(VN + y \rightarrow \tilde{V} + y).$

4.2.4 Realization of N before vowel-initial morphemes

The realization of N before vowel-initial morphemes depends on the morphological category of the latter, as described in 4.6.1.4.

4.2.5 Realization of N before clitics and suffixes starting with a sonorant

When N precedes the clitics *lè* (focus marker), *la* (representing three different morphemes: the oblique marker postposition, the causative prefix and the possessive linker), contrary to the previous situations, the onset, and not the coda, undergoes assimilation:

$VN + la \rightarrow Vn:a$

$VN + l\grave{e} \rightarrow Vnd\grave{e}$.

Examples (4.22 a) - (4.24 b) illustrate the simple and the nasalized pronunciation of the *la*, as the gerund suffix, as the possessive linker and as the causative prefix.

The gerund suffix *-la*:

(4.22) (a) [à bì kérénu dàlà]

à bi kéri-È-nu dá-la
3SG be hoe-ART-PL fabricate-GER
He is making hoes.

(b) [à bì kérénu dàn:à]

à bi kéri-È-nu dán-la
3SG be hoe-ART-PL count-GER
He is counting hoes.

The possessive linker *la*:

(4.23) à lá kùtáà ‘his clothes’

mùsèè lá kùtáà ‘the clothes of the woman’

vs.

à ná kùtáà ‘my clothes’;

dén tán ná kùtáà ‘the clothes of the ten children’

The causative prefix *la-*:

(4.24) (a) [à bátí dèn tá n:ákàràŋ]

à bátí dèn tán la-kàran
3SG PFV.OF child ten CAUS-study
He made ten children study.

(b) [à bǎtí dɛ̃ n:á:ní lákàrǎŋ]

à bǎtí dɛ̃ nǎani lá-kàran
 3SG PFV.OF child four CAUS-study
 He made four children study.

Compare this with the verb *lá* ‘put’, starting with *l* which is not part of an affix, but part of the stem and therefore it does not change to *n* after a nasal:

(4.25) [à bǎtí mǎŋgó tǎn lá: dùgé: tǒ]

à bǎtí mǎngo tǎn lá dùgu-È tǒ
 3SG PFV.OF mango ten lie earth-ART on
 He put ten mangoes down on earth.

Focus marker *lè*:

(4.26) (a) [à kǎ dɛ̃ŋ kélɛ̃n dè sǒtǒ]

à kǎ dɛ̃n kɛ̃len lè sǒtǒ
 3SG PFV.TR child one FOC get
 She has got ONE child.

(b) [à kǎ dɛ̃ n:á:ní lè sǒtǒ]

à kǎ dɛ̃n nǎani lè sǒtǒ
 3SG PFV.TR child four FOC get
 She has got FOUR children.

When the benefactive postposition *yen* follows the 1SG pronoun *n̄*, the two fuse into *nye* where the final nasal of the postposition is deleted (4.27 a). This contrasts with the case when *n̄* precedes the verb *yén* ‘see’ which preserves its final *N*, see (4.27 b).

(4.27) (a) [à bǎtâ: fǒ̃ n̄:è]

à bǎtí à fǒ̃ n̄ yen
 3SG PFV.OF 3SG say 1SG BNF
 He has told that to me.

(b) [à bǎtí n̄ jɛ̃ŋ] ~ [à bǎtí j:ɛ̃ŋ] ~ [à bǎtí jɛ̃ŋ]

à b́ati ñ yén
 3SG PFV.OF 1SG see
 He has seen me.

At the same time, the N coda of the postposition is not deleted after other syllables ending with a nasal, instead N in the coda before the postposition *yén* disappears:

(4.28) [ànù dí: nógò jèŋ]

ànu díi nógòn yen
 3PL pleasant each.other BNF
 They like each other.

Finally, there are two suffixes which cause the loss of nasality. N regularly disappears before the nominalizing suffix *-ri*, e.g.:

kántan ‘look after’ + *-ri* → *kántari* ‘looking after’.

The other suffix is *-yaa* which derives verbs, adjectives and nouns. In most cases it also causes the disappearance of N, as in (4.29 a). Yet, there are two examples in my data, where N is retained and nasalizes the following *y*, see (4.29 b). Thus, it behaves the same way as the postposition *yén* after the 1SG pronoun *ñ*, illustrated in (4.27 a). Note also the compensatory lengthening in the monosyllabic root in *jòɔyaa* ‘slavery’.

- (4.29) (a) *lúntan* ‘guest’ + *-ya* → *lúntayaa* ‘be a guest’
dénden ‘child’ + *-ya* → *déndeyaa* ‘childhood’
súnkutun ‘young girl’ + *-ya* → *súnkutuyaa* ‘young age (for a girl)’
nùman ‘nice’ + *-ya* → *nùmayaa* ‘be good/wellness’
jòn ‘slave’ + *-ya* → *jòɔyaa* ‘slavery’
- (b) *kán* ‘place’ + *-ya* → *kán̄ya* ‘time, moment’
fěntan ‘poor’ + *-ya* → *fěntán̄ya* ‘poverty’

Another case, where N nasalizes the subsequent *y* is *nè̄te* in NK and WK is discussed in Section 3.2.2.3.

4.2.6 Realization of N in IP-final position

The description of the realization of N is given in Sections 4.2.1 - 4.2.4. It concerns the cases where N is not separated from the following syllable by any IP boundary.

IP boundary blocks the interaction between N and the following phoneme. IP-final N is either deleted or is realized as [ŋ]. Section 5.3.4 outlines the tonal manifestation of IP and discusses the syntactic correlates of IP in Kakabe. It is shown that, apart from clauses, separate IPs are often formed by topicalized constituents and adverbial phrases.

The examples below illustrate the realization of IP-final N, with the IP boundary separating two finite clauses (4.30 a), a topic from a clause (4.30 b) and a clause from an adverbial clause (4.30 c).

(4.30) (a) [wò máná: bità tùgù:ŋ wò já: májítàlà]

(wò mání à bita tugin)_{IP} (wò bi à mayita-la)_{IP}
 2PL COND 3SG catch also 2PL be 3SG sell-GER
 And when you catch it, you sell it.

(b) [wó lè kìná:nù tùgù:ŋ wò sí kùtá: sàŋ]

(wò lè kina-È-nu tugin)_{IP} (wò si kùta-È sàŋ)_{IP}
 2PL LG adult-ART-PL also 2PL POT clothes-ART buy
 And you, parent, you can buy clothes also.

(c) [wò nì fěpè dó: sà:ŋ wón:à]

(wò ni fěn-È dó sàŋ)_{IP} (wò-nu la)_{IP}
 2PL SBJV thing-ART some buy that-PL OBL
 You would buy something for them.

In IP-final position N is realized the same way as before the glottal stop, i.e as [ŋ] + vowel nasalization, or N is not realized on the surface. Compare the realization without the final nasal of the adverb *kómìn* in (4.31 a), of the verb *kàran* as [kàra] in (4.31 b) and of the adverb *sínàn* ‘tomorrow’ as [sínà] in (4.31 c) and Examples (4.31 d) and (4.31 e) where N is realized as *ŋ* accompanied by the nasalization of the preceding vowel.

(4.31) (a) [mà bó:né sàràmusàjà kómì]

mà bó-nden-È Sàramusaya kómìn
 1PL leave-PC.ST-ART TOPON when
 When we left Saramusaya ...

(b) [fópù ní kúrás tà ì ní kàrà]

fópù ni kúras tà ì ni kàran
 all SBJV courage take 2SG SBJV study
 Everyone should have the courage to study.

(c) [mà ì míŋ kè:là sínà]

mà bi mín^L ké-la sínàn
 1Pl be REL do-GER tomorrow
 ... what we will do tomorrow ...

(d) [n:í kùtá: sàŋ]

n ni kùta-È sàŋ
 1SG SBJV clothes-ART buy
 I should buy clothes.

(e) [mà ká wò lòn]

mà ka wò lón
 1PL PFV.TR that know
 We know this.

According to Ohala & Ohala (1993), “back nasals are less consonantal than front nasals”. This can be seen as a phonetic motivation for the fact that [ŋ] is in free variation with zero in the IP-final position: the two realizations are on the weak part of the consonantal scale.

4.2.7 Simplification of NNC sequences

When N follows a syllable which already has an N coda, this leads to the loss of the additional N. Thus, the 1SG pronoun *n* does not surface in pronunciation when it occurs after an N coda and a consonant onset, compare (4.32 a) and (4.32 b):

$VN + N + C \rightarrow VNC$

(4.32) (a) *à nín bàânu* [à níŋm bã:nù] ‘and the goats’;
à nín bàntàrà [à níŋm bàntàrà] ‘and the manioc’.

(b) *à nín n bàaba* [à níŋm bà:bà] ‘and my father’.

The deletion of the second *n* regularly occurs when the diminutive marker *-nden* or the participle suffix *-nden* homonymous to it follows N, as in (4.33) below.

- (4.33) \kùn-nden\ head-DIM → *kùnden* ‘little head’
 \sàn-nden\ buy-PC.ST → *sànden* ‘bought’

The syntagms *nín n̄ dógè* ‘and my younger brother’ in (4.34) and *nín dógè* ‘and a younger brother’ in (4.35) are homophonous, they are both pronounced as [n̄ndógè].

- (4.34) [n̄ dé **n̄n̄** dógè n̄ŋ ʔà n̄:á n̄:átègè mà té:mà]

n̄ lè nín n̄ dógɔ-È nɔn ànu ni ànu latège
 1SG LG and 1SG younger.brother-ART DISC 3PL SBJV 3PL distribute
mà téema
 1PL between
 Me and my younger brothers, he distributes them between us.

- (4.35) [nè:nè kélém:á filá lè kòtê: à **n̄n̄** dógè]

nèene kélenma fila lè kòtèè à nín dógɔ-È
 mother identical two be elder.sibling 3SG and younger.sibling-ART
 These are siblings from the same mother, the elder brother and the younger brother.

In (4.36) *n* disappears after verbs with N coda: *yen + n̄ + kòtèè* → *yen + n̄ + kòtèè* → [yéŋ kòtèè]

- (4.36) [m̄ má ɲ:ógò jéŋ kòtê:nù fɛ]

n̄ máni ɲógɔn yén n̄ kòtɔ-È-nu fɛ
 1SG COND each.other see 1SG elder.brother-ART-PL with
 When we see each other with my elder brother.

It should be noted that this process is not specific to the pronoun *n*, cf. (4.37) where the plural marker *-nu* (which is often pronounced without the vowel) is lost because it occupies the position between the two nasals: *mín* _ *nɔn*:

- (4.37) [m̄n̄:ɲn̄ já: hédilà wón dè lè já: fà:mùlà]

mín^L-nu nɔn bi à hédî-la wò-nu lè lè bi à
 REL-PL DISC be 3SG listen-GER that-PL FOC FOC be 3SG
fàamu-la
 understand-GER
 Those who listen, they understand it.

4.2.8 Realization of N in Manding languages

The unstable realization of N is common for Manding languages:

Nasalization, especially word-final, is relatively unstable across Manding. Depending on the variety and sometimes the particular word, it may surface only in a restricted number of contexts, disappear without traces or disappear but bring about some morphological alternations to its right (Idiatov 2012: 179).

The underlying N is regularly deleted from the surface realization before pause in the Bamana dialect of Beledugu (Creissels 1989). Underlying N is realized as an occlusive nasal before occlusive consonants and as the nasalization of a vowel before non-occlusive ones in Odienné Dioula (Braconnier 1986) and in Kita Maninka (Creissels 2009a: 17)¹. In Mandinka N is realized as a homorganic nasal before occlusives and as *ŋ* before vowels, glides, *r*, *l* and *h* (Creissels & Sambou 2013: 25). Interestingly, N can be realized as the gemination of *l*, at the junction between two stems forming a lexicalized compound e.g. *kullí* < *kǔn* ‘head’ + *lí* ‘shave’. According to the authors, such realization is due to the lexicalization, i.e. to the fact that the boundary between the two stems is “blurred in the speaker’s mind” (2013: 26). As has been shown in this section, in Kakabe the realization as a geminated *l* of the underlying sequence /N+l/ is very regular, it applies always except when *l* belongs to a clitic and when the two morphemes are separated by a prosodic break.

The realization of N in Soninke, a Northwestern Mande language, is similar to the situation in Kakabe in that N is also realized in a special way when it precedes a sonorant:

(4.38) Soninke (Creissels 2016: 22)

<i>án</i> 2SG	+	<i>àliháala</i>	‘state’	→	[áŋŋàlihà:lâ]
<i>án</i> 2SG	+	<i>rénmè</i>	‘child’	→	[állèmmê]
<i>án</i> 2SG	+	<i>wàttê</i>	‘illness’	→	[áŋŋàttê]
<i>án</i> 2SG	+	<i>yòkkê</i>	‘bagages’	→	[áŋŋòkkê]

Whereas in Kakabe the nasality disappears, in Soninke it spreads to the onset of the following syllable. The consonant preceded by N assimilates with it by manner of articulation and N assimilates with the consonant by place or articulation, except for *r* which becomes a geminated *l*.

To sum up, the Kakabe case is in line with the cross-Mande tendency of N to harmonize in manner and place of articulation with the segment to its right. As has been shown in this

1. The author speaks of a “tendency” for vocalic realization of N before non-occlusives, therefore, it is not clear what are the exact circumstances of such realization.

section, the realization of N depends on how it is positioned with respect to 1) morpheme boundaries 2) boundaries of the syntactic constituency and the onset of the following syllable. A similar pattern of relation between prosodic constituency and the realization of N may exist in other Mande languages as well. Thus, the realization of N in the perspective of comparative phonology-syntax might be an interesting question for further research.

4.3 Realization of the suffixes *-nden* and *-len*

This section describes the morphological processes involving two suffixes: the diminutive suffix *-nden* and the suffix of the resultative participle marker which has the form *-nden* in CK and *-len* in NK and WK.

These suffixes display the array of allomorphs featuring $l \sim d \sim nd \sim nn \sim n$ in the onset. The alternations between alveolars are common for Western Mande, especially at the beginning of functional morphemes, or morpheme internally, cf. Kita Maninka: variation $t \sim d \sim r$ in foot-internal position and at the beginning of suffixes (Creissels 2009a: 14), e.g. *báta* \sim *báda* \sim *bára* ‘home’. As I will argue, in Kakabe, apart from the immediate phonological context, the choice of the allomorph is determined by phonotactic properties of the stem to which the suffix is attached. The variation between alveolars, especially for grammaticalized morphemes, is common across Mande, and the description of the Kakabe case might shed light on the mechanism underlying this cross-Mande variation.

In this Section I will discuss the variants *-len* and *-nden* and propose a hypothesis about the diachronic relation between these two variants (4.3.1). Section 4.3.1 deals with the assimilation process $nd > nn$ in the forms with the referential article which also involves resyllabification. Finally, the geminated *nn*, resulting from this assimilation, undergoes simplification to simple *n*, and this process is conditioned by the metrical properties of the preceding root (4.3.4).

4.3.1 Participle *-len* vs *-nden* allomorphs

In Kakabe the form of the resultative suffix depends on the dialect: *-nden* in CK, vs. *-len* in NK and WK (4.39). But after N in all three dialects the participle suffix is realized as *-den*:

(4.39)				CK	NK, WK
	‘cut’	CVCV	téɛɛ	+ PC.ST	<u>téɛɛ-nden</u> <u>téɛɛ-len</u>
	‘to germinate’	CVCV	fěten	+ PC.ST	fětén-den

The allomorph *-nden* in CK coincides with the diminutive marker which is the same for all dialects (4.40). The diminutive suffix has the same allomorph *-den* after N which is in this case due to the process of simplification of the *nnd* sequences which is general for Kakabe, see Section 4.2.7.

(4.40)					CK, NK, WK
	‘fish’	CVCV	yége	+ DIM	yége-nden
	‘germ’ (n.)	CVCVN	fétɛn	+ DIM	fétɛn-den

If the allomorph *-len* of the participle is taken as diachronically primary, then *-nden* of CK could have appeared due to analogical change. This change is triggered by the coincidence between the realization of the diminutive marker and the participle suffix after final-N roots.

The resultative participle marker copies the model of *-nden* ~ *-den/N_* allomorphy of the diminutive marker. As a result, the allomorph *-den* of the resultative participle is reinterpreted as having *-nden* in the non-nasal context, instead of *-len*. Thus, the hypothesis is that the emergence of *-nden* as a marker of participle in CK, was triggered by analogy between the post-N allomorph of the diminutive suffix and the resultative suffix²:

(4.41)	<i>len</i> > _{analogy to den / _N ~ nden} > <i>nden</i>				
	noun+DIM	verb+PC.ST			
	CVCV	yége-nden	*tége-len	>	tége-nden
	CVCVN	kéren-den	fétɛn-den		

This hypothesis is supported by the fact that in CK, *-nden* of the participle reproduces the same irregular pattern of realization in combination with the referential article as the diminutives *-nden*, see Section 4.3.2 and 4.3.4.

Analogical change is understood rather largely, as a diachronic sound change which involves a relation of similarity (Anttila 1977). The scenario in (4.41) matches this definition, since it is based on the similarity between the pattern of allomorphy and the coincidence of one of the allomorphs in the post-N context. At the same time, in the literature on historical linguistics analogy is usually understood to be based on the form-meaning correspondence. An often repeated example of proportional analogy is the emergence of the past form *dove*. The original past tense of *dive* was *dived*, but it changed to *dove* under analogy with the class

2. An alternative hypothesis that one can think of is that *-nden* appeared due to the resyllabification of *N.d* separated by syllable boundary to *Nd* as a complex onset. Then the *-nden* allomorph was generalized to non-nasal contexts, e.g. *fétɛn.den* germ-PC.ST was resyllabified to *fétɛ.nden* and then *-nden* replaced *-len* in the oral context: *tége-len* → *tége-nden*. Yet, this kind of resyllabification leading the emergence of a complex onset is not a very common phonological process, thus, an independent reason is required to account for it.

of verbs which behave like *ride* : *rode* = *dive* : *x* (Campbell 2013: 90-91). Nevertheless, structurally, there is no reason why a pattern of allomorphs should be different in this respect from a set of markers belonging to one morphological paradigm.

The marker of the participle in Kakabe reflects a common Western Mande suffix, reconstructed as **den* or **ɗen* (Vydrin, p.c.). The initial *d* gives the reflexes *r*, *l* or *n*, and *nd* only in Kakabe; see the forms in (4.42). This confirms the assumption that *-len* precedes *-nden* etymologically.

(4.42)	/ V_	/N_	
Mandinka	<i>-riŋ; -liŋ/ r(V)_</i>	<i>-diŋ</i>	(Creissels & Sambou 2013: 133)
Bamana	<i>-len,</i>	<i>-nen</i>	(Vydrin 2017a: 56, 108)
Kagoro	<i>-len,</i>	<i>-nen</i>	(Creissels 1986)
Guinean Maninka	<i>-nin, -nen</i>	same	
Kita Maninka	<i>-nin</i>	same	(Creissels 2009a: 75)
Lele	<i>-rɛɛ,</i>	<i>-(n)ɗen</i>	(Vydrin 2009a)
Kakabe CK	<i>-nden</i>	<i>-den</i>	
Kakabe WK, NK	<i>-len</i>	<i>-den</i>	
Koranko	<i>-ni, -nɛ</i>	same	(Kastenholz 1987b: 103-104)

Similarly to Kakabe, in Mandinka and Lele the allomorph with *d* in the onset appears after N (though Vydrin (2009a) states that the allomorph of *-rɛ* after N is *-ndɛn*, he is not sure that *n* is part of the suffix or a part of the preceding root). In Bamana and Kagoro the onset of *-len* undergoes nasalization after N and becomes *-nen*. In Maninka, Kita Maninka and Koranko, the form onset is always *n*-initial. Apparently, this allomorph was also initially limited to post-N context, as in Bamana and Kagoro, and was then generalized to the oral context³.

Thus, the *-nden* form in CK appeared due to the allomorph *-den* common for Western Mande in this context, and then changed by analogy to the diminutive suffix.

4.3.2 Assimilation *nd* > *nn* in the forms with the article

The diminutive suffix has the same realization *-(n)den* across Kakabe dialects when it is not followed by the referential article, see (4.40) in the preceding subsection. When the diminutive suffix combines with the article, in part of NK villages and in two villages belonging to WK area (referred to as NK₁ and WK₁, respectively) the resulting form is *-ndèè* (< *-nden-È*),

3. Alternatively, one can suppose that the nasalization spread from the end of the participle suffix and caused the initial non-nasal (either *d*, *l* or *r*) to become nasal.

whereas in CK, Kourou Pampa (WK₂) and Nasouroulayi (NK₂), another village of WK area (WK₂), it is realized as *-nnéè*. As is shown in Section 4.6.4, VN combined with *È* of the article is normally realized as *Vjè*. Thus, it is common for all the dialects that the form of the diminutive suffix with the referential article is irregular: against the expected *-ndejè*, N disappears and gives a long vowel. The difference is that, first, the assimilation *nd > nn* takes place in CK, WK₂, NK₂ but not in WK₁ and NK₁. Second, where the assimilation takes place the resulting vowel is mid-low *ɛ*, while in the absence of assimilation it is the mid-high *e*.

	WK ₁ , NK ₁	CK, WK ₂ , NK ₂
DIM		<i>-nden</i>
DIM + ART	<i>-(n)néè</i>	<i>-(n)déè</i>

Table 4.2: Realization of the diminutive suffix

After N-final stem *n* can be deleted to avoid *nnd* or *nnn* sequences, see (4.43). In CK, WK₂, and NK₂ *nnéè* can be reduced to *néè* also in certain non-nasal contexts, this is described in Section 4.3.4.

(4.43)				WK ₁ and NK ₁	CK, WK ₂ and NK ₂
CVV	‘stream’	<i>kòɔ</i>	→	<i>kòɔ-ndéè</i>	<i>kòɔ-néè</i>
CVV	‘trunk’	<i>júu</i>	→	<i>júú-ndéè</i>	<i>júú-néè</i>
CVN	‘child’	<i>dén</i>	→	<i>dén-déè</i>	<i>dén-néè</i>
CVNVCVN	‘hare’	<i>sánden</i>	→	<i>sándén-déè</i>	<i>sándén-néè</i>
CVNVCVN	‘box’	<i>dùnbu</i>	→	<i>dùnbù-ndéè</i>	<i>dùnbù-nnéè</i>
CVCV	‘medicine’	<i>bási</i>	→	<i>bási-ndéè</i>	<i>bási-nnéè</i>
CVVCVCV	‘goat’	<i>síikuli</i>	→	<i>síikúli-ndéè</i>	<i>síikúli-nnéè</i>
CVVCV	‘shell’	<i>kéede</i>	→	<i>kéédé-ndéè</i>	<i>kéédé-néè</i>

The same distribution of the assimilation *nd > nn* is attested for the adverbial demonstratives *yàndétɔ ~ yànnétɔ* ‘here’ and *jóɔndetɔ ~ jóɔnetɔ* ‘there’, see (4.44). Supposedly, the adverbs are fused forms containing the demonstrative *yàn* ‘here’ or *jóɔ* ‘there’, respectively, as the first part, the focus marker *lè*, and the postposition *tɔ*.

(4.44)	WK ₁ and NK ₁	CK, WK ₂ and NK ₂
‘here’	<i>yàndétɔ</i>	<i>yànnétɔ</i>
‘there’	<i>jóɔndetɔ</i>	<i>jóɔnetɔ</i>

The two maps below compare the geographical distribution of two sets of allomorphs. The map on the left shows the distribution *-len* vs. *-nden* allomorphs for the resultative-stative participle, whose diachronic relationship was discussed in the previous section, see

(4.3.1). The map in the right shows the distribution of *-nnéè* and *-ndéè*, the two realizations of the diminutive suffix in combination with the article. My corpus contains 332 occurrences of forms containing with /-nden-È/ and 915 tokens of the resultative marker, apart from that, I used elicitation data (the Bantaferenya village is not represented in corpus and only elicitation data is available).

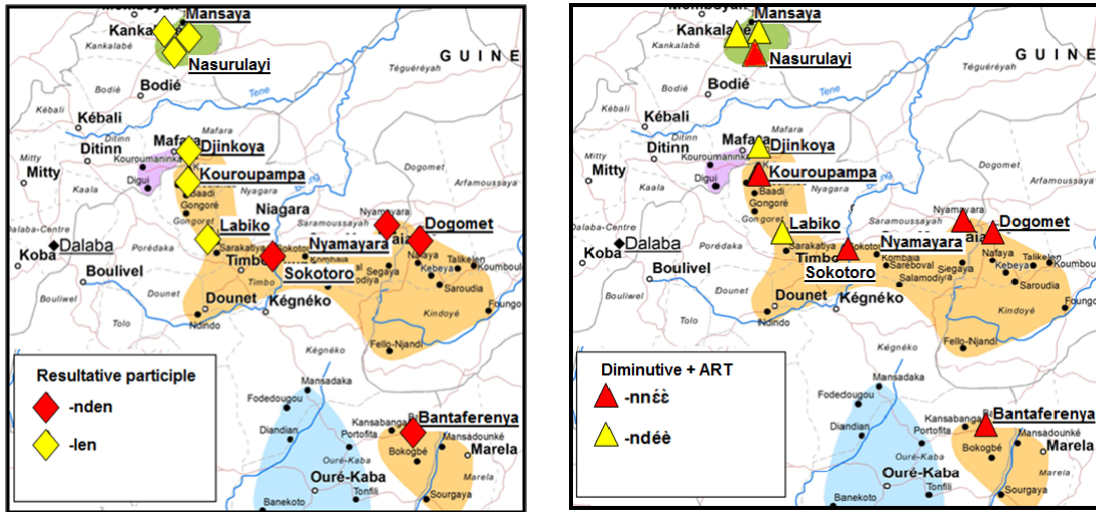


Figure 4.1: 1) left: realization of the diminutive suffix with the article; 2) right: marker of the resultative participle

The triangles and diamonds on the map mark two villages from where the data on the allomorphs in question is available. Below the names of these villages are grouped in the three dialects:

NK: Mansaya, Nassouroullayi, Mingiya

WK: Djinkoya, Kourou Pampa, Labiko

CK: Sokotoro, Nyamayara, Dogomet, Bantaferenya

As can be seen on the maps, the distribution of the allomorphs of the resultative participle is geographically continuous: the boundary between the *-nden* and *-len* allomorphs goes between Labiko and Sokotoro villages which corresponds to the division between CK and WK. As for the distribution of the allomorphs *-nnéè* and *-ndéè*, in the west only *-nnéè* is used, whereas in the north-east *-nnéè* villages alternate with *-ndéè* villages. Thus, in the NK area, Kakabe speakers from Nasurulayi use *-nnéè*, whereas their neighbors living one kilometer away in Mansaya use the *-ndéè* allomorph. In the WK zone, in Kourou Pampa the *nd* has

assimilated to *nn*, whereas in Djinkoya to the North and Labiko to the South no assimilation takes place.

At the same time, a closer investigation reveals that in Kourou Pampa the form *-ndéè* is also possible, but is limited to a special phonological context, and, probably, to a special genre. The subcorpus of Kourou Pampa texts contains 44 occurrences of NPs with /*nden-È*/, the latter is realized as *-nnéè* in forty tokens and as *ndéè* in four tokens. All of the *-ndéè* realizations come from the recording during an evening gathering, at which women were telling fairy tales to each other. As is usual for this genre, spoken parts alternate with sung passages. The four tokens with *-ndéè* appear in the sung passages, two occurrences of *kènnédéè* ‘little foot’ and two occurrences *kùnnédéè* ‘little head’. In all four cases *-ndéè* appears after the CVN root. Another aspect to note is that the *nnd* sequence is not simplified to *nd* as it is usually the case for *nnd* sequences, see Section 4.2.7. Thus, in NK and in the other two WK villages, when *-nden* follows N, one of the nasal is deleted, thus, giving *kèn* → *kèndéè*. When no N preceded the diminutive suffix, *-nden* with the article is realized as *-(n)néè* (the standard form for the village). See the half-sung utterance in (4.45) below from the storytelling, where /*kùn-nden-È*/ is realized as *kùnnédéè* but the next diminutive form, /*ɲáa-nden-È*/ is realized as *ɲáa-néè*.

(4.45) [àhíwkúkú àjàwkéké ì mǎɲ **kù:n:déè** jèɲ àhíwkúkú àjàwkéké ì má: **ɲ:áánè** jèɲ]

àhíwkuku àyáwkeke ì mǎa ò kùn-nden-È yén àhíwkuku
 CHNT CHNT 2SG IDENT.NEG 1SG head-DIM-ART see CHNT
 àyáwkeke ì mǎa ò ɲáa-nden-È yén
 CHNT 2SG IDENT.NEG 1SG eye-DIM-ART see
 Ahiwkuku, ayawkeke, haven't you seen my little head? haven't you seen my little eyes?

It should be not by chance that this form which is apparently non-standard for the village, appears in the musical parts of stories. Fairy-tales, and especially the sung refrains in them, is an environment stimulating the usage of marked forms and forms which are considered as more archaic⁴ (on marked forms and genres see Barber (2007), among many others).

Thus, in Kourou Pampa the form with the non-assimilated *d* could have been retained as a marked “archaic” form in songs, whereas in the surrounding WK villages as well as in NK it is still the standard form. It might be the case that such archaic forms are also found in marked genres in the villages of CK, a bigger corpus is needed to find it out.

4. In Kakabe villages storyteller often switch to a different language in the musical refrain, either Pular of Maninka, depending on the village, which is another linguistic way to distinguish the genre.

4.3.3 Participle combined with the article

The participle suffix *-nden* in CK combines with the article in the same way as the diminutive *-nden*, resulting in *-(n)éè*. As for WK and NK, when the participle suffix is *-len*, its combination with the article has the form *-léjè* which corresponds to the regular way of the realization of the article mentioned just above ($VN + -\acute{E} \rightarrow Vj\grave{e}$). When *-len* is preceded by N and is realized with *d* at the beginning, N at the end of the suffix optionally disappears before the referential article. Thus, it is realized either as *-dèè* or as *-dèjè*. This is summarized in (4.46) below.

(4.46)	PC.ST	+ART		
	WK, NK	<i>-nden</i>	+ \acute{E}	\rightarrow <i>-nnéè</i>
	CK	<i>-len</i>	+ \acute{E}	\rightarrow <i>-léjè, djèjè ~ déè/ N_</i>

Below are some examples:

(4.47)				CK	NK, WK
	CVV	‘give’	<i>kóɔ</i>	\rightarrow <i>kóɔ-néè</i>	<i>kóɔ-léjè</i>
	CVN	‘buy’	<i>sàn</i>	\rightarrow <i>sànnéè</i>	<i>sàn-dèè ~ sàndèjè</i>
	CVNCVN	‘cut’	<i>tége</i>	\rightarrow <i>tégé-nnéè</i>	<i>tégé-léjè</i>
	CVNCVN	‘burn’	<i>bintan</i>	\rightarrow <i>bintán-néè</i>	<i>bintán-dèè ~ bintándèjè</i>

The *-(n)néè* of the resultative participle is associated with the participle form *-nden* which is used only in CK. Therefore it differs in its geographical distribution from the *-(n)néè* of the diminutive suffix, used in CK, Kourou Pampa and Nasurulayi, cf. *bintán-dèè ~ bintándèjè* burn-PC.ST but the diminutive form *gbólinnéè* ‘little branch’ in Kourou Pampa. This correspondence is summarized in Table 4.3 below:

	CK	WK and NK
DIM	<i>-(n)néè</i>	<i>-(n)néè</i> and <i>-(n)dée</i>
PC.STAT	<i>-(n)néè</i>	<i>-léjè, djèjè ~ déè/ N_</i>

Table 4.3: Diminutive suffix and the stative participle suffix combined with the referential article

4.3.4 Deletion of *n* and metrical structure of the stem

As has already been mentioned, in the form *-nnéè* one *n* can be deleted. The distribution of *-néè* and *-nnéè* allomorphs depends, first, on the weight of the immediately preceding syllable,

and, second, on foot parsing. The foot structure counts only if the syllable preceding *-nden* is light:

- (4.48) (a) If the preceding syllable is heavy, *-nden + -È* is realized as *-néè*
 (b) If the preceding syllable is light, and is the second mora of a (full) foot, *-nden + -È* is realized as *-nnéè*
 (c) After a deficient foot *n* is optionally deleted in the realization *-nden + -È*
- | | | | | |
|--------------------------------------|------------------|---|---------------------|--------------|
| <i>-ne</i> after heavy syllable: | <i>-nden + È</i> | → | <i>-néè</i> | / (σ:) _ |
| <i>-nmεε</i> after full binary foot: | <i>-nden + È</i> | → | <i>-nnéè</i> | / (σσ) _ |
| | <i>-nden + È</i> | → | <i>-nnéè</i> | / (σ:)(σσ) _ |
| <i>-ne</i> after deficient foot: | <i>-nden + È</i> | → | <i>-néè ~ -nnéè</i> | / (σσ)σ _ |
| | <i>-nden + È</i> | → | <i>-néè ~ -nnéè</i> | / (σ:)σ _ |

Forms in (4.49) below illustrate Rule (4.48a). As can be seen, *n* is deleted in /nden-È/ after CVV, CVN or CVC syllables.

- | | | | | | |
|------------|----------|----------------|------------|---|--------------------|
| (4.49) CVV | (σ:) | <i>sóo</i> | ‘society’ | → | <i>sóo-néè</i> |
| CVV | (σ:) | <i>náa</i> | ‘eye’ | → | <i>náa-néè</i> |
| CVN | (σ:) | <i>dén</i> | ‘business’ | → | <i>dén-néè</i> |
| CVN | (σ:) | <i>kèn</i> | ‘foot’ | → | <i>kèn-néè</i> |
| CV.CVN | σ(σ:) | <i>gbólin</i> | ‘branch’ | → | <i>gbólin-néè</i> |
| CV.CV.CVN | (σσ)(σ:) | <i>síyaman</i> | ‘numerous’ | → | <i>síyaman-néè</i> |
| CV.CVC | σ(σ:) | <i>vílaz</i> | ‘village’ | → | <i>vílaz-néè</i> |
| CVN.CVC | (σ:)(σ:) | <i>dénkay</i> | ‘boy’ | → | <i>dénkáy-néè</i> |

The combination *-nden + È* is realized with the geminated *nn* after CVCV preceded by a foot or a morphological boundary. In *dén-músú-nnéè* (4.50e), CVCV is preceded by a morphological boundary.

- | | | | | | |
|------------|------|----------------|--------------|---|---------------------|
| (4.50) (a) | (σσ) | <i>yégé</i> | ‘fish’ | → | <i>yégé-nnéè</i> |
| (b) | (σσ) | <i>bóló</i> | ‘hand’ | → | <i>bóló-nnéè</i> |
| (c) | (σσ) | <i>fàrà</i> | ‘wetland’ | → | <i>fàrà-nnéè</i> |
| (d) | (σσ) | <i>gbòlò</i> | ‘skin’ | → | <i>gbòlò-nnéè</i> |
| (e) | (σσ) | <i>dénmúsú</i> | ‘young girl’ | → | <i>dénmúsú-nnéè</i> |

In (4.51) below *-nden* is preceded by a light syllable which is grouped into one foot with the preceding light syllable, therefore, again, *nden-È* is realized as *nnéè*.

(4.51)	(σ:)(σσ)	<i>táábáli</i>	‘table’	→	<i>táábáli-nnéè</i>
	(σ:)(σσ)	<i>mónbíli</i>	‘car’	→	<i>mónbíli-nnéè</i>
	(σ:)(σσ)	<i>bááfáli</i>	‘door’	→	<i>bááfáli-nnéè</i>
	(σ:)(σσ)	<i>féétibó</i>	‘clothes’	→	<i>féétibó-nnéè</i>
	(σ:)(σσ)	<i>káálishi</i>	‘money’	→	<i>káálishi-nnéè</i>
	(σσ)(σσ)	<i>bútúbútú</i>	‘little’	→	<i>bútúbútú-nnéè</i>
	(σσ)(σσ)	<i>gòrògòrò</i>	‘scratch’	→	<i>gòrògòrò-nnéè</i>
	(σσ)(σσ)	<i>mísilími</i>	‘Muslim’	→	<i>mísilími-nnéè</i>
	(σσ)(σσ)	<i>sìgìdùlà</i>	‘seat’	→	<i>sìgìdùlà-nnéè</i>

Contrary to the metrical pattern in (4.51), in (4.52) below the stems are parsed in a way that the last light syllable of the root is not included into the preceding foot. Following Rule (4.48c), the diminutive suffix with the referential article is realized as *-néè*.

(4.52)	CV.CV.CV	(σσ)σ	<i>súsété</i>	‘society’	→	<i>súsété-néè</i>
	CVC.CV.CV.CV	(σ:)(σσ)σ	<i>píblísíté</i>	‘advertisement’	→	<i>píblísíté-néè</i>
	CV.CV.CV	(σσ)σ	<i>bárikí</i>	‘grace’	→	<i>bárikí-néè</i>
	CV.CV.CV	(σσ)σ	<i>bùrùgè</i>	‘hillock’	→	<i>bùrùgè-néè</i>
	CV.CV.CV	(σσ)σ	<i>bògòrò</i>	‘lock’	→	<i>bògòrò-néè</i>
	CV.CV.CV	(σσ)σ	<i>màrifà</i>	‘gun’	→	<i>màrifà-néè</i>
	CV.CV.CV	(σσ)σ	<i>dòròkì</i>	‘shirt’	→	<i>dòròkì-néè</i>
	CVV.CV	(σ:)σ	<i>mààkò</i>	‘business’	→	<i>mààkò-néè</i>
	CVV.CV	(σ:)σ	<i>kììbò</i>	‘dream’	→	<i>kììbò-néè</i>

The forms in (4.53) below illustrate a geminated *nn* after roots of the type (σ:)σ:

(4.53)	CVV.CV	(σ:)σ	<i>póósi</i>	‘little’	→	<i>póósi-nnéè</i>
	CVN.CV	(σ:)σ	<i>sóngó</i>	‘price’	→	<i>sóngó-nnéè</i>
	CVV.CV	(σ:)σ	<i>sáákú</i>	‘bag’	→	<i>sáákú-nnéè</i>
	CVV.CV	(σ:)σ	<i>bááré</i>	‘bar’	→	<i>bááré-nnéè</i>

4.3.5 Realization of the diminutive suffix in Western Mande

The diminutive suffix in Mande languages, apparently, goes back to the same common proto-form, **den* ‘child’, see Vydrin (2006: 95-96); Nikitina (ms.). In (4.54) below are represented the forms of the diminutive suffix in several Western Mande languages. As can be seen, in most cases the suffix starts with a nasal, whereas the reconstructed root for ‘child’ does not

contain any nasal at the beginning. Vydrin (2006) proposes that this initial nasal is a reflex of an initial prefix with a diminutive meaning, thus, the diminutive suffix goes back to **n-den* DIM-child. As can be seen in (4.54), apart from Kakabe, the initial *nd* is preserved in Mandinka, Kita Maninka and Lele. In Bamana, Maninka and Kagoro there is a simple *n* at the beginning. In Xasonka the diminutive suffix does not have any initial nasal, one can suppose that, contrary to the other languages, it goes back **den* without the nasal prefix. Finally, in Yalunka the suffix does not contain any nasal at all, and neither does the homophonous noun *dii* ‘child’.

(4.54)	Mandinka	<i>-ndiŋ</i>	
	Kita Maninka	<i>-ndin</i>	(Creissels 2009a: 65)
	Bamana	<i>-ni</i>	
	Maninka	<i>-ne</i>	
	Kagoro	<i>-no</i>	
	Lele	<i>-nde</i>	(Vydrin 2009a: 65)
	Xasonka	<i>-diŋ</i>	
	Yalunka	<i>-dii</i>	(Lüpke 2005: 111)

As has been shown, in Kakabe, the onset of the diminutive suffix, fused with the referential article, transforms from *nd* to *nn* through assimilation, and *nn* transforms to *n* after a heavy syllable or, optionally, after a deficient foot. The *-nV* forms in Maninka, Bamana and Kagoro, apparently, also have evolved due to the simplification of the cluster *-nd*, but it is hard to tell whether any phonotactic parameters were involved in it.

4.4 Realization of C(V) syllables: vowel elision

The vowel elision, e.g. *yéleta* → *yélta* ‘rose’, is one of the central phonotactic processes, defining the segmental and rhythmic outline of the realization of utterances. At the same time, this process is predictable only to a very limited degree which makes its description a challenging task. This section provides an attempt to figure out, what phonological or morphological contexts make the vowel elision more probable, and also to single out cases where it has become fossilized or almost obligatory (see Ohala 1993 on the distinction between real-time and fossilized phonological processes).

One of the examples of such fossilization which has already been described in the grammar sketch (see 2.6.1.7) and is therefore not analyzed here is the realization of focused personal pronouns. To remind the reader, focused forms of personal pronouns, stemming from the

combination of the simple person pronoun with two focus markers *lè*, in NK has been frozen in the form with the penultimate vowel elided, e.g. *illè* 1PL.FOC < **ilè lè*. By contrast, in WK and CK this elision never takes place, e.g. only the realization *i⁺lélè* is possible. Thus, we see the rise of a fused grammatical form in NK.

Section 4.4.5 discusses the tendency to avoid vowel deletion after *n* before a sonorant. This might be related to the fact that N in Kakabe fully assimilates to the following sonorants, and in some cases is deleted (see 4.2.3). Thus, the avoidance of elision prevents a situation which would lead to the loss of segmental distinction.

One more factor which affects the probability of elision is the tonal context, see Section 4.4.6.

Finally, elision can combine with other phonological processes, this is described in the next section (see 4.5).

4.4.1 General case

Vowel elision in Kakabe is the zero realization of a mid-low, mid-high or high vowel after a sonorant consonants.

All underlying syllables of the type Sonorant (*n*, *r*, *w*, *l* and *y*) plus a short non-low vowel can undergo deletion of the nucleus and can be resyllabified as the coda of the preceding syllable.

The onsets with the sonorants *m*, *n* and *ŋ* do not license vowel deletion. Elision does not happen before an intonation break or before any kind of pause. Elision is not possible before onsetless syllables and before the syllabic nasal. When a syllable with a sonorant onset precedes an onsetless syllable, the sonorant retains its position in the onset. It can fuse with the latter but does not undergo vowel reduction:

fěle ‘see’ + à 3SG → [fɛla:]

Not possible: **fěle* + à 3SG → [fɛl.a]

máni COND + à 3SG → [ma.na:]

Not possible: **máni* + à 3SG → mán.a → [ma:] (deletion of N coda preceding a vowel).

4.4.2 Morpheme internal C(V) syllables

When the elision occurs within the boundaries of a lexical morpheme, the glide next to the vowel can end up either in the onset or in the coda.

Vowel deletion creating a coda:

(4.55)	<i>dérefi</i>	~	<i>dérfi</i>	‘be ignorant’
	<i>wèlege</i>	~	<i>wèlge</i>	‘spatula’
	<i>bárika</i>	~	<i>bár.ka</i>	‘grace’
	<i>yérikuntu ~ yérékuntu</i>	~	<i>yér.kuntu</i>	‘chair’
	<i>dòrikí ~ dòroki</i>	~	<i>dòr.ki</i>	‘shirt’
	<i>kùrukélen</i>	~	<i>kùr.kélen</i>	‘machete (a type of)’
	<i>wáreɲikere</i>	~	<i>wáɲnikere</i>	‘roof’

There are only four words which show vowel deletion creating a complex onset:

(4.56)	<i>gàbúruso</i>	~	<i>gà.brúso</i>	‘cemetery’
	<i>jídira</i>	~	<i>jí.dra</i>	‘old woman’;
	<i>ɲáafuyɔn</i>	~	<i>ɲáa.fyɔn</i>	‘blind person’
	<i>síyɔn</i>	~	<i>syɔn</i>	‘bucket’

The vowel elision is common in the second mora of CVCV reduplications, cf. *bárabara* **bárbara* - the low vowel *a* is never deleted

(4.57)	<i>móɾmɔɾ</i>	~	<i>mórmɔɾ</i>	‘wrap’
	<i>bélebele</i>	~	<i>bélbele</i>	‘big’
	<i>fɔlɔ-fɔlɔ</i>	~	<i>fɔlfɔlɔ</i>	‘the very first’
	<i>kórikɔri</i>	~	<i>kórkɔri</i>	‘rust’
	<i>gòrogóro</i>	~	<i>gòrgóro</i>	‘roll’
	<i>jèrɛjɛɛ</i>	~	<i>jèrjɛɛ</i>	‘tremble’
	<i>kínikini</i>	~	<i>kínkini</i>	‘have pity on smb’

In contrast to that, reduction is not possible in the third light root of *mísilimi* ‘Muslim’. It cannot be realized as **mísilmi*, and *màkoroni* ‘spagetti’ cannot be realized as **makorni*.

Apart from the cases of lexical variation in (4.56), deletion never creates a complex onset. The vowel after, and not before the glide, is deleted, forming a syllable with the coda, when any grammatical morpheme and most lexical morphemes are involved.

4.4.3 Vowel deletion at morpheme boundaries

Example (4.58) illustrates vowel deletion in a compound.

(4.58) *bólolakafu* ~ *bóllakafu* ‘contributing together’ < *bólo* ‘hand’ + *la-* CAUS + *káfu* ‘gather’.

In (4.59) the verb-final vowel is deleted before the noun, resulting in a geminate: *yèle* + *lógɔ* → [jèl:óɔ].

(4.59) [kùláà má j:è l:óɔ jòè kà n:à]

kùla-È *máni* *yèle* *lógɔ* *júu-È* *kàn la*
 monkey-ART COND go.up tree trunk-ART top OBL
 When the monkey goes on the top of the tree trunk

Below is the list of grammatical morphemes that frequently occur in the reduced form with the final (or the only) vowel deleted:

(4.60) *ni* - subjunctive auxiliary;

máni - conditional auxiliary;

káni - negative subjunctive auxiliary;

-nu - plural suffix;

lè - focus particle;

-ri - intransitive nominalization suffix;

ànu - 3PL pronoun;

báti - perfective operator focus auxiliary;

béle - negative existential copula.

The markers *béle* and *báti* are unique in that in their case *t* and *l* undergoes full assimilation with the following vowel (after the deletion of the second vowel of the marker). The realization of the reduced *bé'* and *bá'* always results in gemination, e.g. *báti* + C → *báC:*, see Section 3.3.3.1 for examples.

Verbs ending with weak syllables are often realized without their stem-final vowel before the gerund suffix *-la* and the intransitive perfective suffix *-ta*, e.g:

(4.61) *kólo-la ~ kólla* [kól:á] grow-GER

kéle-la ~ kélla [kél:á] call-GER

sórita ~ sórta get.up-PFV.INTR.

fól-ta ~ fólta start-PFV.INTR.

The initial syllable in a lexical morpheme never undergoes deletion (the only exception is *síyən ~ syón* ‘bucket, see Section 4.4.2). Example (4.62) shows that both the second and the third syllable starting from the beginning of the word can be reduced:

(4.62) *bòsor-laa ~ bòsori-laa* ‘flayer (person who flays dead animals)’;

tábirilaa ~ tábirlaa ‘cook’

kàntar-laa ~ kàntári-laa ‘guardian’

sòrla ~ sòri-la wake.up-GER

The deletion cannot occur in two adjacent syllables at the same time, otherwise this would lead to a branching coda which is impossible in Kakabe:

(4.63) (a) *fělerilaa* ‘the one who is watching’ > *fělerla* > **fělr̩la* but *fěle-la ~ fělla*

(b) [má lèl nààtà] vs. *[mall nata]

. *mà lè lè nà-ta*
1PL LG FOC come-PFV.INTR

It’s us who have come

The application of the elision to a sequence of two syllables both of which allow the deletion of the vowel is lexically fixed. In the sequence of two focus particles *lè*, only the first one can be reduced, cf. (4.63 b). In the sequence *le* FOC + *ni* SBJV it is the optative marker that can be reduced:

(4.64) (a) [í lè n:à] vs. *[íl ní nà]

í lè ni nà
2SG LG SBJV come

You would come.

(b) [mà lé n sâ:gí sèné: tò] vs. *[màl ní sâ:gí sèné: tò]

mà lè ni sàagi sènɛ-È tɔ
 1PL LG SBJV go.back field to
 We go back to the field.

A vowel in IP-final position cannot be deleted, cf. (4.65 a) vs.(4.65 b) below:

(4.65) (a) [à bâ: fɛl:à]

à bi à fɛlɛ-la
 3SG be 3SG look-GER
 He is looking at it.

(b) [à kâ: fɛlɛ] but *[à kâ: fɛl#]

à ka à fɛlɛ
 3SG PFV.TR 3SG look
 He looked at it.

4.4.4 Clitics after *nu/ni* syllables

In Kakabe clitics starting with *l* partially assimilate to the coda of the preceding syllable, see Section 4.2.5, e.g. *fɔlɔ-la* start-GER vs. *tólon-na* ‘play-GER’. When such clitics follow a morpheme in its reduced variant, they assimilate with the coda resulting from the deletion, cf. the causative prefix *la- ~ na-* in (4.66 a), the gerund suffix *-la ~ -na* in (4.66 b) and the focus maker *lè ~ dè* in (4.66 c).

(4.66) (a) [mònɛ: má n:ámàgà] ~ [mònɛ: mání lámàgà]

mòni-È máni la-màga
 porridge-ART COND CAUS-move
 When the porridge is being stirred ...

(b) [à bâ: nìn:à] ~ [à bâ: nìnìlà]

à bi à nìni-la
 3SG be 3SG look.for-GER
 He is looking for it.

(c) [à kâ: nán dè] ~ [à kâ: nání lè]

à ka à nání lè
 3SG PFV.OF 3SG insult FOC
 He insulted him.

There is an occasional example where the clitic *lè* is realized as *dè* and the vowel is deleted before the sonorant *l*:

(4.67) [mà báá dònna má kèpê:dlà]

mà bi à dòn-la mà kèn-È-nu lè la
 2PL be 3PL transport-GER 1PL foot-ART-PL FOC OBL
 We walk on foot and carry it.

The [dè] realization in (4.67) is special, first, in that N disappears, after having triggered the occlusive realization of *lè* > *dè* which usually does not happen:

kèpê:nu + lè > kèpê:n + lè > [kèpê:ndè]

Second, the syllable *de* undergoes reduction even though its onset has become an occlusive, and usually the reduction in this case is not possible:

kèpê:n dè + la > [kèpê:dlà]

The *n* coda resulting from the reduction displays the same behavior as an “original” N coda: it assimilates to the onset of the following syllable:

(4.68) [mà m:á dòn] ~ [mà nì má dòn]

mà ni mà dòn
 1PL SBJV 1PL dance
 We would dance.

4.4.5 Realization of the syllables *ni/nu* and the strength of the following onset

The realization of a weak syllable can be influenced by the strength of the consonant which follows it.

For example, the result of a corpus search shows that the 3PL pronoun *ànu* is almost never realized in its reduced form *àn* when it precedes a morpheme starting with *y*: There are 37 occurrences of *ànu* before *y* in the corpus, and it is realized only once as *an*, viz. in the occurrence already represented above in (4.17 a) and repeated below:

(4.69) (a) [à n:á:n jògò fɛ́ n:à]

ànu ni ànu yógo fɛ́n^L la
 3PL SBJV 3PL pay what OBL
 How much do they pay them?

Compared to this, when *ànu* occurs before a syllable starting with *s*, it is pronounced in the reduced form *an* in 70% of the tokens (85 times out of 122) and as *ànu* in 30% of the tokens (37 times out of 122).

When *ànu* occurs before a syllable starting with *l*, it is pronounced in the reduced form *àn* in 9 tokens and as *ànu* in 2 tokens.

	<i>ànu</i>	<i>àn</i>	Total
before <i>s</i>	37	85	122
before <i>l</i>	3	9	12
before <i>y</i>	36	1	37

Table 4.4: Reduced vs. non-reduced from

This tendency to avoid vowel deletion after *n* before a sonorant is not limited to the realization of the pronoun *ànu*. Table 4.5 represents the frequency of occurrence of the reduced and the full form of the plural marker *-nu* before a sonorant compared to all onsets, and, in the lower part of the table the same configuration is shown for the full and reduced forms of auxiliaries *máni*, *ni* and *káni*.

	Reduced form		Full form		Total
<i>-nu</i> PL marker before <i>l, w, y, (r)</i>	0	0%	70	100%	70
<i>-nu</i> PL marker before any other onset	229	22%	796	78%	1025
<i>máni, ni, káni</i> before <i>l, w, y, (r)</i>	17	7%	219	93%	236
<i>máni, ni, káni</i> before any other onset	640	29%	1595	71%	2235

Table 4.5: Vowel deletion before sonorants compared to non-sonorants

Out of the 17 occurrences of the reduced form of the auxiliaries *máni*, *ni* and *káni* before a sonorant, 16 are *máni* > *mán* and one is *káni* > *kán*. The difference between *máni* and *káni* is due to the low frequency of *káni* in general: *káni* occurs only 30 times in the whole corpus, whereas *máni* occurs 486 times. As for the SBJV marker *ni*, it is the most frequent auxiliary (1276) in the corpus and it is pronounced without a vowel in 30% of the occurrences (387).

The absence of the reduced allomorphs of *ni* before sonorants may be due to the fact that the whole morpheme would be lost if it were realized as a reduced form before a sonorant.

As for *máni* and *káni*, a whole syllable is lost, yet not the whole morpheme. The same difference is attested in the case of *ànu* and *-nu*.

Importantly, among the 17 occurrences in which *máni* is reduced before a sonorant, there are none involving the sonorant *y*, but only *w* and *l* (the absence of *r* is not pertinent in this case because this sonorant is in general very rare at the beginning of a morpheme). As shown in Section 4.2.3, sonorants, being weak consonants in general (if we consider the occlusive realization of the preceding N as an indicator of strength, see Section 4.2.3 for discussion), are different in strength compared to each other. When N precedes *l*, *w*, *r*, even if it is not realized as a full-fledged nasal consonant, at least, it lengthens the sonorant or is realized as a vocalic nasalization. As for the position before *y*, N it tends to be deleted from the surface realization without leaving any trace at all.

To sum up, the corpus data shows that the syllables *nu* and *ni* avoid reduction before the sonorants and, especially, before the approximant *y*. This might be related to the fact that before sonorants, especially before the approximant *y*, the underlying N has a weak or none surface representation. We can suppose that the reduction is avoided because otherwise it would lead to the loss of a distinctive segment.

This principle also explains the distribution of the occlusive and non-occlusive realizations of the copula *(b)i* and the auxiliary *(s)i*, as discussed in 4.6.5 and 4.6.6: when a morpheme has a variable realization (one with strong onset and one with weak onset or no onset), the stronger variant is chosen if N precedes it, because otherwise N is lost. Since the notion of consonantal weakness is scalar and not binary, this yields an account for the differences in the frequency of allomorphs before various types of sonorants.

The following section presents one more case where the reduction of the syllables *nu / ni* is blocked, because otherwise it would create a phonotactically undesirable situation.

4.4.6 Vowel elision and tone

The reduction in a C(V) syllable can be blocked by the surface tonal pattern. The C(V) syllable cannot be reduced, when it is the only high tone bearing unit for the high tone resulting from OCP (for the operation of OCP in Kakabe see Chapter 3).

The noun *kàyi* ‘man’ in Examples (4.70 - 4.72) has a lexical low tone (which is underlyingly assigned to the first syllable). When it occurs before another low-tone morpheme, a delimitation H tone appears on the second syllable, cf. (4.70), and no H tone appears if a

morpheme with a H tone follows, cf. (4.72). Thus, the ban on the reduction in (4.70) is due to the avoidance of two tones on syllable.

(4.70) k a y i ‘man’ + f i l a ‘two’ → k a y i f i l a / *k a y f i l a / *k a y f i l a
 L L L H L L LH L L LH L L

(4.71) k a y i ‘man’ + t a n ‘ten’ → k a y i t a n / ^{OK}k a y t a n
 L H L L H L H

(4.72) ‘two slavemen’

j ɔ̃ n k a y i ‘slaveman’ + f i l a ‘two’ → j ɔ̃ n k a y i f i l a / ^{OK}j ɔ̃ n k a y f i l a
 L L L H H L L L H L L

At the same time, there is no absolute ban on the association between one syllable and two tones. Compare Example (4.73), where N is the original underlying coda of the syllable which can host the high tone resulting from the OCP, and Examples (4.74) and (4.75), where the syllable *ni* can become a coda as a result of reduction, but only in the case when it does not host the delimitation H tone.

(4.73) j ɔ̃ n ‘slave’ + f i l a ‘two’ → j ɔ̃ n f i l a [jɔ̃m filà] ‘two slaves’
 L L LH L L

When *n* is not the original coda, then the reduction is avoided:

(4.74) d o n i ‘load’ + f i l a ‘two’ → d o n i f i l a / *d o n f i l a [dɔ̃m filà] ‘two loads’
 L L L H L L LH L L

(4.75) d o n i ‘load’ + t a n ‘ten’ → d o n i t a n / ^{OK}d o n t a n [dɔ̃n tɔ̃n] ‘ten loads’
 L H L L H L H

Thus, the surface realization where one syllable host two distinct tones is acceptable so to say, “by necessity”, when it is prescribed by the underlying level, but avoided where it is possible to avoid it.

In the preceding section we have seen another example of the avoidance of reduction that otherwise would lead to a configuration which is, in principle, possible in the language, but dispreferred due to some other principles. As has been shown, the syllables *nu* / *ni* are almost never reduced when they precede a sonorant which is explained by the fact that nasal codas tend to disappear before sonorants. Thus, if the nasal can remain in the onset and thus be preserved from disappearance, the alternative where it is resyllabified as a coda is avoided.

To sum up, the avoidance of undesirable phonotactic configurations is one of the principles which underlies the realization of C(V) weak syllables.

4.5 Vowel elision and assimilation: reduction of *báti* and *béle*

Elision can combine with other phonological processes. This section analyzes the case of interaction between elision and assimilation. As has been shown in the preceding section, in general, the elision resulting in a stop in coda position is not allowed. Yet, for the focused perfective auxiliary *báti* elision is combined with assimilation, e.g. *báti dòn* \PFV.OF stop\ can be realized as *báddòn*. As I argue, the probability of elision depends on the phonological distance between the two consonants surrounding the target vowel, and the number of features that need to undergo the assimilation. If the consonants differ only in voicing, the elision is very frequent, contrary, for example, to the pair *t* and a *g* differing also by the place of articulation. Interestingly, NK and WK differ in what type of assimilation can be applied, general or only one-feature, and consequently, they differ by contexts that license elision. I analyze the statistical distribution of the variants of reduction of *báti* in the three dialects and propose a diachronic scenario leading to the attested distribution.

This Section described of the reduction of the perfective auxiliary *báti*^(L) and the negative existential copula *béle*^(L) followed by a consonant (the floating L is present in the form of the markers only in NK, see Section 5.8.3). The cases when they are followed by a vowel are discussed in Section 4.6.2).

Two reduction strategies are possible: the second syllable reduction and the first syllable reduction.

The reduction of the second syllable, resulting in the deletion of the final vowel and the assimilation of the last consonant of the marker to the following consonant:

- (4.76) (a) *báti*^(L) + *dòni* ‘send’ → *bá’ dòn* [bá d:òni] NK, WK, CK
 (b) *béle*^(L) + *tànbi* ‘pass’ → *bé’ tànbi* [bé t:àmbi] WK, CK

This process differs from the regular elision observed in Kakabe which was described in the Section 4.4. First, it allows the deletion of a vowel after an occlusive consonant (4.76a), whereas in regular elision this is possible only after a sonorant. Second, the reduction like in (4.76) is accompanied by assimilation of the consonant which end up in the coda (*t* or *l*) with the following consonant. Thus, in (4.76a) *t* assimilates to *d*, and in (4.76b) *l* assimilates to *t*.

The second type is the deletion of the first syllable of the marker, and it is possible only for *báti*. This reduction results in *ti* which can be further reduced to *t’*. Neither *ti* nor *t’* has any underlying tone.

(4.77) $báti^{(L)} + t ànbi$ ‘pass’ $\rightarrow ti\ t ànbi$.

$báti^{(L)} + t ànbi$ ‘pass’ $\rightarrow ti\ t ànbi \rightarrow t\ t ànbi$ [t: àmbì]

The availability of the reduction strategy and the limits of its application depend on the dialect and on the marker. Table 4.6 below summarizes the conditions in which the reduction of the first and of the second syllable of the marker can take place.

		NK	WK	CK
Reduction of the 2nd syll.: (for <i>báti</i> and <i>béle</i>)	$CVCV \rightarrow CVc / _ C$	- / +	+	+
Reduction of the 1st syll.: (for <i>báti</i> only)	$báti \rightarrow ti$ $báti \rightarrow ti \rightarrow t' / _ t$	+	+	-

Table 4.6: Reduction of *báti* and *béle* across the three Kakabe dialects

This distribution can be interpreted as follows. If the sequence resulting from the final vowel deletion can become a geminate, then the last vowel of *báti* and *béle* can be deleted. The gemination can result from assimilation which has different scope across dialects. In WK and CK *l* and *t* which end up in the coda undergo total assimilation to the following consonant⁵. In NK only voicing assimilation is possible. Therefore:

- in WK and CK *báti* and *béle* can undergo the elision of the last vowel in any context
- in NK *báti* can undergo the elision of the last vowel only before *t* or *d*, *béle* can undergo the regular elision of the last vowel

As can be seen, the biggest variety of the reduction types is available for the perfective auxiliary *báti* in WK : it can undergo the reduction of either the first or the second syllable before any consonant. In NK *báti^L* undergo the reduction of either the first or the second syllable, but the second syllable reduction is possible only before the alveolars *t* or *d*. This can be explained in a way that in NK *t* of the auxiliary can assimilate to the following consonant only by the voicing feature.

5. The opposition between total and partial assimilation is understood in the sense of Clements (1985), who describes partial assimilation as the spreading of the class node and total assimilation as the spreading of a feature of the root node.

Finally, in CK the second syllable can be reduced before any consonant, but the first syllable is never deleted.

As for *béle*, its first syllable is never deleted, otherwise, it follows the pattern of *báti*: its last vowel can be reduced before any consonant in CK and WK, whereas in NK this is possible only before *l*. Below I discuss some more examples.

4.5.1 Second syllable reduction in WK and CK

As has been said above, in WK and CK the second syllable can be reduced before any consonant, see 4.78 below:

(4.78) Reduction of *báti* PFV.OF in CK and WK

<i>báti</i> + <i>tàmbi</i> ‘pass’	→	<i>bá’</i> <i>tàmbi</i>	[bá t:àmbì]
<i>báti</i> + <i>dòni</i> ‘send’	→	<i>bá’</i> <i>dòni</i>	[bá d:òni]
<i>báti</i> + <i>yógɔ</i> ‘pay’	→	<i>bá’</i> <i>yógɔ</i>	[bá j(:)ógó]
<i>báti</i> + <i>wúli</i> ‘get up’	→	<i>bá’</i> <i>wúli</i>	[bá w(:)úlí]
<i>báti</i> + <i>nà</i> ‘come’	→	<i>bá’</i> <i>nà</i>	[bá n:à]
<i>báti</i> + <i>rátɛ</i> ‘miss’	→	<i>bá’</i> <i>rátɛ</i>	[bá r:átɛ]
<i>báti</i> + <i>gbándiya</i> ‘fall ill’	→	<i>bá’</i> <i>gbándiya</i>	[bá gb̃:ándiyá]
<i>báti</i> + <i>hálde</i> ‘agree’	→	<i>bá’</i> <i>hálde</i>	[bá h:áldé], cf. (4.81) and (4.80)
<i>báti</i> + <i>áwansə</i> ‘advance’	→	<i>bá’</i> <i>áwansə</i>	[bá ʔ:áwánsə], cf. (4.80).

The negative existential copula *béle* is reduced in the same way, as *báti*:

(4.79) <i>béle</i> + <i>tága-la</i> ‘go-GER’	→	<i>bé’</i> <i>tága</i>	[bé t:ágá]
<i>béle</i> + <i>yógɔ-la</i> ‘pay-GER’	→	<i>bé’</i> <i>yógɔ</i>	[bé j:ógó], etc.

When the reduced form of *báti* is realized before the approximants *y* [j] and *w*, the gemination is optional.

Examples (4.80) and (4.81) illustrate the reduced realization of *báti* before the glottal stop and *h*, respectively.

(4.80) [mà bá ʔ:áwánsə kàr nà:nì dì]

mà báti áwansə kàri náani dí
 1PL PFV.OF advance moth four give
 We paid the advance for four month.

(4.81) [má lè bá h:ák:ílimájà kè]

mà lè báti hákkilimaya ké
 1PL LG PFR experience make
 We've had some experience.

There is one example where the *h* instead of being geminated is preceded by a glottal stop, cf. (4.82).

(4.82) [mà bá ?hó:lí wò là]

mà báti hóli wò la
 1PL PFV.OF believe that OBL
 We believe in it.

4.5.2 Second syllable reduction in NK

In NK the final vowel can be deleted only if it results in immediately adjacent consonants which are the same or differ only by [voiced] feature. Therefore, the final vowel of *báti^L* can be deleted before *t* and *d*, but not before other consonants:

(4.83) Reduction of *báti* PFV.OF in NK

báti^L + t ànbi 'pass' → *bá' t ànbi* [bá t: àmbi]

báti^L + d òni 'send' → *bá' d òni* [bá t: ágá]

báti^L + y ógɔ 'pay' → * *bá' y ógɔ*

báti^L + bìla 'plunge' → * *bá' bìla*, etc.

The final syllable *béle^L* is a sonorant with non-low vowel, therefore it allows regular vowel elision, as in (4.84). Contrary to CK and WK, the *l* in NK never assimilates to the following consonant. Thus, the regular vowel elision is the only available type of reduction for *béle* in NK.

(4.84) [n bél t àmbilà nɔ]

n béle^L t ànbi-la nɔ
 1SG be.NEG pass-GER there
 I won't pass there

There is one example in the NK corpus where *bá'* appears not before *t* or *d* it is represented in (4.85) below.

(4.85) [màafèènu fó **bá** †s:á:mâ: tò]

màafi-È-nu fó báti^L sá-ma à tɔ
 sauce-ART-PL UNIV PFV.OF lie-PASS 3SG in
 And there was already all the sauce on it.

4.5.3 First syllable reduction in WK and NK

As has been said, the first syllable of *báti* can be deleted in WK and NK:

(4.86) *báti^(L) + bila* ‘plunge’ → *ti bila*
báti^(L) + dóni ‘send’ → *ti dóni*, etc.

The already reduced *ti* can drop its vowel before another *t* which results in the gemination of *t*, as in (4.87) and (4.88). This reduction occurred only seven times in WK and eleven times in NK. Elicitation confirmed that it is possible only before *t*.

(4.87) [à t:ó mǝgǝ sàbà] NK

à báti tó mǝgǝ sàba
 3SG PFV.OF remain person three
 There remain three people.

(4.88) [i t:àké í nè:nè bàtà] WK

ì báti ta-ké ì nèene bàta
 2SG PFV.OF REF-come 2SG mother house
 You came back to your mother’s house.

(4.89) [kàtè à: mǝ †t:ólǝnè tá-dò: bòlò] NK

kàtè àwà mǝ lè báti tólon-È ta-dí ò bólo
 now well 1PL LG PFV.OF play-ART REF-give 2PL hand
 Now we leave you the lead in the play

4.5.4 Statistics and possible diachronic scenario

Table 4.7 below shows the frequency of the allomorphs *báti^(L)*, *báti^(L)* and *ti* in WK and in NK, where both the reduction of the first syllable and of the second syllable of the auxiliary is possible.

To begin with, *báti* is realized in its full form in less than one third of its overall occurrences in the records: 17,2% in WK and 30,9% in NK. It should be noted that, in general, these numbers were counted on a corpus which consists mostly of conversations recorded in natural settings. It contains a number of monologues (tales or personal narratives) where the only interlocutor of the speaker is the researcher, whereas WK consists of conversations only, see Appendix C. This minor difference in the genre composition of the two sub-corpora may be responsible for the fact that in NK the proportion of the full realization of *báti* is slightly bigger.

Let's now look at the distribution of the *ti* and *bá'* reduced variants. Since in NK the last vowel can be deleted only before *t* or *d*, it is not surprising that the proportion of the *bá'* realization in this dialect is considerably smaller than that of *bá'* in WK: 7,2% in NK against 28,1% in WK. In WK, where both *bá'* and *ti* are possible before any consonants, *ti* is more frequent than *bá'*: 31,0% of *bá'* and 40,8% of *ti* (or 44,1% if taken together with the *t'* realization).

	WK		NK	
<i>báti^(L)</i>	33	17,2%	168	30,9%
<i>bá'^(L)</i>	54	28,1%	39	7,2%
<i>ti</i>	98	51,0%	330	60,7%
<i>t'</i>	7	3,6%	8	1,5%
Total	200	100,0%	544	100,0%

Table 4.7: The distribution of *báti^(L)* allomorphs in WK and NK

As we can see, both in WK and in NK *ti* is the dominant allomorph, with 51,0% and 60,7%, respectively. The type of the licensing context (only before *t* or *d* vs. before any consonant) does not explain the distribution pattern as a whole. Thus, in WK *ti* and *bá'* are allowed in the same context, yet, *ti* is almost two times more frequent than the second syllable reduction variant *bá'*: 51,0% and 28,1%, respectively.

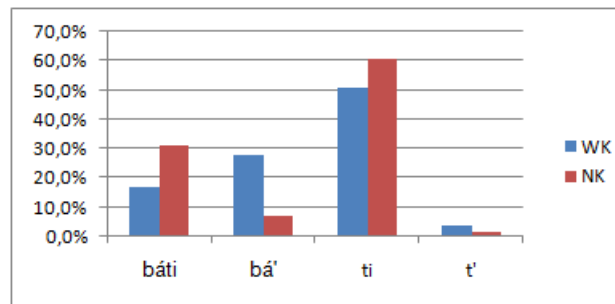


Figure 4.2: The distribution of *bati*^(L) allomorphs in WK and NK

One can imagine the following scenario. Previously, WK showed the same scope of assimilation as in NK: only feature assimilation by voicing was possible for *t* in *bati*, and therefore *ba'* occurred only before *t* and *d*. Further, the assimilation of *t* in *bati* generalized from one-feature to total, and *ba'* has started being used before other consonants, but it is still more frequent in the context by which it was originally licensed. At the same time, *ti* was specialized for context with other following consonants than *t* or *d*. Therefore, one would expect that the traces of this original distribution would be found in a lower frequency of *ba'* before other consonants than *t* and *d*, compared to the frequency of *ti* before not *t* or *d*.

A closer investigation of the examples reveals that, indeed, without being categorically opposed, *ba'* vs. *ti* are 'specialized' on different contexts. The frequency distribution shows that the presence of the following *t* strongly favors the realization with the deleted final vowel. In the WK subcorpus there are 20 utterances where the perfective marker is realized before *t*, and in none of these utterances is it realized as *ti* nor as *bati*. As can be seen on Table 4.8 below, before *t* the perfective marker is realized 13 times as *ba'* in and 7 times as *t'*. At the same time, in elicitation both *ti* and *bati* are allowed before *t* which means that, as least so far, there is no structural ban on the realization of the high *i*, separating two alveolars *t* in this morphological contexts. Though, of course, the numbers are very small, this suggests that the presence of following *t* creates a strong bias for the elision of the final *i* resulting in the gemination.

Western Kakabe				
	/ _ t	/ _ d	other consonants	Total
<i>báti</i>	0	1	32	33
<i>bá'</i>	13	3	38	54
<i>ti</i>	0	1	70	71
<i>t'</i>	7	0	0	7
Total	20	5	158	173

Table 4.8: Realization of *báti* depending on the quality of the following consonant in WK

In the NK subcorpus the perfective marker occurs 62 times before a morpheme starting with *t*. As in WK, the final *i* of the perfective marker tends to disappear between the two *ts*. Out of 62 tokens before *t* the perfective marker is realized without the final *i* 50 times (35 *bá'* and 15 *t'*), and only 12 times with the final *i* (3 *báti^L* and 9 *ti*).

Northern Kakabe				
	/ _ t	/ _ d	other consonants	Total
<i>báti^L</i>	3	9	156	168
<i>bá'^L</i>	35	3	1	39
<i>ti</i>	9	24	298	330
<i>t'</i>	15	0	0	8
Total	62	36	442	544

Table 4.9: Realization of *báti* depending on the quality of the following consonant in NK

A closer look at the nine cases when the perfective marker is realized as *ti* suggest that this realization may be prompted by what happens in the left context. Six out of nine utterances are the cases when *ti* is preceded by *n* coda, as in (4.90) and (4.90) below. Thus, in this case, the reduction to *t'* is avoided because otherwise it would lead to a cluster of three consonants.

(4.90) [bá wòn tí tàràm:á jàn]

bá wò-nu báti tàran-ma yàn
 when that-PL PFV.OF find-PASS
 When they arrived there...

[àn tí tóóró]

ànu báti^L tóoró
 3PL PFV.OF suffer
 They have suffered.

The remaining three cases when the perfective marker is realized as *ti* are presented below, see (4.91 a)-(4.91 c). In (4.91 a) the retention of the vowel is due to a hesitation which is manifest in the lengthening of the vowel, hence [ti:]. In (4.91 c) and (4.91 a), the reduction of *ti* to *t'* may be disfavored by the tonal context, similarly to what was described in the previous subsection (see 4.4.6). Thus, in (4.91 c) the vowel elision would lead to a situation where no mora is available to host H located between to Ls.

(4.91) (a) [à tí: tàlé: jìgà kó: [↑]béŋ kó:bèŋ]

à báti tàli-È jìga kóòben kóòben
 3SG PFV.OF tale-ART take a.lot a.lot
 She has recorded a lot of tales.

(b) [bâ: tí tósà:gà: là bóŋè là]

bá à báti tɔ-sàagi à la bóŋ-È la
 when 3SG PFV.OF REF-go.back 3SG POSS house-ART OBL
 When she returned home...

(c) [i tí tòòná: fɔ́ í bà:bá t:ò:ná: fɔ́]

ì báti tòona-È fɔ́ ì bàaba báti tòona-È fɔ́
 2SG PFV.OF truth-ART say 2SG father PFV.OF truth-ART say
 You said the truth and your father said the truth

To conclude, the final vowel of *báti*^(L) has a strong tendency to drop before *t*, and this tendency is realized only if there are other factors which disfavor the vowel drop.

4.5.5 Summary

In the case of the auxiliary *báti* and, partly, the copula *béle*, elision can be combined with assimilation. The reduced realization of *báti* is strongly dominant over the full realization in speech everywhere in Kakabe. All dialects have the form with the deletion of the final vowel

which, depending on the dialect, is able to undergo different types of assimilation. In NK and WK, apart from the elision of the final vowel, the reduction of the whole first syllable is possible, thus the first-syllable and the second-syllable reduction variants are used one along the other in speech. In NK these variants show a clear-cut phonological distribution: *bá'* occurs only before *t* and *d*, whereas *ti* is reserved for other contexts. In WK *bá'* is possible in all phonological contexts which is due to the fact that *t* in it can undergo total assimilation. Crucially, in WK, though both *ti* and *bá'* are, structurally, possible in any phonological contexts, yet, in speech *bá'* is more frequent before *t* and *d*, contrary to *ti* which almost never occurs in this position. This leads to the hypothesis that the generalization of the assimilation which *t* can undergo has occurred relatively recently, and therefore it is still more frequent in its original phonological context.

4.6 Realization of (C)V and V syllables

This part of the chapter is dedicated to the realization of syllables with no onset or with a weak onset which gives rise to various phonological processes (for the discussion of morpheme internal onsetless syllables see Section 3.3.1.4).

4.6.1 Types of weak onsets and their realization

The same morpheme can have different manners of syllabification. For example, immediately after the sentence-initial interrogative particle *ènèè*, the 2SG pronoun *ì* can be syllabified either in a separate syllable as in (4.92 a), or it can be fused with the preceding particle as in (4.92 b).

(4.92) (a) [èné: è hàk:ilè dí: nùŋ kàràŋ dúlà]

ènèè ì hàkkili-È díi nùn kàran dúlà
 INTERR 2SG mind-ART good PST study SUPIN

Were you clever in your studies? (lit. "Was your mind good for studies?")

(b) [èné: lè bábándúr ké:tá]

ènèè ì lè Bábandur Kéyta
 INTERR 2SG LG N.PR N.PR

Well, Babandur Keyta...

In both these cases *ì* undergoes assimilation.

The third option is a fully autonomous pronunciation of the pronoun, whereby it is pronounced in a separate syllable that has a glottal stop onset which blocks the assimilation:

(4.93) [ɛ̀nɛ̀: ʔí nɛ̀:nɛ̀ nɔ̀:]

ɛ̀nɛ̀ *ì* *nɛ̀nɛ̀* *nɔ̀?*
 INTERR 2SG mother there
 Is your mother there?

In (4.94) the interrogative word *ɛ̀nɛ̀* is itself fused with the last syllable of the adverb *kòtɛ̀* which precedes it, and the pronoun *ì* is merged with *ɛ̀nɛ̀*: *kòtɛ̀ + ɛ̀nɛ̀ + ì* → [kòtɛ̀: nɛ̀:].

(4.94) [kòtɛ̀: nɛ̀: bà:bà ʔà bálɔ̀ndé jàŋ ká: á bá f.àgà]

kòtɛ̀ *ɛ̀nɛ̀* *ì* *bàaba* *à* *bálu-nden* *yàn* *káa* *à*
 now INTERR 2SG father 3SG live-PC.STAT now or.INTERR 3SG
báti *fàga*
 PFV.OF die
 Now, your father, does he live or has he already died?

This section is dedicated to the discussion of how different types of morphemes with a weak onset or no onset interact with the preceding segment. This issue reveals the complexity of the notion of syllable as a part of the phonological representation of a morpheme. It shows that the phonotactic specification as part of the phonological representation should be regarded as a repertoire of possible syllabic realizations, rather than one fixed type of syllable.

4.6.1.1 Types of syllabification and morpheme types

The availability of various syllabification options depends on the type of the morpheme. There are three categories of morphemes with no onset or weak onset that can interact in various ways with the vowel preceding them:

1. copulas *si* and *bi* which can have the onsetless realization *i* as well as the realization with an obstruent onset *s* or *b* respectively
2. vowel-initial morphemes which are realized without onset or with a glottal stop onset depending on their position with respect to the prosodic words boundary. This category includes onsetless pronouns (*à*, *ànu*, *ì* for CK and WK and *à*, *ànu*, *ì*, *ò* for NK) and vowel-initial lexical morphemes.

3. referential article is always onsetless

Table 4.10 represents the possibilities of syllabification of morphemes that have weak onsets or no onset at the beginning, and a vowel preceding it. The columns represent the types of surface realization of the underlying $V_1(C)V_2$:

V.CV the type of syllabification where the morpheme in question is realized with an onset (a glottal stop or a consonant *s* or *b* in the case of the auxiliaries *si* and *bi* respectively);

V.V type of syllabification where V_2 vowel forms a separate syllable but has no onset;

V: type of syllabification where VV is realized as one long vowel within one syllable;

V type of syllabification where V_1 and V_2 are fused into one short vowel.

	V.CV	V.V	V:	V
V + ART	-	+	+	+
V + pron <i>à, ànu</i> or <i>ì</i>	V.ʔV	+	+	-
pron <i>wò</i>	V.ʔV	Vwò	(+)	-
V + <i>bi</i> or <i>si</i>	V.CV	+	-	+
V + vowel-initial word	V.ʔV	+	(+)	-

Table 4.10: Syllabification of heteromorphemic vowel sequences (any kind of vowels)

The realization of each type is described in separate subsections below. The aim of the discussion in this section is to summarize these patterns in order to reveal the common principles of syllabification, and, secondly, to reveal the association between the prosodic behavior of the morpheme and its morphosyntactic properties.

4.6.1.1.1 $V(N)+ART$

The syllabification of the referential article $-È$ depends on the quality of the vowel before the article, and, finally, on the tonal pattern of the noun phrase (see Sections 4.6.1.2 and 4.6.1.4).

(4.95) (a) $V + ART \rightarrow V.V$

tárawo ‘road’ + $-È$ -ART \rightarrow [táráwó.è]

(b) $V + ART \rightarrow V:$

gèrè ‘war’ + $-È$ -ART \rightarrow [gèrê:]

(c) $V + ART \rightarrow V$

bólo + $-È$ -ART \rightarrow [bólè].

When the article is realized after VN, N is palatalized and resyllabified as the onset of the following syllable, e.g. *sànsan* ‘fence’ + *-È* -ART → [sànsá.jè]. As argued in Section 4.6.4.2, the referential article is reconstructed with *y* and has the allomorph *-(y)È* which accounts for the palatalization of N.

4.6.1.1.2 *V + the pronouns à, ànu or ì*

Three types of syllabification are possible for this combination: V.ʔV (4.96 a), V.V (4.96 b), and V: (4.104 a). Section 4.6.2 shows that the type of syllabification depends on the syntactic boundary before the pronoun.

(4.96) (a) $V + V_{\text{pron}} \rightarrow V.ʔV$ / [m̄ mánâ: kílí ʔà sí nà]

ṅ mání à kílí à sí nà
 1SG COND 3SG call 3SG POT come
 When I call him, he will come.

(b) $V + V_{\text{pron}} \rightarrow V.V$ / [ṅ sí jà:fé è mà ñ té: dàmú]

ṅ sí yàafě ì ma ñ téé ì dàmú
 1SG POT forgive 2SG to 1SG NEG.POT 2SG eat
 I will forgive you and I won't eat you.

(c) $V + V_{\text{pron}} \rightarrow V:$ / [fěmfěṅ té: ké: lá dépè là]

fěmfěṅ téé ké ì la déṅ-È la
 nothing NEG.POT do 2SG POSS child-ART OBL
 Nothing will happen with his child.

4.6.1.1.3 *V + 2PL pronoun*

The realization of the 2PL pronoun is a special case because it is realized with a glottal stop when it occurs IP-initially, whereas in the IP-internal position it is pronounced with the approximant *w* in the onset; see 4.6.2.3 for discussion.

4.6.1.1.4 *V + auxiliary*

can be syllabified as V.CV (4.97 a), V.V (4.97 b) and V (4.97 c). The syllabification partly depends on the presence of N coda, see Section 4.6.5.

(4.97) (a) $V + V_{\text{aux}} \rightarrow V.CV$ / [àm b̄ì tá:lá wàyásè là]

ànu bi tága-la wàyas-È la
 3PL be go-GER trip-ART OBL
 They are going on a trip.

(b) $V + V_{aux} \rightarrow V.V$ / [lógè è fàrálá mà bólo ká:]

lógò-È bi fàra-la mà bólo káa
 wood-ART be chop-GER 1PL hand here
 The wood is being chopped by us.

(c) $V + V_{aux} \rightarrow V$ [àní mògê: lè tà:là]

ànu bi mògò-È lè tà-la
 3PL be person-ART FOC take-GER
 They take people.

4.6.1.1.5 $V + \text{lexical morpheme}$

The realization of lexical morphemes with weak onset is structurally similar to the onsetless pronouns. In principle, the same range of syllabification types, available for the onsetless pronouns and the vowel-initial lexical morphemes, namely [V.CV], [V.V] or [V:]. Compare Examples (4.98 a) - (4.98 c) below for the vowel-initial lexical morphemes and Examples (4.96 a) and (4.104 a) for pronouns.

(4.98) (a) $V + V_{lex} \rightarrow V. ?V$ / [mà là ʔàpárántè lè kâ:]

mà lè àparanti-È lè la
 this FOC 2SG POSS apprentice-ART OBL
 This is our apprentice

(b) $V + V_{lex} \rightarrow V:$ / [kè: lí: lá:párántè là]

kè lè ì la ápranti-È la
 this FOC 2SG POSS apprentice-ART OBL
 This is your apprentice

(c) $V + V_{lex} \rightarrow V.V$ / [mà kílàndè ál:à lá m̀ansájà là]

mà kílàn-den àllà la m̀ansaya-È la
 1PL fear-PC.STAT God POSS power-ART OBL
 We fear God's power.

Yet, the frequency of each of these syllabification types is very different for the onsetless pronouns and for the vowel-initial morphemes. As shown in Section 4.6.2, the pronoun occurring after the auxiliaries *si* and *ni* is always fused with the latter. As for nouns starting with a vowel, they are almost always pronounced separately from the auxiliary, as in the surface realization, as in (4.99 a) and (4.99 b), and a glottal stop is present in most cases.

(4.99) (a) [i sí ʔótèni jèŋ]

ì si ótɔ-È-nu yén
 2SG POT car-ART-PL see
 You can see some cars {in their village}.

(b) [i nì ʔárkám] filà tùgún sàli ì nî: là]

ì ni árkan fila tùgun sàli ì ni ì lá
 1SG SBJV prayer.sp two again pray 2SG SBJV 2SG lie
 Then you read a prayer twice and go to bed.

The syllabification of the type [V:] for lexical vowel-initial morphemes, as in (4.98 b), is rare; ⁶ see also Example (4.94) where the interrogative particle *ènèè* is fused with the adverb *kòtèè* preceding it.

There are only two cases in the corpus where the initial vowel of a lexical morphemes triggers the assimilation of the preceding vowel and fuses with it into one long vowel, cf. *nín* + *állà* → [nâ:l:à] in (4.100) and *sì* + *állà* → [sâ:l:à] in (4.101).

(4.100) [à nâ:l:à l ká: lɔŋ]

à nín állà lè ka à lɔn
 3SG and God FOC PFV.TR 3SG know
 He and the God know it.

(4.101) [sâ:l:à kâ: n:à:tì]

sì állà ka ànu nàati
 if God PFV.TR 3PL bring
 If God sends them...

In the following discussion the cases of vowel-initial lexical morphemes are not discussed separately, since structurally, they displays the same behavior as pronouns.

6. It is impossible to make automatic calculations for vowel-initial lexical morphemes in the corpus. Therefore it is difficult to give exact numbers.

4.6.1.2 Syllabification and vowel quality

The second aspect of the realization of underlying vowel sequences is assimilation. The first factor that defines the type of assimilation is the quality of the second vowel, belonging to the potentially onsetless morpheme: *a* is the trigger of assimilation, the pronoun *ì* is the target of assimilation, and the article *-È* is both the target and the trigger of assimilation depending on the context. This is schematized in Table 4.11.

$V_2 = a$	trigger of full assimilation	<i>ni</i> SBJV + <i>a</i> 3SG → [na:]
$V_2 = -È$	target of assimilation by height after <i>a, ε, e, ɔ, o;</i>	<i>táa</i> + <i>-È</i> → [tâ:] ‘fire’ <i>súnwo</i> + <i>-È</i> → [súwòè] ‘nostril’, etc.
	trigger of assimilation for the preceding <i>ì</i> and <i>u</i>	<i>kíli</i> + <i>-È</i> → [kílè] ‘egg’ <i>wáttu</i> + <i>-È</i> → [wát:òè] ‘time’
$V_2 = i$	target of assimilation by height	<i>kó</i> ‘say’ + <i>ì</i> 2SG → [kòè]

Table 4.11: The direction of assimilation in V_1V_2 depending on the quality of V_2

Secondly, the process of assimilation and the process of syllabification can influence each other, in other words, the output of the process can influence the input for the other process. This is manifested in the following:

- The regressive assimilation with *a* as V_2 is compatible only with the tautosyllabic realization of the type [V:].
- By contrast, the progressive assimilation of *i* as V_2 co-occurs both with the tautosyllabic [V:] and the heterosyllabic realization [V.V].
- Neither kind of assimilation takes place when the morpheme is realized with an onset.

This is schematized in Table 4.12.

	V:	V.V	onset
regressive assimilation with <i>a</i> as V_2	+	-	-
progressive assimilation with <i>i</i> as V_2	+	+	-
progressive and regressive assimilation with <i>-È</i> as V_2	+	+	(-)

Table 4.12: Types of vowel assimilation and V_2

4.6.1.2.1 Pronouns *à* and *ànu*

What was said above, suggests that syllabification applies before assimilation; cf. the realization of the sequences involving *a* as V_2 illustrated below:

		Syllabification		Assimilation
	→	ia.	→	a: / ja:
i + a	→	i.a		
	→	i.ʔa		
	→	ua.	→	a:
u + a	→	u.a		
	→	u.ʔa		
	→	ɛa.	→	a: / ja:
ɛ + a	→	ɛ.a		
	→	a:		
a + a	→	a.a		
	→	ea.	→	a:
e: + a	→	e:.a		

Table 4.13: Assimilation triggered by the pronouns *à* and *ànu*

Below are some examples illustrating the realizations of *i + a*.

(4.102) (a) [mám:á lé:rá:là]

mà ni mà léeri à la
 1PL SBJV 1PL swing 3SG OBL
 We swing on it.

(b) [dén:èni wó kitilà lógè là lè kà í sigiá: kùm:à]

dénden-È-nu bi wò kiti-la lógè-È la lè kà ì sigi à
 child-ART-PL be that tie-GER tree OBL FOC INF REFL sit 3SG
kùmma
 on
 Children tie it up to the tree and sit down on it.

(c) [à nâ: nâ:tí à nâ: di fúlà bòlò]

à ni à nàati à ni à dí fùla-È bólo
 2SG SBJV 3SG bring 3SG SBJV 3SG give Fulbe-ART hand
 He has to bring it and to give it to the Fulbe.

(d) [m:ánâ: kíli ʔà sí nà]

ñ máni à kíli à si nà
 2SG COND 3SG call 3SG pot come
 When I call him, he will come.

Below is an example of the realization of $u + a$.

(4.103) [wò ká mònê: làdá:nù jèn]

wò ka mòni-È ladú ànu yen
 2PL PFV.TR porridge-ART prepare 3PL BNF
 You have prepared the porridge for them.

4.6.1.2.2 Pronoun i

The realization of V_1V_2 sequences with i as V_2 is different in two aspects from what has been said about $V+a$ sequences. The first difference, already mentioned above, is that assimilation applies to both tautosyllabic and to heterosyllabic sequences (not separated by a glottal stop). The second difference is due to the fact that since the assimilation is not complete, it can result in a sequence of non-identical vowels. In this case the sequence is re-distributed into two syllables, because Kakabe phonotactics does not allow diphthongs. Thus, for example, the combination $e + i$ becomes ee through assimilation, and can be syllabified either tautosyllabically or heterosyllabically, whereas the combination $o + i$ becomes “ oe ” through assimilation, and can be only heterosyllabic⁷.

7. One of the alternatives to this analysis is to postulate that syllabification is applied after assimilation when V_2 is not a .

	glottal stop assignment		assimilation		syllabification
$e + i$	$\rightarrow eʔi$	\rightarrow	ee	\rightarrow	$e: / e.e$
$o + i$	$\rightarrow oʔi$	\rightarrow	$o\varepsilon$	\rightarrow	$o.\varepsilon$
$\text{ɔ} + i$	$\rightarrow \text{ɔ}ʔi$	\rightarrow	ɔe	\rightarrow	$o.e$
$a + i$	$\rightarrow aʔi$			\rightarrow	$a.i$

	Syllabification	Assimilation	Re-syllabification	Examples
$\epsilon + i$	ϵi	$\rightarrow \rightarrow$	$\epsilon:$	(4.104 a)
	$\epsilon.i$	$\rightarrow \rightarrow$	$\epsilon.\epsilon$	
	$\epsilon.\text{ʔ}i$	\rightarrow		
$o + i$	oi	$\rightarrow \rightarrow$	oe	(4.104 b)
	$o.i$	$\rightarrow \rightarrow$	$o.e$	
	$o\text{ʔ}i$	\rightarrow		
$i + i$	$i:$	\rightarrow		(4.104 c)
	$i.i$	\rightarrow		(4.104 d)
	$i\text{ʔ}i$	\rightarrow		(4.104 e)

Table 4.14: Assimilation involving the pronoun *i*

(4.104) (a) [fɛmfɛn té: kɛ: lá déɲè là]

fɛnfɛn téé ké ì la déɲ-È la
 nothing NEG.POT do 2SG POSS child-ART OBL
 Nothing will happen with his child

(b) [fó è ná: tàbì]

fó ì ni à tábi
 OBLIG 2SG SBJV 3SG cook
 You are obliged to cook.

(c) [ì nî: fàm:ájígí í mé:térnù jèŋ]

ì ni ì fàmmájigi ì méeter-nu yen
 2SG SBJV 2SG respect 2SG teacher-PL BNF
 You respect your teachers.

(d) [hári í bà:bà í kùtâ: sàɲ:à ì jèŋ]

hári ì bàaba bi kùta-È sàɲ-na ì yen
 DISC 2SG father be clothes-ART buy-GER 2SG for
 Your father buys you clothes.

This analysis avoids the necessity to postulate a stage of re-syllabification, yet it forces to split the syllabification with the glottal stop assignment from the other two types of syllabification. Moreover, it widens the difference between the realization of V+a sequences versus V+i sequences. Therefore, in general, this analysis does not seem to be neither more economic nor more intuitive, and since there is no independent evidence for either, I will keep the first analysis.

(e) [i nâ: kiti ʔi nâ: làjá:gé nɔ̃:

i ni à kiti i ni à la-yáage nɔ̃ɔ
 2SG SBJV 3SG attach 2SG SBJV 3SG CAUS-spread there
 You attach it and you leave it there.

Postulating resyllabification also yields a unified account of the situation with the realization of the article, where [o.e] is the only heterosyllabic sequence in the resulting surface realization.

4.6.1.2.3 Referential article

Unlike the pronouns, the referential article $-E$ cannot be realized with a glottal stop (since it never appears IP-initially), and the underlying VV sequence including it is always subject to assimilation.

The realization of the referential article differs in a number of aspects from the preceding two cases. The initial syllabification of V + E sequence is always tautosyllabic, and the [V.V] can only result from re-syllabification applied to vowels that remains non-identical after the application of the assimilation process.

At the same time, the article is a stronger trigger of assimilation in comparison to *i*. Under the circumstances described in Section 4.6.4, the $\text{ɔ}\epsilon$ and $\text{o}\epsilon$ sequences including the article vowel can be assimilated to [ɛ:] or [e:] respectively. Thus the underlying sequence $\text{o} + E$, $\text{ɔ} + E$ or $\text{u} + E$ in certain cases can end up in one syllable in the surface realization.

	syllabification	assimilation	resyllabification
$\text{e} + E$	\rightarrow eE	\rightarrow e:	
$\text{o} + E$	\rightarrow oE	\rightarrow oe \rightarrow e:	\rightarrow o.e
$\text{ɔ} + E$	\rightarrow ɔE	\rightarrow ɔɛ \rightarrow ɛ:	\rightarrow ɔ.ɛ
$\text{u} + E$	\rightarrow uE	\rightarrow oe \rightarrow e:	\rightarrow o.e
$\text{a} + E$	\rightarrow aE	\rightarrow a:	

Table 4.15: Realization of the referential article

Further on, the tautosyllabic output of assimilation undergoes contraction, unless, for metrical and morphological reasons described in Sections 4.6.4 and 5.9.1 a HL tone is assigned to it.

	Syll.	Assim.	Tone	Examples
e + E	→ eE.	→ e:	+ L → è + HL → ê:	<i>kére</i> → [kérè] ‘horn’ <i>màafe</i> → [mà:fê:] ‘sauce’
o + E	→ oE.	→ e:	+ L → è	<i>bólo</i> → [bólè] ‘hand’
			+ HL → ê:	<i>gbòlo</i> → [gbòlê:] ‘skin’
a + E	→ aE.	→ oe	+ HL → ó.è	<i>tárawo</i> → [táráwòè] ‘road’
			+ L → à	<i>káaba</i> → [ká:bà] ‘maize’
			+ HL → â:	<i>dàga</i> → [dàgâ:] ‘pot’

Table 4.16: Phonotactic and tonal of the referential article

4.6.1.3 Vowel length and syllabification.

Since Kakabe does not allow superheavy syllables, when V_1 is a long vowel, the length is lost when it forms one syllable with the following vowel, e.g. *té:* + *i* → [té:]. On the other hand, when it is syllabified as [V.V], the vowel length is preserved, cf. *té:* + *i* → [té:.é], and *móɔ* ‘to be ripe’ + *i* 2SG → [mó:.é].

	VCV	V.V	V:	V (contraction)
V:+ (b)i or (s)i	V:.bi V:.si	V.V	-	V
V: + pron <i>à</i> or <i>i</i>	V:?.V	V:.V	V:	-
V: + ART	-	V.V	V:	-

Table 4.17: Syllabification of heteromorphemic V:-V sequences

4.6.1.4 Realization of N coda before vowel-initial morphemes.

When vowel sequence is divided by an N, the realization of N depends on the syllabification of the underlying syllable and on the morphological category of the morphemes involved. Example (4.105) illustrates how VNV belonging to the same combination of morphemes (*sàn* ‘to buy’ and the pronoun *àn* 3PL occupying the subject position) can be realized differently within the same utterance. The sequence is realized heterosyllabically both times, but in the first instance it is separated by a glottal stop, and thus the nasal is realized as [ŋ], whereas the in the second instance there is no glottal stop onset and the nasal is not realized on the surface.

(4.105) [àn sí gátò sàŋ ʔàn sí bòmboŋ sà àn sí lè:múné sàŋ]

ànu si gátɔ sà̀n ànu si bònbon sà̀n ànu si lèemunɛ sà̀n
 3PL POT cake by 3SG POT sweet buy 3SG POT orange buy
 They can buy a cake, some sweets, an orange.

Example (4.106) illustrates the tautosyllabic syllabification of the vowel of the verb together with the vowel of the pronoun following it and the elimination of N between the two:

(4.106) [àŋ kâ: sǎ: n:á mùsê:nù bòlò]

ànu ka à sà̀n ànu la mùsu-È-nu bólo
 3PL PFV.TR 3SG buy 3PL POSS woman-ART-PL hand
 They bought it for their wives.

Table 4.18 shows the realization of N depending on the syllabification type and the morpheme.

	VCV	V.V	V:	V
VN+ (b)i or (s)i	ŷm.bi ŷn.si	V.V	-	V
VN + pron à or ì	ŷŋ.ʔV	V.V	V:	-
VN + ART	-	V.jɛ	-	-

Table 4.18: Syllabification of heteromorphemic VN-V sequences

Concerning the realization of N, the main difference is between the article and the two other cases. The N coda is realized as the palatal nasal *ɲ* in the onset of the syllable containing the vowel of the article (4.107). As already mentioned, the article appears in the allomorph *yÈ* after the nasal, see Section 4.6.4.2.

(4.107) *kán* ‘neck’ + ART → *káɲè*.

As for the remaining onsetless morphemes, N is deleted from the surface realization, unless they are realized with the glottal stop onset.

The behavior of the referential article in this situation is reminiscent of the realization of clitics. As has been shown in Section 4.2.5, N coda disappears before sonorants in independent morphemes, differently from that, when N occurs before a clitic, the nasality can spread to the onset of the clitic, cf. (4.108).

(4.108) *bán* ‘finish’ + *-la* POSS/GER → *bánna*
̀n 1SG + *yèn* BNF → *ɲnè*.

Thus, the referential article, equally a prosodically dependent morpheme, also allows the spread of nasality, cf. (4.107).

This confirms the hypothesis that there is a connection between the propagation of nasality onto the following morpheme to the right and the level of dependence (prosodic or/and morphosyntactic).

Examples (4.109 a) - (4.111 b) bellow illustrate the realization of N in the three syllabification types of VNV sequences (in addition to the examples (4.105) and (4.106) above, where this is shown on only one verb).

$VN + V \rightarrow V$:

(4.109) (a) [à ká sòbê: jèn ká:má: ká: tòdíjà]

à ka sòbo-È yén káamin à ka à tòdíya
 3SG PFV.TR meat-ART see when 3SG PFV.TR 3SG be.happy
 When he saw the meat he was happy.

(b) [à bá b:â: là kàrápè là]

à báti bán à la kàran-È la
 3SG PFV.OF finish 3SG POSS study-ART OBL
 She finished her studies

$VN + .V \rightarrow V_1.V_2$

(4.110) (a) *bɛn + ɛkɔl* [kà: bɛ̀ ɛ̀kɔ̀l kòè mà]

kà à bèn ɛ̀kɔ̀l kó-È ma
 INF 3SG tell school subject-ART in
 to tell about the school affair.

(b) [wò mán †dó ɛ̀kkól là]

wò máni dòn ɛ̀kɔ̀l la
 2PL COND enter school OBL
 When you come to school...

$VN + ?V \rightarrow \tilde{V}\eta?V_2$

(4.111) (a) [nò:jâ: níŋ ?áŋgál]

nòɔya-È nín ángal
 slavery-ART and poverty
 The slavery and the poverty.

(b) [i ní: bòlò dòn ʔál:à là]

ì ní ì bólo dón àllà la
 2SG SBJV 2SG hand send God OBL
 You rely on God (lit. "You give your hand to God").

The retention and deletion of N before lexical vowel-initial morphemes seems to be more or less equally distributed. Among the 22 occurrences of N in this context, N is realized on the surface in 12 cases and disappears in 10 cases.

4.6.2 Hiatus involving onsetless pronouns and auxiliaries

In the previous section I have given an overview of various aspects accompanying the realization of vowel sequences. This section and the following two sections are dedicated to the description of the realization of onsetless pronouns when they occur in the IP-internal position.

Onsetless pronouns are statistically the most important sources for the creation of an underlying vowel sequence. The current section is dedicated to the description of the realization of various combinations of morphemes with the onsetless pronoun as the second element. This phenomenon occupies a central position in the morphonology of Kakabe, due to the central position of pronouns in the grammar of the language which is reflected in their frequency.

Table 4.19 gives an idea about the frequency of the pronouns in Kakabe speech, and of how widespread are the hiatus situations involving these pronouns. The first column represents the rank of the pronoun among all morphemes in the corpus as compared to the number of their occurrences in the corpus: the 3SG pronoun *à* is the most frequent morpheme, the 3PL pronoun *ànu* is the seventh and the 2SG pronoun *ì* is the eleventh. The second column shows the number of occurrences of the pronouns not at the beginning of an utterance, i.e. the position for potential fusion between the vowel of the pronoun with the preceding syllable. These numbers are approximate, because they are not marked very systematically in the corpus. Nevertheless it gives some idea of the importance of the phenomenon.

	rank by frequency	non-initial (not after pause)	utterance -initial	Total
<i>à</i> 3SG	1	2404 (56%)	1565	3969
<i>ànu</i> 3PL	7	902 (66%)	472	1374
<i>ì</i> 2SG	11	855 (73%)	321	1176

Table 4.19: Occurrences of the onsetless pronouns in corpus

Any syllable preceding the onsetless pronoun and not separated from it by an intonation break is a candidate for fusion, for the following two reasons:

1) All syllables end with a vowel or with an N, and N disappears if the following syllable is onsetless (I don't take into consideration the non-integrated borrowings which are presumably not very important numerically).

2) Vowel deletion is not possible before an onsetless pronoun.

This suggests that hiatus resolution involving the onsetless pronouns is one of the central issues for the description of the utterance realization in Kakabe.

Strategies of hiatus resolution vary across dialects, separating NK from the two other dialects, WK and CK. In WK and CK dialects hiatus can be created by three pronouns: *à*, *ànu* or *ì*. In NK one more pronoun is added, the 2PL pronoun *ò*. Apart from this, in the WK and CK dialects only the vowel *a* belonging to *à* and *ànu* is the trigger of assimilation. By contrast, *ì* is in most cases the target of assimilation in these two dialects. Differently from that, in NK all four pronouns *à*, *ànu*, *ì* and *ò* play the role of assimilation triggers. Therefore, in general, the assimilation in NK is more pervasive in vowel sequences in comparison to the CK and WK dialects.

The most frequent case of a pronoun occurring inside an intonation phrase is when it occupies the DO position (or the position of the possessor inside a DO) after an auxiliary. Sections 4.6.2.1 to 4.6.2.3 provide an account of the situation in the CK and WK dialects, and Section 4.6.2.4 discusses the strategy used for hiatus resolution in NK.

The hiatus resolution involving pronouns in all other syntactic contexts is a more complex problem, involving a lot of variation due to a larger range of both the phonological and syntactic contexts involved. Considering that my corpus for NK dialect provides less possibilities for automatic search, the systematic analysis of hiatus resolution for all syntactic contexts would be very time consuming. For this reason, the data of NK is taken into consideration only in Section 4.6.3, where the realization of onsetless pronouns after other morphemes than the auxiliaries is discussed, and not in Section 4.6.3, where other contexts are discussed.

4.6.2.1 Hiatus resolution in the combination auxiliary + 3SG (CK and WK)

When in V_1V_2 sequence V_2 is the vowel *a* which is the case for the 3SG and 3PL pronouns *à* and *ànu*, V_1 is fully assimilated to *a*. As for the vowel length, all combinations result in a long [a:]. Thus the vowel length contrast is lost between the auxiliaries *máa* (4.112d) and *tée* (4.112f) which have their own long vowel, and other auxiliaries that end with a short vowel. The tonal realization of auxiliaries merged with pronouns is described in Section 5.8.4.1, Chapter 5.

- (4.112) (a) *káni* + *à* → [kána:^L] IMP.NEG
 (b) *ni* + *à* → [ná:^L] SBJV
 (c) *ka* + *à* → [ká:^L] PFV.TR
 (d) *máa* + *à* → [má:^L] NEG.PFV
 (e) *béle* + *à* → [béla:^L] NEG.be
 (f) *tée* + *à* → [tá:^L] NEG.POT

In elicitation, the pronunciation with a glottal stop in the onset of a pronoun and the full form of the auxiliary is always possible. As for the usage, the corpus data shows that the assimilation of the final vowel of the auxiliary before *à* or *ànu* is close to 100% for most auxiliaries. The combination of an auxiliary with the pronouns *à* or *ànu* occurs 1560 times in the corpus. Table 4.20 represents the quantitative distribution between the occurrences where the final vowel of the auxiliary fuses with the pronoun (full assimilation of the final vowel to the vowel of the pronoun) and the number of cases where they are pronounced separately.

		Fused		Separate		Total
<i>béle</i>	NEG.be	54	89%	7	11%	61
<i>tée</i>	NEG.POT	39	89%	5	11%	44
<i>si</i>	POT	155	99%	1	1%	156
<i>bi</i>	be	318	100%	1	0%	319
<i>máni</i>	COND	73	100%	0	0%	73
<i>báti</i>	PFV.OF	149	97%	4	3%	154
<i>káni</i>	NEG.IMP	4		1		5
<i>ni</i>	SBJV	575	99%	3	1%	578
<i>kà</i>	INF	240	100%	0	0%	240
<i>máa</i>	NEG.PFV	84	100%	0	0%	84
Total		1534	90%	122	10%	1241

Table 4.20: Hiatus resolution in the auxiliary + pronoun combination

Figure 4.3 represents graphically the proportion of fused pronunciation of the auxiliary

with the pronoun and the proportion of their separate pronunciation (excluding *káni* which occurs only five times).

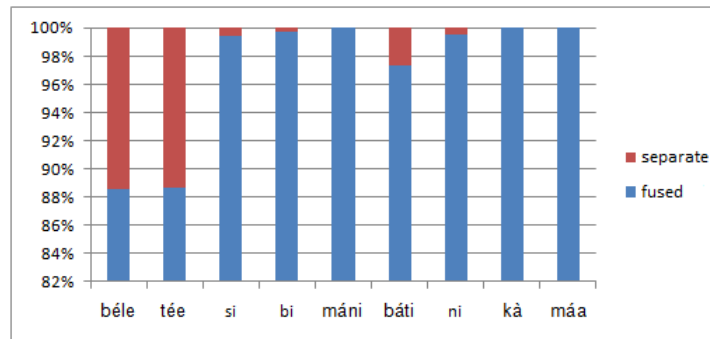


Figure 4.3: Hiatus resolution in the auxiliary + pronoun combination

Apart from auxiliaries *béle*, *téé* and *báti*, all the other auxiliaries are very rarely pronounced separately from the pronoun, and when this is the case, they are always followed by a hesitation pause or/and a hesitation lengthening e.g.:

(4.113) (a) [mà ní: .. ʔǎn dè:mə wálè là]

mà ni ànu dèɛman wáli-È la
 1PL SBJV 3PL help work-ART OBL
 We should help them with their work.

(b) [kìna:nù sí .. ʔà látàmbí mà jèŋ]

kìna-È-nu si à la-tàmbi mà yen
 elder-ART-PL POT 3SG CAUS-pass 1PL BNF
 The elders can simplify it for us.

(c) [n nê:nè lè bí .. ʔà lá kùtâ:nù kò:là]

n nêɛnɛ lè bi à la kùta-È-nu kò-la
 1SG mother FOC be 3SG POSS clothes-ART-PL wash-GER
 It's my mother who washes his clothes.

As for the auxiliaries *béle*, *téé*, *báti* and *káni*, they can be pronounced separately from the pronoun without being followed by any hesitation pause, as in (4.114).

(4.114) [kàlá **báti** à nàfâ: lòm bùtùgùŋ]

kàla báti à nàfa-È lòn bùtúgun
 every PFV.OF 3SG profit-È know now
 Everyone knows what's important for him.

Besides, as can be seen on Figure 4.3, the proportion of cases with the separate pronunciation for *béle*, *tée* and, to a lesser extent for *báti*, is not that insignificant as in the cases of other auxiliaries: 7 cases out of 61 for *béle*, 5 cases out of 44 for *tée*, 4 cases out of 153 for *báti*.

It remains unclear what favors the retention, cf. (4.115 a) where *béle* retains its final vowel, and (4.115 b) where it loses its vowel in a similar context. Similarly, in Example (4.115 c) where the vowel in *tée* is retained in the first clause and assimilated in the second clause.

(4.115) (a) [wò béle ʔànu máyitàlà]

wò béle ànu mayita-la
 2PL NEG.be 3PL sell-GER
 You are not selling them.

(b) [wònù béla:n †tólómálòlà]

wò-nu béle ànu tóloomalò-la
 that-PL NEG.be 3PL listen-GER
 They are not listening.

(c) [ʔàn tá: †nú sɪgì ʔàn té: ʔà l:ò]

ànu tée ànu sɪgì ànu tée ànu lò
 3PL NEG.POT 3PL sit 3PL NEG.POT 3PL stand
 They cannot sit and they cannot stand.

Examples (4.116 a) and (4.116 b) show that the final vowel of *tée* and *béle* can be retained before the 3SG pronoun as well as before the 3PL pronoun.

(4.116) (a) [kó mà té: ʔà lálò]

kó mà tée à la-lò
 say 1PL NEG.POT 3SG CAUS-stand
 They say that we cannot put it there.

(b) [fɛ̀n dè bá: má:lá há: kòtê: àm **béle ʔà** fòlà]

fɛn lè bi à má-la háa kòtèè ànu béle à fɔ-la
 what FOC be 3SG do-GER until now 3PL NEG.be 3SG say-GER
 Why don't they say it now?

The lower frequency of fusion with the pronoun in the case of *tée* and *béle* might be simply due to their final *e*. The slightly different behavior of *báti*, compared to other markers with final *i*, is probably due to its more recent origin as an auxiliary: which most likely originates from the verb form **bán-ta* (*bán* 'finish' + *-ta* perfective intransitive marker).

4.6.2.2 Auxiliary + 2SG in CK and WK

- | | | | | | | |
|-----|-------------|---|----------|---|----------------------------------|---------|
| (a) | <i>béle</i> | + | <i>ì</i> | → | [bélé: ^L] ~ [bélé.è] | NEG.be |
| (b) | <i>káni</i> | + | <i>ì</i> | → | [káni: ^L] | IMP.NEG |
| (c) | <i>ka</i> | + | <i>ì</i> | → | [ká.ì] | PFV.TR |
| (d) | <i>máa</i> | + | <i>ì</i> | → | [má:.ì] | NEG.PFV |
| (e) | <i>tée</i> | + | <i>ì</i> | → | [té: ^L] ~ [té:.è] | NEG.POT |

When the 2SG appears after the auxiliary *ka* or *máa* the sequence is realized heterosyllabically and no assimilation takes place, cf. (4.117).

(4.117) [sà: ká ì tère n:ó: là ?à sí nò é gbàsilà]

sì à ka ì tèren nɔ́o là à si nòn ì gbàsi-la
 if 3SG PFV.TR 2SG find there OBL 3SG POT be.able 2SG beat-GER
 If he finds you there, he can beat you.

If the auxiliary ends with an *ì* and thus V_1 and V_2 are identical (*si* POT, *ni* SBJV, *máni* COND, *báti* PFV.OF, *káni* IMP.NEG), the pronoun is always syllabified together with the (last vowel) of the auxiliary which gives rise to a long [i:]:

(4.118) (a) [àn sí: dè:màŋ]

ànu si ì dɛɛman
 3PL POT 2SG help
 They will help you.

(b) [m:áni: bólókà n:ó: ì té: bilà jê: tò kâ:]

n̄ máni ì bólokà n̄wò ì téé bíla j̄i-È t̄w
 1SG COND 2SG let there 2SG NEG.POT plunge water-ART in
káá?
 INTERR

When I let you go, you won't plunge into the water, will you?

When the pronoun *ì* is preceded by the auxiliaries *tée* or *béle*, the pronoun is assimilated to the vowel of the auxiliary, and it can be pronounced either in the same syllable as the (last) vowel of the auxiliary or in a separate syllable:

béle + *ì* → [bélé.è] ~ [bélé:^L]

tée + *ì* → [té:.è] ~ [te:^L]

(4.119) [àm bélé é bálúlá]

ànu béle ì bálu-la
 3PL NEG.be 2SG feed-GER
 They don't feed you.

(4.120) [i bélé: kùnê: dá:lá wát:óè fò]

ì béle ì kùn-È dá-la wáttu-È fó
 2SG be.NEG 2SG head-ART do-GER time-ART UNIV
 You don't plait your hair all the time.

Thus, after the auxiliary *tée* the vowel of the pronoun occasionally disappears, compare (4.121 a) where *ì* is pronounced as a separate syllable with (4.121 b) and (4.121 c) where it is contracted with [té:] and, consequently, disappears.

(4.121) (a) *té:* + *ì* → *té:.è* [n̄ té: è dámú]

n̄ téé ì dámu
 1SG NEG.POT 2SG eat
 I won't eat you.

(b) *té:* + *ì* → *té:^L* [i **té:** †tólómásò]

ì téé ì tólomasò
 2SG NEG.POT 2SG listen
 You won't listen.

(c) [dó: té: kè n:átùgù kà bè:]

dóo téé ì kèn latùgu kà bèe
 someone NEG.POT 2SG foot hit INF fall
 Cannot a person stumble and fall down?

4.6.2.3 Pronoun $\delta \sim w\delta$ in CK and WK

CK and WK have two homonymous pronouns with the variable realization $\delta \sim w\delta$ which is used either as the 2PL pronoun or as a demonstrative pronoun ‘that’ (which is used both deictically and anaphorically). In both meanings this pronoun displays the same morphological behavior and is characterized by the same range of allomorphs. The distribution of its allomorphs depends on the position of pronoun with respect to the intonation phrase boundaries. The pronoun is pronounced with a glottal stop or with *w* in the onset when it is IP-initial, and it is pronounced almost exclusively with *w* when it is IP-internal. Compare the first and the second realizations of the pronoun (*w*) δ in (4.122) below.

(4.122) [ʔò ká wò tòdíyà ál:à mǎnsá: tùgù jè]?

wò ka wò tòdíya álla mǎnsa-È tǔgun yen
 2PL PFV.TR 2PL be.grateful God chief-ART also BNF
 You are also grateful to God.

The auxiliary and the DO pronoun always belong to the same intonation phrase. Among the 102 occurrences of the 2PL pronoun and the demonstrative $\delta \sim w\delta$ in the DO position in the corpus, only once is it realized with the glottal stop onset, see 4.123 below. The hart onset in this case might be a manifestation of an emphasis.

(4.123) [ǎn dè mǐn:ù bì ʔò nò:lé n:ùŋ]

ànu lè mǐn^L-nu bi wò nò-len nùn
 3PL LG REL-PL be 2PL govern-PC.ST PST
 They are those who used to be your governors.

When $\delta \sim w\delta$ occurs in the object position it is realized five times out of 336 occurrences without the onset and in all five cases it fuses with the preceding auxiliary (for the fusion between auxiliary and pronoun see 4.6.3):

(4.124) (a) [n sò: sǎmbà nání]

ń si wò sàmba nání
 1SG POT 2PL bring.present EMPH
 I will bring a present to you, I will!

(b) [à kó: fòrsè]

à ka wò fòrse
 3SG PFV.TR that force
 He forced her [to do it].

(c) [ń tá:tá ñ kó: máyità miljòn kèlèn]

ń tága-ta ñ ka wò mayita miliyɔn kélen
 1SG go-PFV.INTR 1SG PFV.TR that sell million one
 I went and sold it for one million francs.

(d) [kà wò ká n:átègè kò: ké à là sádákà là]

kà wò kán la-tègɛ kà wò ké à la sádaka-È la
 INF that neck CAUS-cut INF that do 3SG POSS sacrifice-ART OBL
 To kill it and make a sacrifice with it.

4.6.2.4 Realization of onsetless pronouns after auxiliaries in NK

NK attests a different strategy of hiatus resolution for the combinations of auxiliaries with pronouns as compared to the strategy used in the Western and Central dialects.

Table 4.21 represents the realization of the auxiliaries in combination with the onsetless pronouns in NK. As can be seen, in NK the (last) vowel of the auxiliary is assimilated not only before the pronouns *à* and *ànu*, but also before the 2SG pronoun *ì* and before the 2PL pronoun which in NK has the form *ò* (and not *(w)ò* as in Central and Western Kakabe). Importantly for the present discussion, the 2PL pronoun in NK differs not only by the degree of aperture from its analogue in WK and CK, but it also does not have the allomorph with the epenthetic *w* which in CK and WK prevents it from fusing with the preceding auxiliary.

		à 3SG / ànu 3SG	ì 2SG	ò 2PL
<i>ka</i>	PFV.TR	ká:(nù)	kí: ^L	kó: ^L
<i>máa^L</i>	PFV.NEG	má:(nù)	mí: ^L	mó: ^L
<i>béle^L</i>	be.NEG	béla:(nu) ~ bálá:(nù)	béli: ^L ~ bíli: ^L	béló: ^L
<i>tée^L</i>	POT.NEG	tá:(nù)	tí: ^L	tó: ^L
<i>si</i>	POT	sá:(nù)	sí: ^L	só: ^L
<i>báti^L</i>	PFV.OF	bátá:(nù)	bátí: ^L	bátó: ^L
<i>máni^L</i>	COND	máná:(nù)	mání: ^L	mánó: ^L
<i>káni^L</i>	IMP.NEG	káná:(nù)	kání: ^L	kánó: ^L
<i>ni</i>	SBJV	ná:(nù)	ní: ^L	nó: ^L

Table 4.21: Auxiliary + pronoun hiatus resolution in NK

When V_2 in a VV sequence is the 2PL pronoun, the two vowels coalesce (partial assimilation). It results in [ɔ:] when the auxiliary ends with *a*, and in [o:] when the auxiliary ends with the high vowels *e* or *i*.

When the 2PL pronoun occurs after an auxiliary ending with *i* (*si*, *báti^L*, *máni^L*, *káni^L*, *ni*) this combination can be phonetically realized in three ways:

1. [i.ɔ], preservation of VV sequence (4.125 a);
2. [jo:] *i* results in the palatalization of the preceding consonant and ɔ is raised (4.125 b);
3. [o:] *i* is assimilated and ɔ is raised (4.125 c, 4.125 d).

(4.125) (a) [n̄:i ð dònì há: jé: tò]

n̄ ni ð dònì háa j̄i-È tò
 1SG SBJV 2PL carry until water to
 I have to carry you until [we reach] the water

(b) [mò l:è n̄ló: wàk:è]

mò lè lè ni ð wákkε
 1PL LG FOC SBJV 2PL praise
 It's us who have to sing your praises.

(c) [ò kánó: là dé⁺né ǵbàsi kâ:]

		Reduced	Full	Total
<i>béle^L</i>	NEG.be	26	12	38
<i>tée^L</i>	NEG.POT	26	5	31
<i>si</i>	POT	124	0	124
<i>bi</i>	be	246	1	247
<i>máni^L</i>	COND	26	0	26
<i>báti^L ~ ti</i>	PFV.OF	195	2	197
<i>káni^L</i>	NEG.IMP	25	1	26
<i>ni</i>	SBJV	244	3	247
<i>ka</i>	INF	523	1	524
<i>máa^L</i>	NEG.PFV	35	0	35
Total		1472	23	1495

Table 4.22: Hiatus resolution in the auxiliary + pronoun combination in NK

As it can be seen, there are only isolated cases of the separate pronunciation for most auxiliaries. As in the case of CK and WK, here again *tée^L* and *béle^L* are the only auxiliaries that are pronounced separately in a significant number of cases: 12 out of 38 for *béle^L* and 5 out of 31 for *tée^L*. As for *báti^L*, it is pronounced separately only in two occurrences out of 197. Interestingly, in NK the auxiliary *báti^L* is often used in a reduced form *ti* which is absent in CK and WK. Thus the marker of perfective is prosodically weaker in NK than in CK and WK.

(4.127) (a) [í tí: jètè hájfinè]

ì báti^L ì jètè háyfinè
 2SG PFV.OF 2SG self discredit
 You've discredited your name.

(b) [ò tâ: jèŋ ò tí gbé ?à jèŋ]

ò báti^L à yén ò báti^L gbé à yén
 2PL PFV.OF 3SG see 1SG PFV.OF be.clear 2SG BNF
 You see, I told him everything directly.

To conclude, NK attests the universal application of V₁ deletion strategy in hiatus resolution, when an onsetless pronoun follows an auxiliary: the vowel of the auxiliary is fully assimilated to all four onsetless pronouns of the dialect.

V₁ deletion strategy is the most common hiatus resolution strategy typologically, as shown in Casali (1997). Moreover, it is especially expected if V₂ represents a morpheme consisting

only of a vowel. Thus, NK as well as WK and CK are consistent in its conformity to this cross-linguistic tendency.

4.6.3 Onsetless pronouns in other contexts (CK and WK)

As has been shown above, onsetless pronouns fuse with the preceding auxiliary almost always. The fusion is less pervasive in combination with other morphemes. Three factors define the realization of the onsetless pronoun and the preceding morpheme:

1. the syntactic category of the first morpheme, and consequently the type of syntactic boundary which separates the pronoun from the preceding unit;
2. the final vowel of the morpheme preceding the morpheme;
3. the (initial) vowel of the pronoun: *ì* 2SG or *à* for 3SG and 3PL pronouns.

It should be kept in mind that open syllables and syllables with an N coda are equal with respect to hiatus resolution, compare (4.128 a) where *a* fuses with *i*, and (4.128 b), where *a* fuses with *in* (see for discussion Section 4.6.1.4).

(4.128) (a) [àŋ ká **táɲínâ:ŋ** ká **tàɲínâ:** m:â: jèŋ]

<i>ànu</i>	<i>ka</i>	<i>à</i>	<i>taɲini</i>	<i>ànu</i>	<i>ka</i>	<i>à</i>	<i>taɲini</i>	<i>ànu</i>
3PL	PFV.TR	3SG	look.for	3PL	PFV.TR	3SG	look.for	3PL
<i>máa</i>	<i>à</i>	<i>yén</i>						
NEG.PFV.OF	3SG	see						

They were looking for it, they were looking for it, but they didn't find it.

(b) [à bà:bà **ná:** nè:nè]

<i>à</i>	<i>bàaba</i>	<i>nín</i>	<i>à</i>	<i>nè:ne</i>
3SG	father	and	3SG	mother
	her mother and father			

The section is organized as follows. In Sections 4.6.3.1-4.6.3 I discuss the realization of onsetless pronouns in different types of syntactic contexts, where the fusion happens across different types of syntactic and prosodic boundaries. Contrary to section 4.6.2 which discussed the fusion of the onsetless pronouns with the final vowel of auxiliaries, a closed group of morphemes, here the range of morphemes with which the onsetless pronoun can fuse is almost unlimited. This gives an opportunity to systematically look at how the vowel of the

onsetless pronoun are combined with various other vowels. Sections 4.6.3.4 and 4.6.3.4.8 are the illustrative part providing examples of all the possible combinations between the pronouns *à*, *ànu* and *ì*, on the one hand, and every of the seven Kakabe vowels.

4.6.3.1 Phrase initial operators + pronoun

Clause-initial or NP-initial operators often fuse with the pronoun immediately following them, e.g.: the conjunction *sì* ‘if’ and the initial particle *hári* are predominantly pronounced in their fused form, cf. (4.129 a) and (4.129 b).

(4.129) (a) [sà: ká í tètè j:ó: là à sí nò í gbàsilà]

sì à ka ì tètèn jòò la à si nòn ì
 if 3SG PFV.TR 2SG find there OBL 3SG POT be.able 2SG
gbàsi-la
 beat-GER
 If he finds you there, he can beat you

(b) [hár á:n sùndèŋ mà fó: sùndèŋ]

hári ànu sùn-nden mà fóo sùn-nden
 DISC 3PL fast-PC.STAT 1PL UNIV fast-PC.STAT
 Actually, they fast, we all fast.

The connector *nín* ‘and’ which can also be regarded as a type of phrase-initial operator, also frequently fuses with the following pronoun, e.g.:

(4.130) [à bà:bà ná: nè:nè]

à bàaba nín à nènè
 3SG father and 3SG mother
 her mother and her father

Table 4.23 shows the occurrences of fused and separate forms for six most frequent phrase-initial operators not ending with an *a* before the pronouns *à*, *ànu* and *ì*.

	Fused	Separate	Total
<i>nín</i> ‘and’	60	13	73
<i>sì</i> ‘if’	96	2	98
<i>hári</i> topic-discontinuity marker	17	2	19
<i>fó</i> ‘it is necessary that’	0	11	11
<i>kó</i> quotative marker	0	202	202
<i>kòno</i> ‘but’	2	39	41

Table 4.23: Realization of conjunctions before the pronouns *à* and *ànu*

Though the number is not big, we can suppose that the fusion depends on the quality of the last vowel: *i* tends to be fully assimilated whereas *o* and *ɔ* tend to remain intact when they occur before *à*.

Example 4.131 illustrates the fusion between the conjunction *kòno* ‘but’ and the 2SG pronoun *ì*, resulting in a long [ɛ:].

(4.131) [kòné: lè bó:lá sét:ér námájára lè]

kòno ì lè bó-la sétter Námayara lè
 but 2SG LG go.out-GER seven.o.clock Nyamayara FOC
 But you go out from Nyamayara at seven o'clock.

4.6.3.2 The realization of onsetless pronouns after the verbs

The fusion between the final vowel of the verb and the following onsetless pronoun is very widespread.

Table 4.24 compares the number of realizations of the verb in the non-fused, separate form with the fused form in two contexts. The first context is when the pronoun occupies the IO position or constitutes part of IO, and so the verb is not divided from the pronoun by a clause boundary. The next row represents the context where the pronoun occupies the subject position in a different clause (only in those cases when the subject is not preceded by a pause).

	Fused	Separate	Total
Verb before IO pronoun	76	27	103
Verb before Subj pronoun	31	61	92

Table 4.24: Realization of verbs before onsetless pronouns

Table 4.24 shows that the fusion across clause boundary is a rather common phenomenon: it happens in one third of the cases when a verb precedes an onsetless pronoun without a pause between them. Below are some examples.

(4.132) (a) [wò mánâ: lã: bá t:ó: sálè mà]

wò mání à lón à báci tó sáli-È ma
 2PL COND 3SG know 3SG PFV.OF remain holiday-ART to
 When you know that the holiday is approaching...

(b) [wò:n:i jé: sòrã:n:i lógó jínã:n si fẽmfẽ m:á]

wò-nu si jii-È sòri ànu si lógó jini ànu si
 that-PL POT water-ART scoop 3PL POT wood look.for 3PL POT
 fẽnfẽn má
 all do

The would scoop water, they would look for wood, they would do everything.

Roughly speaking, the frequency of fusion is distributed in the following manner:

~3/3: almost always between an auxiliary and a DO pronoun;

~2/3: in two thirds of the cases between the verb and an IO pronoun;

~1/3: in one third of the cases between the verb and a subject pronoun of the following clause, if they are not separated by a pause.

The merger also seems to be very frequent between a matrix verb and the pronoun occupying the position of a DO within its complement, as with the DO of the gerunds in examples (4.133 a)-(4.133 c). It should be noted that examples with a DO onsetless pronoun in a complement clause immediately after a verb are not very numerous. This due to the fact that, unlike gerund clauses, where the DO is not separated from the matrix verb by any morpheme, the other two types of complement clauses have a clause-initial marker. Though there are only 17 examples of such gerund constructions, it is telling that 14 of them show a fusion between the verb and the DO pronoun of the gerund:

(4.133) (a) *súuse* + à [mà té: sú:sâ: ùd:itèlà]

mà téé súuse à úddite-la
 1PL NEG.POT dare 3SG open-GER
 We don't dare to open it.

(b) *nùn* + *à* [mòjén dè bélé í bà:bà jé n:ǎ: n:ègèsòè sà ì jè]

mòyén lè béle ì bàaba yen nùn à ni nègesóo-È
 means FOC be.NEG 2SG father BNF PST 3SG SBJV bicycle-ART
sàn ì yen
 buy 2SG BNF
 Your father didn't have money to buy you a bicycle.

(c) *nùn* + *à* [mà bà:bàn té: sú:sé nà: kì:là]

mà bàaba-nu téé súuse nùn à kí-la
 1PL father-PL NEG.POT dare PST 3SG plant-GER
 Our parents didn't dare to plant it.

(d) *nùn* + *ì* [à bí bantàrà lè dí:lá ì bólo ní: ná: wà kàran dúlà]

à bi bantàrà lè dí-la ì bólo nùn ì ni à
 3SG be manioc-ART FOC give-GER 2SG hand PST 2SG SBJV 3SG
wà kàran dúla
 go study to
 He would give you manioc when you go to study.

(e) *nùn* + *ì* [sì ñ ká: ⁺lú n:i: sì bò kílà kè là]

sì ñ ka à lón nùn ì si bó kílà kè la
 if 1SG PFV.TR 3SG know PST 2SG POT go.out road-ART this OBL
 If I had known that you would come to this road...

4.6.3.4 Possible combinations of *à* and *ànu* with each of the seven vowels

Table 4.27 summarized the possible ways in which the pronouns *à* and *ànu* are realized after different vowels.

V ₁	V ₂	Heterosyllabic realization	Tautosyllabic realization + palatalization	Tautosyllabic realization
a(n)		-	-	a:
ε(n)		ε.a	ja:	a: (~ ε:)
e(n)		e.a	ja:	a:
i(n)	+ à(nu) →	i.a	ja:	a:
u(n)		u.a	-	a:
o(n)		o.a	-	a:
ɔ(n)		ɔ.a	-	a:

Table 4.25: Realization of VV sequences with *a* as V₂

A novelty with respect to the combination with the auxiliary is the strategy with palatalization of the preceding consonant, whereby V₁ is assimilated to V₂ and leaves a trace in the form of the palatalization of the preceding consonant, this strategy has variable realizations depending on the type of the consonant, see 4.6.3.4.8. The choice between V₁ deletion or retention can be lexically specific and at the same time it can depend on the type of boundary between the morphemes. For example, the verb *kó* ‘give’ never fuses with *à* or *ànu* as its indirect object, whereas *fɔ́* ‘say’ most often does.

Examples below illustrate the tautosyllabic realization of the (first) vowel of the pronoun and the (last) vowel of the preceding morpheme.

4.6.3.4.1 *a(n) + a(nu)*

In (4.136) the second instance of the verb *sàn* fuses with the following pronoun *ànu*.

(4.136) [àn sí gátó †sáŋ ʔàn sí bɔ̀mbɔ̀n **sà:ǰn** sí lè:múné sàŋ]

ànu si gátɔ sàŋ ànu si bɔ̀nbɔ̀n sàŋ ànu si lèɛmunɛ sàŋ
 3PL POT cake by 3SG POT sweet buy 3SG POT orange buy
 He can buy a cake, some sweets, an orange.

4.6.3.4.2 *ε(n) + a(nu)*

The segments *ε* and *εn* are almost always fully assimilated to *a*:

(4.137) (a) *yèlɛ + à* → *jèlâ*: [wò ní **jèlâ**: fɛ kɔ̀ŋké: là]

wò ni yèlɛ à fɛ kònkɔ-È la
 2PL SBJV go.up 3SG with mountain-ART OBL
 You go up the mountain with it.

(b) [dó:n:í **fɛtâ**:p:ètè jèn dó:n:í tòli]

dóo-nu ni fɛten ànu jètɛ yen dóo-nu ni tòli
 one-PL SBJV grow 3PL oneself for one-PL SBJV rot
 Some [plants] grow by themselves, and some of them rot.

There are only three examples where *à* undergoes full assimilation itself. All of them are in (4.138 a) - (4.138 c).

(4.138) (a) [kò: **kɛ̃**: là sádákà là]

kà wo ké à la sádaka-È là
 INF that make 3SG POSS sacrifice-ART OBL
 ... and she made a sacrifice with it.

(b) [hári fɛ̃ m:á: **kɛ̃**:n:à]

hári fɛn máa ké ànu là
 DISC thing PFV.NEG do 3PL OBL
 In fact, nothing happened to them.

(c) [nè:nɛ̃: ñj̃n dépnè té:mà]

nèenɛ̃ à ñj̃n dén-È tètɛma
 mother 3SG and child-ART between
 between the child and the mother

4.6.3.4.3 *e (n) + a(nu)*

Verb-final *en* fully assimilates to *a* of the following pronoun in (4.139 a) and (4.139 b).

(4.139) (a) [à: m:á: dép:énè **jâ:nù** kà bólómáfélɛpnè kè]

ànu máa dénjénɛ-È yén ànu ka bólomafɛlɛn-È ké
 3PL NEG.PFV.OF baby.È see 3PL PFV.TR divination-ART do
 They couldn't find the baby, they did some divination

(b) [wǒ ñj̃n gúvérnémá m:á: j̃ngò **jâ:mà** wǒ ñj̃n sòsètɛ má: j̃ngò **jâ:mà**]

wò nín gúverneman máa jógòn yén à ma wò nín
 2PL and government PFV.NEG one.another see 3SG to 2PL and
 sòséte máa jógòn yén à ma
 association-ART IDENT.NEG one.another see 3SG to
 You and the government, haven't you seen each other (on this question), you and
 the society, haven't you seen each other?

The vowel of the focus marker *lè* disappears before *a*, cf. (4.140 a) and (4.140 b).

(4.140) (a) [à l:è dórɔ̀n **ǎ**: bà:bà bòlò]

à lè lè dórɔ̀n lè à bàaba bólo
 3SG LG FOC single FOC 3SG father hand
 He is the only child of his father.

(b) [à ì tá:lá **lá**: ní bilà kòé tò]

à bi tága-la lè à ni bila kòɔ̀-È tɔ
 3SG be go-GER FOC 3SG SBJV plunge river-ART in
 He goes and plunges into the river.

4.6.3.4.4 *i(n) + a(nu)*.

Examples (4.141 a) and (4.141 b) illustrate the disappearance of *ì* and *in* before *a*: in the verb *wúli* 'to start', the connector *nín* 'and', (4.141 a), and in the verb *léeri* 'to swing' (4.141 b).

(4.141) (a) [wò máni wú**lá**: mìn:à wò já:n:à: kólèndè lákùnùn:à]

wò máni wúli à mìn-la wò bi ànu nín à kólo-È-nu
 2PL COND start 3SG drink-GER 2PL be 3PL and 3SG grain-ART-PL
 lè lakùnun-na
 FOC take.out-GER
 When you want to drink it, you take out the grains.

(b) [mám:á **lé**:rá:là]

mà ni mà léeri à la
 1PL SBJV 1PL swing 3SG OBL
 We swing on it.

4.6.3.4.5 $\text{ɔ}(n) + a(nu)$.

In (4.142) ɔ at the end of the verb *tóɔrɔ* ‘bother’ fully assimilates to *a*:

(4.142) [jólè má: dó:dó **tá:rǎ:n** tò]

yólɔ-È *máa* *dóodò* *tóɔrɔ* *ànu* *tɔ*
 tsetse.fly-ART PFV.NEG PERS.PI bother 3PL in
 The tsetse fly didn’t bother anybody among them.

See also examples (4.134 a) and (4.134 b) for the full assimilation of ɔ in the postposition *tɔ*.

(4.143) [mà lá kǎjê: mǎm bǎ: là]

mà *la* *kǎyi-È* *máni* *bó* *à* *la*
 1PL POSS husband-ART COND leave 3SG OBL
 When my husband goes out from there...

4.6.3.4.6 $\text{o}(n) + a(nu)$

In (4.144 a) verb-final *ón* fully assimilates to the following *a*. Example (4.144 b) illustrates the full assimilation of the last vowel of the postposition to the vowel of a pronoun:

(4.144) (a) [kǎ jê: nà:tí kǎ **lǎbá:mà**]

kǎ *jii-È* *nàati* *kǎ* *labòn* *à* *ma*
 INF water bring INF pour 3SG on
 to bring water and to pour it on the thing

(b) [í lè ní sánòè dí dó: **bóla:** lè ní wótè tà]

à *lè* *ni* *sánu-È* *dí* *dóo* *bólo* *à* *lè* *ni* *wótè*
 3SG LG SBJV gold-ART give some hand 3SG LG SBJV money-ART
tà
 take

He gives somebody the gold and he takes the money.

In imperatives with a plural addressee expressed by the pronoun (*w*)ò and containing a third person pronoun as a DO, the vowel *o* of the 2PL pronoun fully assimilates to the following *a* resulting in [wa:]:

(4.145) [wâ: tó mà ní wùlê: tà]

wò à tó mà ní wùlu-È tà
 2PL 3SG let 1PL SBJV dog-ART take
 Please, let's take a dog! (lit. "Allow it that we take a dog!")

4.6.3.4.7 *u(n) + a(nu)*

The plural marker *-nu* can assimilate to *a* or *anu*:

(4.146) [bólókólòṅè n:à déṅèṅ à: n:ḿ fḿn tígè n:à déṅèṅ à:n té: kán lèk:ól tò dé]

bólokolon-È-nu la dén-È-nu ànu nín fḿntígi-È-nu la
 poor-ART-PL POSS child-ART-PL 3PL and rich-ART-PL OSS
 dén-È-nu ànu téé kán lèkkól tò dé
 child-ART-PL 3PL NEG.POT be.equal shool in EMPH
 The children of poor people and the children of rich people are not equal at school.

In (4.147) the verb-final *u* fully assimilates with the following *a*:

(4.147) [wò ká mò:né: làdá:nù jèṅ]

wò ka mòṅni-È ladú ànu yèn
 2PL PFV.TR porridge-ART prepare 3PL BNF
 You have prepared the porridge for them.

4.6.3.4.8 *Palatalization*

As mentioned in Section 3.2.2.4, consonants are palatalized before front vowels, *i*, *e* or *ɛ*. When a front vowel undergoes full assimilation to the following *a*, the palatalization of the consonant may be retained or deleted, as represented in Table (4.26) below.

	Context	Consonants affected
assimilation with the retention of the palatalization of the consonant	$C^jV_{+front} + a \rightarrow C^ja:$ $C^jV_{+front} \rightarrow C^jV_{-front} / _ a$	<i>k</i> and <i>g</i>
both the retention and the deletion of the palatalization of the consonant is possible	$C^jV_{+front} + a \rightarrow C^ja:$ or $Ca:$ $C^jV_{+front} \rightarrow C^jV_{-front} / _ a$ or $CV_{-front} / _ a$	<i>s</i> , <i>r</i> , <i>b</i>
assimilation with the deletion of the palatalization of the consonant	$C^jV_{+front} + a \rightarrow Ca:$ $C^jV_{+front} \rightarrow CV_{-front} / _ a$	<i>t</i> , <i>d</i> , <i>n</i> , ...

Table 4.26: Retention and deletion of palatalization

Whether the palatalization is deleted or retained depends on the quality of the consonant. So far I have found examples of palatalization only for the following consonants: *k*, *g*, *b*, *r* and *s*. Within this group, palatalization is always preserved for the velars *k* and *g*, whereas for *b*, *r* and *s* it can be retained or deleted.

This difference can be explained through switching ordering of two processes: the palatalization conditioned by [+front] feature, and the assimilation of the front vowel to the following *a* which implies the deletion of the [+front] feature⁸.

Thus, for the velars *k* and *g*, the palatalization always precedes assimilation (4.148). Contrary to that, for consonants like the alveolars, *t*, *l*, *n*, assimilation precedes the palatalization (4.149), destroying its environment. Finally, for *b*, *r*, *s* both orders are possible, cf. (4.150a) and (4.150b).

(4.148) underlying *sigi à* sit 3SG
 palatalization *sigⁱì à*
 assimilation *sigⁱ â:*

(4.149) underlying *dòni à* send 3SG
 assimilation *dònâ:*
 palatalization –

8. In terms of McCarthy (2007), this is a switch between bleeding and counter-bleeding order of rules. The assimilation rule bleeds the palatalization rule, since implies the deletion of the [+front] feature which conditions palatalization. But these two processes can be applied in the “counter-bleeding” order: palatalization precedes assimilation, and therefore the former is not canceled by the latter.

- (4.150) (a) underlying kòri à fail 3SG (b) underlying bòri à run 3SG
 palatalization kòrʲi à assimilation bòri à
 assimilation kòrʲ á: palatalization –

Examples (4.151 a)-(4.151 c) illustrate the palatalization of the velar *k* an *g*:

- (4.151) (a) [ŋ kà káŋ kà mɨŋ ⁺kʲá: jè]

n ka kán kà mín^L ké à yen
 1SG PFV.TR be.obliged.to INF REL do 3SG BNF
 ... what I have to do for her...

- (b) [kàjê:nù nâ:n sún tɛgʲá:n dàn:à]

kàji-È-nu ni ànu sún tɛgɛ ànu dàn-la
 man-ART-PL SBJV 3PL fast finish 3PL do.separately-GER
 Men break the fast separately [from women].

- (c) [dɛn:èni wó kitilà ló⁺gé lá lè kà í sɨgʲá: kùm:à]

dénden-È-nu bi wò kiti-la lógɔ-È la lè kà í sɨgi à
 child-ART-PL be that tie-GER tree OBL FOC INF REFL sit 3SG
kùnma
 on
 Children tie it up to the tree and sit down on it.

Apart from the predictable *gʲ*, the velar *g* can be palatalized as [ɟ] or [j], see (4.152 a) and (4.152 b) below.

- (4.152) (a) [ì bá s:à:ɟá: fò:là]

ì bati sàagi à fɔ-la
 2SG PFV.OF return 3SG say-GER
 You have returned to say it.

- (b) [à í sà:ɟá: ⁺fɔmfɔ wò mà]

à si sàagi à fɔnfɔn wò ma
 3SG POT return 3SG track that to
 He will return to his track.

Similarly, the palatalization of *k* can lead a palatal [c], apart from the palatalized [kʲ] cf. (4.153 a).

(4.153) (a) [wò ná: sɛ̃́ há: wò ní **cá**: mà]

wò ni à sɛ̃́n háa wò ni ké à ma
 2PL SBJV 3SG dig until 2PL SBJV reach 3SG to
 You dig it until you can reach it.

The allophones [ɟ] or [j] for *g* and [c] for *k* appear also in the ordinary palatalization context, see Section 3.2.2.2.

Contrary to *k* and *g* which necessarily retain palatalization, for *s*, *r*; *b* I found examples with both the retention and the deletion of the palatalization in my corpus. The three pairs of examples (4.154 a)-(4.154 f) illustrate this possibility for *b*, *s* and *r*, respectively.

(4.154) (a) *bɛ̃n* + *à* → [bʲa:]

[wát:i tò mà mám bó mà ní **bʲá**: n:à]

wátti tɔ mà máni bó mà ni bɛ̃n ànu là
 time in 1PL COND go.out 1PL SBJV meet 3PL OBL
 Sometimes when we go out, we come across them.

(b) [mà ní tàmbâ: là]

mà ni tàmbi à la
 1PL SBJV pass 3SG OBL
 We would pass it.

(c) *ùnse* + *à* → [unsl̥a:] / [ʔó tùmà nɔ̃́ à ní ʔùnsl̥á: mà]

wò tùma nɔ̃n à ni ùnse à ma
 that time DISC 3SG SBJV grown 3SG at
 At that time he started growling at him.

(d) [à ká: ɡbàsà: kó]

à ka à gbàsi à kó
 3SG PFV.TR 3SG beat 3SG say
 He hit him and said: ...

(e) [dó n:i kòrʲá: fà:mùlà]

dó-nu ni kòri à fàamu-la
 some-PL SBJV fail 3SG understand-GER
 Some {people} fail to understand it.

(f) [dó: †n:án bòrà: n:á: wà]

dóo-nu ni ànu bòri ànu ni à wá
 some-PL SBJV 3PL run 3PL SBJV 3SG go
 Some of them run away.

Other consonants never show the retention of palatalization after the deletion of the [+front] feature, as the consonants *d*, *n*, and *l* in (5.232 b)-(4.155 c).

(4.155) (a) *di* + *a* → *da*:

[à n:á: †dǎ:n bòlò]

ànu ni à dí ànu bólo
 3PL SBJV 3SG give 3PL hand
 They give it to them.

(b) *ni* + *a* → *na*:

[ñ ná: dònâ:nù mà]

ñ ni à dònì ànu ma
 1SG SBJV 3SG send 3PL to
 I send it to them.

(c) *li* + *a* → *la*:

[à nì úd:íté mà nì júmà sálâ: tò]

à ni úddite mà ni júma sàli à tó
 3SG SBJV inaugurate 1PL SBJV Friday pray 3SG in
 It [the mosaque] will open and that we pray there on Friday.

4.6.3.5 Possible combinations of *i* with each of the seven vowels

Table 4.27 shows the realization of vowels before the 2SG pronoun *ì*. This time the pronoun is the target of assimilation: *ì* frequently assimilates to the preceding mid-low vowel by height which gives [ɛ:] and [ɔ.ɛ], and [e:] and [o.e]. This kind of assimilation is much less regular than the regressive assimilation in the case of the pronouns *à* and *ànu*. Finally when, the preceding vowel is *a* or *u*, no assimilation takes place.

V ₁	V ₂	Hetertosyllabic realization	Tautosyllabic realization
a(n)		a.i	a: ~ ε:
ε(n)		ε.ε	ε:
e(n)		e.e	e:
u(n)	+ i →	u.i	(i:)
o(n)		o.ε	-
ɔ(n)		ɔ.ε	(ε:)
i(n)		i.i	i:

Table 4.27: Realization of VV sequences with *i* 2SG as V₂

I provide some examples in what follows.

4.6.3.5.1 *i(n) + i*

(4.156) [sà: má: jìgí: lè jètè ní jèlè lógè là]

sì à máa jìgi ì lè jète ni yèlè lógò-È la
 if 3SG PFV.NET descend 2SG LG self SBJV mount tree-ART OBL
 If it doesn't go down, you go up yourself.

4.6.3.5.2 *a(n) + i*

The most frequent realization of the combination is [a.i], as in (4.157).

(4.157) [mògò síjámá ì tólá ì kòmà]

mògò siyaman ì tó-la ì koma
 person numerous be remain-GER 2SG behind
 There are a lot of people behind you.

In some cases *i* disappears through full assimilation to *a*, cf. (4.158)

(4.158) [ì lè bélé jìgíla: bélé jèlèlà]

ì lè béle jìgi-la ì béle yèlè-la
 2SG LG be.NEG go.down-GER 2SG be.NEG go.up-GER
 You don't go down, you don't go up.

Examples (4.159 a) and (4.159 c) illustrate the coalescence between the two vowels, $a + i \rightarrow [\varepsilon:]$, the second minor type of realization of the vowel sequence in question.

(4.159) (a) [wò dórɔ̀n dè bìlàtɛ̀: ɡbà: là]

wò dórɔ̀n lè bìla-ta i gbàa la
 that only FOC follow-PFV.INTR 2SG track OBL
 Only he followed you.

(b) [i ní: sà:rè: lá kinâ: n:à]

i ni i sàra i la kina-È-nu la
 2SG SBJV 2SG say.good.bye 2SG POSS parent-ART-PL OBL
 You would say good bye to your parents.

(c) [ànù fó: sí ⁺nɛ̀: bàtà]

ànu fóo si nà i bàta
 3PL UNIV POT come 2SG at
 They all will come to your place.

4.6.3.5.3 $\varepsilon(n) + i$

(4.160) (a) [kàlà bá k:úmá kà kúmà dɛ̀ndɛ̀ è là bá:rà là]

kàla báti kúma kà kúma-È dɛ̀ndɛ̀ i la báara-È
 every PFV.OF speak INF speech-ART get.into 2SG POSS work-ART
 la
 OBL
 Everyone talked indirectly about their business.

(b) [mà bá b:è è mán dàmu]

mà báti bèn i máa n dàmu
 1PL PFV.OF agree 2SG PFV.NEG 1SG eat
 We have agreed that you won't eat me.

4.6.3.5.4 $\varrho(n) + i$

The pronoun vowel i assimilates by height to the preceding ϱ :

(4.161) (a) [i kâ: lɔ̀ è kâ: lábòjì ká:mìŋ]

ì ka à lón ì ka à la-bòyi káamìn
 2SG PFV.TR 3SG know 2SG PFV.TR 3SG CAUS-fall where
 Do you know where you dropped it?

(b) [i màm **bó** è já: wàlà sàrà mú sáyà]

ì máni bó ì bi à wá-la Sàramúsaya
 2SG COND go.out 2SG be 3SG go-GER TOPON
 When you go out, you go to Saramousaya (name of a town).

4.6.3.5.5 *o(n) + ì*

The pronoun vowel *ì* assimilates by height to *o*:

(4.162) [i **kó** è mán tá: brú sà tò è **kó** è máni kèrénè jèn]

ì kó ì máni tága brúsa-È tò ì kó ì máni
 2SG QUOT 2SG COND go bush-ART in 2SG QUOT 2SG COND
kèren-È yén
 squirrel-ART see
 You say, that when you go to the bush and when you see a squirrel...

(4.163) [fó è ná: tàbi]

fó ì ni à tábi
 NESS 2SG SBJV 3SG cook
 You are obliged to cook.

4.6.3.5.6 *u(n) + ì*

The assimilation of *u* in is lexically specific: it is attested only in the case of the retrospective marker *nùn*, cf. (4.135 d) and (4.135 e).

Otherwise, the vowel sequence is realized as such, e.g.:

(4.164) [súnkútúnè lè **mù í** lè là]

súnkutun-È lè mu ì lè la
 girl-ART FOC IDENT 2SG LG OBL
 You are a girl.

4.6.3.6 *Vowel contraction with onsetless pronouns in Mande languages*

Onsetless pronouns are common and open syllables are the norm across all Mande languages, see Davydov (2010). The hiatus caused by these onsetless pronouns is in most cases resolved by contraction, cf. Malinké Kita (Creissels 2009a: 11-12), Soninke (Creissels 2016: 27-29), Mandinka (Creissels & Sambou 2013: 30-31), Bamana (Diallo 2003 and 2004).

In the descriptions of Malinké Kita, Soninke and Mandinka the question of the hiatus resolution with onsetless pronouns is dealt with rather briefly. In all three cases the contraction is in general similar to what is attested in Kakabe, i.e. rather regular between the auxiliary and a DO pronoun, optional between a verb and an IO pronoun.

Diallo (2004) discusses specifically the question of vowel contraction involving pronouns in Bamana. He provides a large number of examples illustrating the resolution of the hiatus, involving the onsetless pronouns *ì* 2SG, *à* 3SG, *ù* 3PL, the demonstrative *ò*, and onsetless borrowed nouns. The author discusses two main types of syntactic concatenations giving rise to a hiatus: a verb followed by an IO (onsetless pronoun or onsetless noun), and a clause-initial conjunction or discourse particle followed by a pronoun. Morphologically the situation described by Diallo (2004) is close to what I have shown for NK: in a sequence $V_1 V_2$, where V_2 is an onsetless pronoun, V_1 can be deleted before pronoun.

The question of the vowel contraction across a clause boundary is not discussed in any of these descriptions. Neither do they discuss the question of statistical distribution of this type of contraction with respect to the different morphosyntactic contexts.

As I have shown in this section, the cross-clausal contraction is not a marginal phenomenon in Kakabe, and we may suppose that it also occurs in other Mande languages.

4.6.4 **Segmental realization of the referential article**

4.6.4.1 *Overview*

Table 4.28 summarizes the types of changes that final vowels or consonants of the stems undergo when the article is added. The resulting vowel is long if HL tone is assigned to it, see Section 5.9.1.1 for discussion.

a → a	<i>dàga</i> → <i>dàgáà</i> <i>táa</i> → <i>táà</i> <i>bàntara</i> → <i>bàntárà</i> <i>bàlama</i> → <i>bàlàamáà</i>	‘pot’ ‘fire’ ‘manioc’ ‘porcupine’
ε → ε	<i>káyηε</i> → <i>káyηè</i> <i>tée</i> → <i>téè</i>	‘gold’ ‘waist’
e → e	<i>màafe</i> → <i>màaféè</i> <i>kére</i> → <i>kéréè</i>	‘sauce’ ‘horn’
i → e	<i>kíli</i> → <i>kílè</i> <i>dìbi</i> → <i>dìbéè</i> <i>jii</i> → <i>jéè</i>	‘egg’ ‘darkness’ ‘water’
ɔ → ε	<i>bòɔbɔ</i> → <i>bòɔbéè</i> <i>jòlɔkɔ</i> → <i>jòlɔkéè</i>	‘baby’ ‘chain’
ɔ → œ	<i>fěetibɔ</i> → <i>fěetibòe</i> <i>bóɔ</i> → <i>bóè</i>	‘clothes’ ‘burrow’
o, u → e	<i>fóndo</i> → <i>fóndè</i> <i>túlu</i> → <i>túlè</i>	‘millet’ ‘oil’
o → oe	<i>súnwo</i> → <i>súnwoè</i> <i>tàrawo</i> → <i>tàrawóè</i>	‘nostril’ ‘road’
u → oe	<i>wáttu</i> → <i>wáttòe</i> <i>ndòɔku</i> → <i>ndòɔkóè</i> <i>cèku</i> → <i>cèkóè</i> <i>búu</i> → <i>bóè</i>	‘time’ ‘duck’ ‘turtle’ ‘stomach’
Vn → Vηε	<i>sún</i> → <i>súnè</i> <i>fàlin</i> → <i>fàlinè</i>	‘nose’ ‘donkey’
VC → VCe	<i>dòkter</i> → <i>dòktéréè</i>	‘doctor’
VC → VCε	<i>wízit</i> → <i>wízitéè</i>	‘visit’

Table 4.28: Change of the final vowel/syllable of NP after the attachment of the article suffix

4.6.4.2 Underlying form and reconstruction of the referential article

The underlying form of the referential article, transcribed as $-È$, is a front, non-high vowel, underspecified for height. Its height in the realization is defined by the final vowel of the lexical stem; it is formulated in Rule (4.165) below:

(4.165) Height feature of the article:

The vowel of the article $-È$ copies the height feature from the last vowel of the stem, unless the latter is high. If the article immediately follows high vowel, the latter is lowered to mid-high, and the article is also realized as mid-high:

$$\begin{aligned}
 -\dot{E} &\rightarrow a / V_{\text{low}} _ \\
 -\dot{E} &\rightarrow \varepsilon / V_{\text{mid-low}} _ \\
 -\dot{E} &\rightarrow \varepsilon / N _ \\
 -\dot{E} &\rightarrow e / V_{\text{mid-high}} _ \\
 -\dot{E} &\rightarrow e / V_{\text{high}} _
 \end{aligned}$$

$$V_{\text{mid-high}} \rightarrow V_{\text{high}} / -\dot{E}$$

The referential article has the contextual allomorph $-(y)\dot{E}$ where y does not have the properties of syllable onset and is manifested only through the palatalization of the preceding N, e.g. *sún* → *súɲè*.

Kastenholz (1986) reconstructs y in the onset for the referential article for Central Mande⁹.

An interesting pattern of the realization of y is attested in Koranko. In this language, the palatal y surfaces after nasalized vowels (4.166a) and (4.166c) and after long high vowels *ii* and *uu*, (4.166b) and (4.166d), but not after short vowels, see (4.166g).

(4.166) Koranko Kastenholz (1986: 99)

- | | | | | |
|-----|-----|-----------|---|------|
| (a) | fĩ | ‘black’ | → | fĩye |
| (b) | líi | ‘honey’ | → | líye |
| (c) | sú | ‘nose’ | → | súye |
| (d) | sùu | ‘corpse’ | → | sùye |
| (e) | bó | ‘bamboo’ | → | bóe |
| (f) | fóo | ‘failure’ | → | fóe |
| (g) | kú | ‘tail’ | → | kúi |

On the synchronic level, I postulate that the main allomorph does not have any onset. As argued in Section 4.2.5, if y belongs to a suffix or a clitic, the combination Ny is realized as a geminated palatal nasal $\mathfrak{ɲ}\mathfrak{ɲ}$, and not as simple $\mathfrak{ɲ}$. And in other cases N disappears or assimilates to y , see Section 4.2.3.2. Thus, the realization with a simple $\mathfrak{ɲ}$ does not point directly to the presence of y in the onset of the article. Apart from that, y does not manifest itself in any other context in Kakabe. For these reasons, in the current description, I refer to the article as $-\dot{E}$, without indicating the palatal onset, but I agree with Kastenholz that, etymologically, it was a syllable starting with y .

9. He also reconstructs H tone for the article, but as I argue in Section 5.9.1.7, this is based on the erroneous interpretation of the H tone which is inserted before the L of the article, as belonging to the article itself, and show that in Koranko, the tone is floating L.

4.6.4.3 Final back vowels: the general case

When the article is added to a stem ending with a back vowel ɔ , o or u , the resulting vowel is specified by height following Rule (4.165) formulated earlier. Apart from that, the final back vowel can be deleted. Rule (4.167) below formulates the condition in which the stem-final back vowel is deleted when the article $-\dot{E}$ is added:

(4.167) Back vowel deletion

A stem-final back vowel preceded by another back vowel is deleted when article is added to it:

$$V_{\text{back}} \rightarrow \emptyset / V_{\text{back_}} \dot{E}$$

In (4.168) the stem-final back vowel is preserved because is not preceded by any other back vowel:

- (4.168) $\text{ɔ} \rightarrow \text{ɔ}\epsilon$ $f\acute{e}t\text{ib}\text{ɔ} \rightarrow f\acute{e}t\text{ib}\dot{\text{ɔ}}\epsilon$ ‘clothes’
 $u \rightarrow \text{oe}$ $s\grave{a}n\text{aku} \rightarrow s\grave{a}n\text{ak}\dot{\text{o}}\epsilon$ ‘joking kin’
 $o \rightarrow \text{oe}$ $m\acute{a}n\text{go} \rightarrow m\acute{a}n\text{g}\dot{\text{o}}\epsilon$ ‘mango’

The two back vowels, referred to in Rule (4.167), can be either in two separate adjacent syllables, as in (4.169), or in two the same syllable, forming a phonetically long vowel, as in (4.170) and (4.171).

Example (4.169) below illustrates the deletion of the back vowel preceded by another back vowel in a different syllable.

- (4.169) $o \rightarrow \emptyset$ $f\acute{o}n\text{do} \rightarrow f\acute{o}n\dot{\text{d}}\epsilon$ ‘fonio’
 $k\acute{o}l\text{o} \rightarrow k\acute{o}l\dot{\text{e}}$ ‘bone’
 $g\text{b}\acute{o}l\text{o} \rightarrow g\text{b}\acute{o}l\dot{\text{e}}\epsilon$ ‘skin’
 $s\acute{u}n\text{bo} \rightarrow s\acute{u}n\dot{\text{b}}\epsilon$ ‘container’
- $u \rightarrow \emptyset$ $t\acute{u}l\text{u} \rightarrow t\acute{u}l\dot{\text{e}}$ ‘oil’
 $d\acute{u}g\text{u} \rightarrow d\acute{u}g\dot{\text{e}}\epsilon$ ‘earth’
 $l\acute{o}o\text{lu} \rightarrow l\acute{o}o\dot{\text{l}}\epsilon$ ‘five’
 $l\acute{a}b\text{b}\acute{o}r\text{u} \rightarrow l\acute{a}b\text{b}\acute{o}r\dot{\text{e}}$ ‘spear’
- $\text{ɔ} \rightarrow \emptyset$ $b\grave{\text{ɔ}}\text{b}\text{ɔ} \rightarrow b\grave{\text{ɔ}}\dot{\text{b}}\dot{\text{e}}\epsilon$ ‘baby’
 $j\grave{\text{ɔ}}l\text{ɔ}k\text{ɔ} \rightarrow j\grave{\text{ɔ}}l\dot{\text{ɔ}}k\dot{\text{e}}\epsilon$ ‘chain’
 $h\acute{u}r\text{g}\text{ɔ} \rightarrow h\acute{u}r\dot{\text{g}}\dot{\text{e}}$ ‘toilet’
 $s\acute{u}n\text{sunk}\text{ɔ} \rightarrow s\acute{u}n\dot{\text{s}}\dot{\text{u}}n\dot{\text{k}}\dot{\text{e}}$ ‘moustache’
 $m\acute{u}l\text{l}\text{ɔ} \rightarrow m\acute{u}l\dot{\text{l}}\dot{\text{e}}$ ‘bracelet’

As said in Section 3.3.2.2, long vowels do not occur in the final syllable in polysyllabic morphemes. Thus, NP stem can end with a long vowel only if it is a monosyllabic nominal root, as in (4.170) below, or if it ends with a monosyllabic morpheme, as in (4.171) below.

(4.170)	<i>jòɔ</i> → <i>jòê</i>	‘hamac’
	<i>kóɔ</i> → <i>kóê</i>	‘back’
	<i>búu</i> → <i>bóè</i>	‘stomach’
	<i>sùu</i> → <i>sòê</i>	‘corpse’
	<i>kóo</i> → <i>kóè</i>	‘thing’
	<i>sòo</i> → <i>sòê</i>	‘horse’.

(4.171)				
	‘tree trunk’	<i>lógɔ-júu</i>	tree-trunk	→ <i>lógójòè</i>
	‘mango tree’	<i>mángo-júu</i>	mango-trunk	→ <i>mángójòè</i>
	‘thicket along the river bank’	<i>kòɔ-túu</i>	river-thicket	→ <i>kòò-tóè</i>
	‘nostril’	<i>sún-woo</i>	nose-hole	→ <i>sún-wóè</i>
	‘a thing related to writing’	<i>wínde-kóo</i>	write-NMLZ	→ <i>wíndékóè</i>
	‘thing with corn’	<i>káaba-kóo</i>	corn-NMLZ	→ <i>káábákóè</i>
	‘tree trunk’	<i>kònkɔ-tɔɔ</i>	hunger-ATTR	→ <i>kònkòtòè</i>
	‘a person with goiter’	<i>fòrɔ-tɔɔ</i>	goitre-ATTR	→ <i>fòròtòè</i>
	‘breast-feeding mother’	<i>dànka-tɔɔ</i>	breast.feeding-ATTR	→ <i>dànkàtòè</i>
	‘poor person’	<i>tòrɔ-baga-tɔɔ</i>	problem-AG-ATTR	→ <i>tòròbágátòè</i>
	‘the thing with the market’	<i>dénba-tɔɔ</i>	family-ATTR	→ <i>lúúmókóè</i>
	‘obsessed with devil’	<i>jínná-tɔɔ</i>	devil-ATTR	→ <i>jínnátòè</i>

4.6.4.4 Rounded vowel preservation: rules and exceptions

There is a number of exceptions to Rule (4.167), most of which are obvious borrowings:

- (4.172) (a) *lòkɔ* → *lòkóè* ‘plantain’ (sort of banana)
 (b) *tàksimoto* → *tàksimòtòè* ‘motorcycle-taxi’
 (c) *fòto* → *fòtòè* ‘photograph’
 (d) *ndòɔku* → *ndòòkóè* ‘duck’
 (e) *bá(h)aru* → *báhàrè* ‘sea’
 (f) *sàaru* → *sààrèè* ‘cemetery’

Besides, some nouns have variants with and without a rounded vowel:

- (4.173) $m\grave{o}g\omega \rightarrow m\grave{o}g\acute{e}\acute{e} \sim m\grave{o}g\acute{o}\acute{e}$ ‘man’
 $m\grave{o}ndo\omega \rightarrow m\grave{o}nd\acute{o}\acute{e} \sim m\grave{o}nd\acute{e}\acute{e}$ ‘ball, handfull’
 $w\grave{o}rto\omega \rightarrow w\grave{o}rt\acute{o}\acute{e} \sim w\grave{o}rt\acute{e}\acute{e}$ ‘sickle’
 $m\grave{a}r\grave{i}j\acute{a}a\omega\omega \rightarrow m\grave{a}r\grave{i}j\acute{a}a\omega\acute{w}\acute{o}\acute{e} \sim m\grave{a}r\grave{i}j\acute{a}a\omega\acute{w}\acute{e}$ ‘spider’
 $l\acute{o}g\omega \rightarrow l\acute{o}g\acute{e} \sim l\acute{o}g\acute{o}\acute{e}$ ‘tree’
 $d\grave{i}n\eta\omega\omega\omega \rightarrow d\grave{i}n\eta\acute{o}g\acute{o}\acute{e} \sim d\grave{i}n\eta\acute{o}g\acute{e}$ ‘friend’
 $n\acute{o}g\omega \rightarrow n\acute{o}g\acute{o}\acute{e} \sim n\acute{o}g\acute{e}$ ‘dirt’
 $fil\acute{f}ildu \rightarrow fil\acute{f}ild\acute{o}\acute{e} \sim fil\acute{f}ild\acute{e}$ ‘genetta (animal)’
 $w\grave{o}o \rightarrow w\grave{o}\acute{e} \sim w\acute{e}\acute{e}$ ‘hole, burrow’.

4.6.5 Realization of the existential copula *bi*

The existential copula can be used in the progressive, in the stative and in the locative constructions, and depends on a range of syntactic factors. It can have a zero realization or an overt realization, depending on transitivity and on the presence of subject focus, see Section 2.4.

The current section analyzes the morphological behavior of the copula. As has been shown in 4.6.1 at the beginning of this section, the copula *bi* can have onsetless realization *i* which displays phonotactic properties distinguishing it from the 2SG onsetless pronoun *ì*. Here we will discuss it in more detail.

4.6.5.1 Allomorphs of *bi*

The existential copula *bi* has a wide range of possible realizations. Some of these allomorphs can be difficult to distinguish from the copula omission; this problem is discussed in Section 4.6.5.5.

The allomorphs of *bi* can be divided into two major groups: obstruent vs. non-obstruent *bi* allomorphs.

When the copula retains the obstruent onset *b*, it is realized as *bi* if the onset of the following syllable is not empty (a); when it is followed by an onsetless pronoun, it always fuses with the pronoun (b) and (c):

(a)	$bi / _ C$	\rightarrow	[bi]	[à bí mà félélá]	‘He is looking at us’.
				[à bí félélá]	‘He is being watched’.
				[à bí ʔàbíyónè félélá]	‘He is looking at the airplane’.
(b)	$bi + i$	\rightarrow	[bí:]	[à bí: félélá]	‘He is looking at you’.
(c)	$bi + a$	\rightarrow	[bá:]	[à bà: félélá]	‘He is looking at him’
				[à bá:nù félélá]	‘He is looking at them’.

Table 4.29: Realization of *bi* with the retention of the obstruent onset

The deletion of the obstruent onset gives the realization represented in Table 4.30. The copula with the onsetless allomorph fuses with the 2SG pronoun which results in [i:] (b), and when the copula occurs before the pronouns *a* and *anu*, it is realized as the approximant *y* [j] (c).

(a)	$bi / _ C$	\rightarrow	[i]	[à í mà félélá]	‘He is looking at us’.
				[à ì félélá]	‘He is being watched’.
				[à bí ʔàbíyónè félélá]	‘He is looking at the airplane’.
(b)	$bi + i$	\rightarrow	[i:]	[à î: félélá]	‘He is looking at you’.
(c)	$bi + a$	\rightarrow	[já:]	[à já: félélá]	‘He is looking at him’
				[à já:nù félélá]	‘He is looking at them’.

Table 4.30: Realization of *bi* with the deletion of the obstruent onset

4.6.5.2 Assimilation between *i* (< *bi*) and the ending of the subject group

The non-obstruent allomorph *i* of the copula *bi* can undergo assimilation after certain vowels which may result in the total disappearance of the copula from the surface realization. This should be distinguished from the optionality of the copula licensed by syntactic contexts, as described in Section 2.4.

In this subsection I will describe the realization of the non-obstruent allomorph of *bi* depending on the preceding phonological and morphological context. Table 4.31 summarizes the possible realizations of the *i* allomorph of the copula *bi*.

The copula is always preceded by the subject which is most frequently a pronoun or a noun phrase which in its turn can end with an article (final *a*, *ε* or *e*) or a plural marker (final *u*). Apart from that, there is a number of particles that can intervene between the subject and the copula, e.g. *tún* ‘just’, *fóo* ‘all’.

Each of the vowels corresponds to a certain morpheme terminating the subject group, and thus defining the morphological type of the subject. The second column in the table gives the gloss of the morpheme which commonly occur in the subject position and which end with the corresponding vowel. It should be noted that bare nouns almost never occur in the subject position before the copula *bi* (they are much more common, for example, before negative auxiliaries). Thus, the table also gives an idea of how the onsetless copula is realized in different types of common morphological contexts.

V ₁	example of common (final) morpheme of the subject group	VV
ε	ART	ε.ε ~ ε
e	ART, FOC	e.e ~ e
u	PL	u.i ~ i.i ~ i
o	2PL, <i>fóo</i> UNIV	o.e
a(n)	ART/ 3SG/1PL	a.i
ɔ(n)	<i>ɔn, nɔn</i> DISC	ɔ.ε
i(n)	2SG, <i>mín^L</i> REL	i.i ~ i
u(n)	<i>túgun, tún</i>	u.i ~ i.i ~ i
o(n)		o.e

Table 4.31: Realization of VV sequences with $i < bi$ as V₂4.6.5.2.1 $a + i \rightarrow a.i$

(4.174) (a) [mà.í sènɛ: lè kɛ̀là]

mà bi sènɛ-È lè kɛ̀-la
1PL be field-ART FOC do-GER
We work in the field.

(b) [nàfâ: ì bú:tò jɔ̀: là]

nàfa-È ì búùtò jɔ̀: là
profit-ART be inside there OBL
There is profit in it.

4.6.5.2.2 $an + i \rightarrow a.i$

(4.175) [mògò sjàmà ì tó:lá í kó:mà]

m̀̀gɔ siyaman bi t́́ola i ḱ́omà
 person numerous be remain-GER 2SG behind
 There are a lot of people behind you.

4.6.5.2.3 $\text{ɔ} + \text{i} \rightarrow \text{ɔ.ɛ}$ (4.176) (a) [*m̀̀gɔ̀ è sɛ́p:ílà lè*]

m̀̀gɔ bi sɛ́ppi-la lè
 person be go.on.foot-GER FOC
 A person goes on foot.

(b) [*à lógɔ̀ è mà là k̀̀tê: mà nâ: lákà*]

à lógɔ bi mà la k̀̀tée mà ni à láka
 3SG wish be 1PL OBL now 1PL SBJV 3SG open
 Now we want to open it.

4.6.5.2.4 $\text{o} + \text{i} \rightarrow \text{o.e}$ (4.177) (a) [*wò è wúsɛ̀nè sɛ̀n:à*]

wò bi wúsɛ̀n-È sɛ̀n-na
 2PL be yam-ART dig-GER
 You dig yam.

(b) [*mà f́́o è dɛ̀n:à wó lè mà*]

mà f́́o bi dɛ̀n-la wò lè ma
 1PL UNIV be gather-GER that FOC at
 We all gather around it.

4.6.5.2.5 $\text{on} + \text{i} \rightarrow \text{o.e}$ (4.178) (a) [*fɛ̀n dè t́́oló é kélá wò bátá j̀̀n*]

fɛ̀n lè t́́olon i kɛ́-la wò bátá ỳ̀n
 what FOC game be do-GER 2PL at here
 What kind of games are played in your village?

(b) [*kè bó è p̀̀n ká:mì*]

kè b́́on bi p̀̀n káamìn
 that house be there where
 that house which is over there...

4.6.5.2.6 $i + i \rightarrow i.i$

(4.179) (a) [hári wò lá kiná:nì í sènέ:lè kέ:lá]

hári wò la kìná-È-nu bi sènε-È lè kέ-la
 PST 2PL POSS parent-ART-PL be field-ART FOC do-GER
 In the past, your parents worked in the field.

(b) [ì ì tó:lá ì bátá lè]

ì bi tó-la ì bátá lè
 2SG be stay-GER 2SG at FOC
 You stay at your place.

4.6.5.2.7 $\varepsilon + i \rightarrow \varepsilon.\varepsilon$

(4.180) (a) [lógè è fàrálá mà bóló ká:]

lógε-È bi fàra-la mà bólo káa
 wood-ART be chop-GER 1PL hand here
 The wood is chopped by us.

(b) [n:é:nè è jô]

n nèεε bi jó
 1SG mother be there
 My mother is there.

4.6.5.2.8 $e + i \rightarrow e.e$

(4.181) [nìngé è máyitàlà jó:là]

nìngi-È bi mayita-la jó là
 cow-ART be sell-GER there OBL
 The cows are sold there.

4.6.5.2.9 $u + i \rightarrow i.i / u.i$

(4.182) (a) [dén:é:nì ì tólón:á lè]

dénden-È-nù bi tólon-la lè
 child-ART-PL be paly-GER FOC
 The children are playing.

(b) [wònù ì láfililá lè]

wò-nu bi lafilila lè
that-PL be throw-GER FOC
Those are thrown away.

4.6.5.2.10 *un + ì → u.i*

(4.183) (a) [mògɔ̀:n dè tú í nà:là lú:mè tò]

mògɔ̀-È-nu lè tún bi nà-la lúumɔ̀-È tɔ
person-ART-PL FOC only be come-GER market-ART in
Only people come to the market {and not the animals}.

(b) [dó:nù tùgù ì tó:lá ñ kô:mà]

dóo-nu tùgun ì tó-la ñ kồma
some-PL again be remain-GER 1SG behind
Some (students) who are behind me.

4.6.5.2.11 *un + ì → i.i*

(4.184) (a) [dén:ɛ̀n dè tí í kùlà wúlénè dámúlà]

dénden-È-nu lè tún ì kùla wúlen-È dámu-la
child-ART-PL FOC just be monkey red-ART eat-GER
Only children eat red monkey.

(b) [sànda jùman tùgù ì fè]

sànda jùman tùgun bi ì fè
tale which again be 2SG with
What other tale do you have {to tell}?

4.6.5.3 *Contraction between i (< bi) and the ending of the subject group*

When *i* occurs after words ending with *ɛ*, *e* or *i*, the vowel combination can be contracted; compare the clause (a) in (4.185) where the copula is lost after *nèɛnɛ* and is realized in the three other clauses.

(4.185) a.[ènéè ʔí nè:nè jò] – b. [n:è:nè è jò] – c.[í bà:bà ì jò] – d.[m̀ bà:bà ì jò]

ènéè *ì* *nèene* *ɲɔ* *ɲ* *nèene* *bi* *ɲɔ* *-ì* *bàaba* *bi* *ɲɔ*
 INTERR 2SG mother there 1SG mother be there 2SG father be there
-ɲ *bàaba* *bi* *ɲɔ*
 1SG father be there

Is your mother there? b. My mother is here. - c. Is your father here? - d. My father is here.

When the vowel immediately before the copula triggers full assimilation, the sequence can be contracted to a short vowel:

4.6.5.3.1 $i + i \rightarrow i$

(4.186) (a) [ĩ kɔ̃ntɔ̃n:à kámárà]

ì *bi* *kɔ̃nɔ̃n-la* *Kámara*
 2SG be greet-GER N.PR
 They call you Kamara.

(b) [ĩ nà:là kɛ̃n dè tò]

ì *bi* *nà-la* *kɛ̃n* *lè* *tò*
 2SG be com-GER foot FOC in
 You go on foot.

4.6.5.3.2 $\varepsilon + i \rightarrow \varepsilon$

(4.187) (a) [m̃bâ:bà í kàsilà ò:ê:ně kàsilà]

ɲ *bàaba* *bi* *kàsi-la* *ɲ* *nèene* *bi* *kàsi-la*
 1SG father be cry-GER 1SG mother be cry-GER
 My father is crying, my mother is crying.

(b) [dógómé dábóla dùgê: lè tò]

Dógome *bi* *Dábola* *dùgu-È* *lè* *tò*
 TOPON be TOPON land-ART FOC in
 Dogomet is in the prefecture of Dabola.

4.6.5.3.3 $e + i \rightarrow e$

(4.188) (a) [n:á kàyé: bó:lá jàŋ]

n la kàyi-È bi bó-la yàn
 1SG POSS be husband go.out-GER here
 My husband comes from here.

(b) [tíjáriè mà bòlò]

tíjari-È bi mà bólo
 problem-ART be 1PL hand
 We have a problem.

4.6.5.3.4 $u + i \rightarrow i$

(4.189) (a) [àní mògè: lè tà:là]

ànu bi mògɔ-È lè tà-la
 3PL be person-ART FOC take-GER
 They take people

(b) méeteru bi > [mé:tér í] / [í té: tólomásó è **mé:tér í** mím fɔ:lá ì jèŋ]

ì téé ì tólomasɔ ì méeteru bi mín^L fɔ-la ì
 2SG NEG.POT 2SG listen 2SG teacher be what say-GER 2SG
yen
 BNF

You won't listen to what your teacher is telling you.

(c) [mín:í kàrà:n:à]

mín^L-nu bi kàran-na
 REL-PL be study-GER
 those who study

4.6.5.3.5 $un + i \rightarrow i$

(4.190) [wò tí wó bòrbòrlà jó né:tò]

wò tún bi wò bòri bòri-la jó né:tò
 2PL just be 2PL run run-GER there in
 You just run around there.

The question arises whether in cases like (4.186 a) - (4.190) the copula *bi* is present at all.

There are two arguments in favor of interpreting the cases like (4.186 a) - (4.190) as the contraction of the copula with the preceding vowel and not its absence.

As shown in Section 2.4, there are syntactic contexts where *bi* is optional (stative-resultative intransitive construction or when the focus particle is present in the subject group), and the examples above do not correspond to either of these cases.

Secondly, the copula disappears in the surface realization after the vowels *e*, *ε* and *i*, *u* all of which trigger full assimilation of the *i* allomorph, but never after the vowels *a*, *o* or *ɔ* to which it is assimilated only partly.

The case with the vowel *u* preceding the *i* allomorph, as in (4.189 a)-(4.189 c), is very telling in this situation. Here, contrary to the cases with all other vowels, the copula is the trigger of assimilation and the vowel before is the target. The vowel sequence can be realized as [u.i], [i.i] or as [i], but never as [u]. This shows that the variant with a single short vowel is the result of contraction and not of the absence of the copula.

4.6.5.4 Phonotactic differences between *i* of the copula and *ì* of the 2SG pronoun

Although it is hard to notice, the difference between the realizations of the onsetless copula [i] and the 2SG pronoun *ì* described in 4.6.3.4 is important. The 2SG pronoun is realized as the lengthening of the preceding vowel. The allomorph [i] of the copula is assimilated by height to the preceding vowel in the same way as the 2SG pronoun, but, contrary to the pronoun, it remains a different syllable which is manifested in a phonetically different realization.

$\epsilon + \grave{i}$ 2SG	→	[ε:]	vs.	$\epsilon + \text{'be'}$	→	[ε.ε]
$e + \grave{i}$ 2SG	→	[e:]	vs.	$e + i \text{'be'}$	→	[e.e], cf. (4.192)
$i + \grave{i}$ 2SG	→	[i:]	vs.	$i + i \text{'be'}$	→	[i.i], cf. (4.191)
$u + \grave{i}$ 2SG	→	[i:]	vs.	$u + i \text{'be'}$	→	[i.i]

(4.191) [i bí: dògòn:à]

ì *bi* *ì* *dògon-na*
 2SG be 2SG hide-GER
 You are hiding yourself.

(4.192) [wó lě: lô:ndè.è là dépnènu fê]

wò *lè* *bi* *lò-nden* *ì* *la* *dén-È-nu* *fê*
 2PL LG be prepare-PC.STAT 2SG POSS child-ART-PL with
 You prepare food with your children.

In (4.193) the combination of *ì* 2SG + *i* (*bi*) ‘be’ + *ì* 2SG gives [i.i.]:

(4.193) [i.i: kùŋê: dà:là]

ì bi ì kùn-È dá-la
 2SG be 2SG head-ART plait-GER
 You plait your hair (lit.: “You are plaiting your head”).

In (4.194) and (4.195) the combination *ànu* + *bi* + *ì* gives [ani.]:

(4.194) [àní: dè:màn:á wò tò kámà]

ànu bi ì dèman-la wò tò kámà?
 3PL be 2SG help-GER that in how
 How do they help you with it?

(4.195) [àní: tà:là wò nǎ: lè kà í dóní fèw]

ànu bi ì tà-la wò nàa-È lè kà ì dóni fèw
 3PL be 2SG talke that way-ART FOC INF 2SG send just
 They just take you like this and send you away.

4.6.5.5 Realization of the plural marker before the copula *bi*

The combination of the plural marker and the copula *bi* in certain circumstances gives rise to a portmanteau morpheme which cannot be analyzed as a simple addition of a regular allomorph of the copula and a regular allomorph of the plural marker.

The realizations of the combination of the two morphemes are represented in Table 4.32. It is based on a total of 229 occurrences of the *-nu* + *bi* sequences in the Kakabe corpus. This array of possibilities is due to the fact that both *-nu* and *bi* have a range of allomorphs.

	obstruent b	non-obstruent	
		i	j
Full realization: <i>-nu</i> → [-nu]	[nub]	[nui]	[nuj]
deletion of the vowel: <i>-nu</i> → [n]	[mb]	[n:i]	*[nj]
Fronting of the vowel: <i>-nu</i> → [-ni]	* [nib]	[niji] ([ni])	[nij]

Table 4.32: Possible realizations of *-nu* PL + *bi* ‘be’

The non-compositional allomorphs are [n:i] and [ni]. To account for this gemination one can postulate that underlyingly the copula has an onset:

$nu + bi \rightarrow nu + .i \rightarrow n + .i \rightarrow n:i$

The realization [ni], as in (4.196) has to be considered as a fused form of the plural marker because this form signals both grammatical values.

(4.196) [n:á m̀ògɛ:nì brúsa lè tò]

n̄ la m̀ògɛ-È-nu bi brúsa-È lè tò
 1SG POSS person-PL be bush-ART FOC in
 My family lives in the bush.

4.6.5.5.1 Examples

(4.197) (a) $-nu + bi \rightarrow [nubi]$

[wò lá kàjé:nù bí wò tódè:màn:à]

wò lá kàyi-È-nu bi wò tódèman-la
 2PL POSS husband-ART-PL be 2PL help-GER
 Your husbands help you.

(b) $-nu + bi \rightarrow [mb]$

[dó:m bí kó:d:ìwár jàŋ]

dóo-nu bi Kóddiwar yàn
 some-PL be Ivory.Coast there
 Some of them are in the Ivory Coast.

(c) $-nu + bi \rightarrow [nu.i]$

[wònù ì láfili-lá lè]

wò-nu bi lafili-la lè
 that-PL be throw-GER FOC
 Those are thrown away.

(d) $-nu + bi \rightarrow [n:i]$

[àn:i jógóm bitàlà dòn kòè lè là]

ànu bi jógɔn bita-la dòn-kó-È lè la
 3PL be each.other catch-GER dance-NMLZ-ART FOC OBL
 They are catching each other while dancing.

(e) *-nu + bi* → [n:i]

[kúl:èn:i nà:lá: tɪ̀nàn:à]

kúllɛ-È-nu bi nà-la à tɪ̀nɔ-la
 animal-ART-PL be come-GER 3SG spoil-GER
 The animals come and spoil it [the harvest].

(f) *-nu + bi* → [ni]

[àní mògɛ: lè tà:là]

ànu bi mògɔ-È lè tà-la
 3PL be person-ART FOC take-GER
 They take people.

(g) [ànì bó:lá lé tɪ̀ŋ]

ànu bi bó-la lè tɪ̀n
 3PL be go.out-GER FOC just
 They just go out.

(h) *-nu + bi* → [nij]

[dòn:â:nì jâ:n dòn:à]

dònnáa-È-nu bi ànu dòn-la
 dancer-ART-PL be 3PL dance-GER
 The dancers are dancing.

(i) *-nu + bi* → [ni.i]

[dén:é:nì.tólón:á lè]

dénden-È-nu bi tólon-la lè
 children-PL be play-GER FOC
 The children are playing.

4.6.5.6 Distribution of obstruent and non-obstruent realization of *bi* as function of the preceding context

The realization of the onset of the copula depends on whether it is preceded by N or by a vowel. Table 4.33 shows the frequency of the obstruent and non-obstruent realizations depending on whether it occurs immediately after a vowel or immediately after a nasal. When *bi* follows N, it is realized with the obstruent onset [b] in 81% of the tokens and not as an obstruent in 19%

of the tokens, whereas after a V coda the non-obstruent realization is slightly more frequent: 59% against 41% .

	<i>b(i)</i>	<i>i/y</i>	Total		<i>b(i)</i>	<i>i/y</i>	Total
(a) after V	389	551	940	(b) after V	41%	59%	100%
after N	257	62	319	after N	81%	19%	100%
	646	613	1259	Total	51%	49%	100%

Table 4.33: Realization of *bi* after N

Figure 4.4 gives a graphic representation of the Table 4.33b.

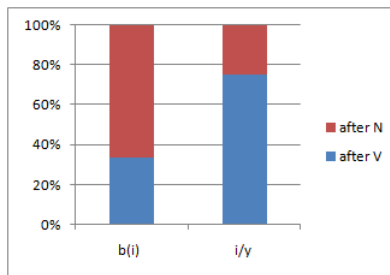


Figure 4.4: Realization of *bi* after N and after V

In Section 4.2.3 we have seen another instance of N producing a “strengthening effect” on the onset of the following syllable: when an underlying N precedes a sonorant, the nasality may itself disappear, but it geminates the sonorant or prevents it from disappearing. Similarly, the onset of the existential copula is statistically “more obstruent” when it is after an underlying N.

Now I will show that there is a more fine-grained correlation between the probability of the obstruent realization of *bi* and what N is derived from phonologically. There are three different underlying configurations which result in the surface *n*.

- original N coda;
- derived N coda (former N onset after which a vowel was deleted), symbolized by N(v);
- syllabic N, the 1SG pronoun *n̩*.

These three configurations differ from each other, first, by the stability of the realization of the nasal element itself and, second, by how strongly they condition the obstruent realization of *bi*.

After the underlying syllabic N *bi* is always realized as an obstruent. On the contrary, the non-syllabic N and N(v) can combine with the non-obstruent allomorph of *bi*, but they differ in how this combination is realized. The N is lost before *bi* realized without an obstruent; cf. (4.199) where *síyaman* retains its final nasal in the surface realization, compared to (4.200) and (4.200) where *síyaman* is pronounced without the final nasal (see Section 4.2 for the realization of N).

(4.198) [nìŋgì síjámám **m** bí: bà:bà bòlò]

nìngi síyaman bi ì bàaba bólo
 cow numerous be 2SG father hand
 Your father has a lot of cows.

(4.199) [síjámá já: ké:lá síjámám bélé: ké:lá]

síyaman bi à ké-la síyaman béle à ké-la
 numerous be 3SG do-GER numerous be.NEG 3SG do-GER
 A lot of people do it and a lot of people don't do it.

(4.200) [mògò síjámà ì tó:lá í kó:mà]

mògò síyaman bi tóla ì kòmma
 person numerous be remain-GER 2SG behind
 There are a lot of people behind you.

Compared to this, N(v) behaves in a different way. A morpheme which frequently occurs immediately before the copula *bi* and whose last vowel can be deleted, producing the N(v) type of nasal, is the plural marker *-nu*, e.g.:

(4.201) *-nu + bi* → [mb]

[dó:**m** bí kód:iw:ár jàŋ]

dóo-nu bi Kóddiwwar yàn
 some-PL be Ivory.Coast there
 Some of them are in the Ivory Coast.

But other morphemes are possible in this context as well:

(4.202) *náani* + *bi* → [ná:mbi]

[mùsù ná:m bí wò bòlò]

mùsu náani bi wò bólo
 woman four be that hand
 He has four wives.

The combination of the non-obstruent realization of *bi* and the reduced variant of *nu* results in the gemination of *n*:

(4.203) [àn:í nógóm bìtálà dòn kóé lè là]

ànu bi nógóm bìta-la dòn-kó-È lè la
 3PL be each.other catch-GER dance-NMLZ-ART FOC OBL
 They are catching each other while dancing.

(4.204) [kúl:èn:í nà:lá: tìjàn:à]

kùlle-È-nu bi nà-la à tìjan-la
 animal-ART-PL be come-GER 3SG spoil-GER
 The animals come and spoil it [the harvest].

Table 4.34 (one sub-table with absolute number and the other with percentage) represents the statistics of the realization of *bi* after four types of syllable endings: syllable ending with a vowel (V), syllables ending with an “original” N coda, syllables ending with an N(v) coda and the syllabic nasal, noted as |N| in the table. It shows that there is mutual dependence between the realization of the coda and the following onset.

	V	N	N(v)	N		V	N	N(v)	N
b	389	78	58	121	b	41%	60%	85%	100%
i/y	551	53	10	0	i/y	59%	40%	15%	0%
Total	940	131	68	121					

Table 4.34: Realization of *bi* after four types of codas

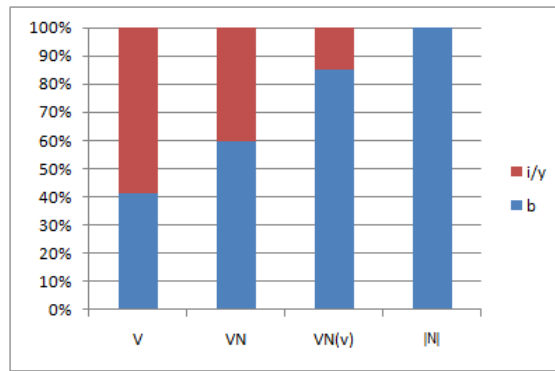


Figure 4.5: Realization of *bi* in four contexts

To sum up, segments can be arranged with respect to how they affect the realization of *bi*. The weakest segment is V: after vowels *bi* is more frequently realized non as a non-obstruent. After the original N coda *bi* can be also realized with and without obstruent, and in the latter case the nasal itself is lost. Then, after N(v) *bi* is realized mostly with an obstruent, the realization without an obstruent is also possible, but in this case the nasal is not lost but geminated. Finally, after the syllabic N *bi* can be realized only with an obstruent:

		non-obstruent realization of <i>bi</i>
cons. strength	V	+
	original N coda	+(loss of N)
	N(v)	+(gemination of N)
	syllabic N	not possible

Table 4.35: Consonantal strength and the realization of *bi*

4.6.6 Reduced form of the auxiliary *si*

The marker of potential is normally realized as [si] before consonants (4.205, 4.206) and [s] before onsetless pronouns.

(4.205) [tèle: tò kùngbólónènu sî nà: fàrà: tò]

tèle-È tò kùngbólón-È-nu si nà fàrà-È tò
 day-ART in warhog-ART-PL POT come field-ART in
 During the day warthogs use to come to the field.

- (4.206) [sì ál:à kítìtà mà sí bóyè sòtò]
 sì állà kítì-ta mà sí bón-È sòtò
 if God judge-PFV.INTR 1PL POT house-ART get
 If God wills, we will get a house.

Apart from that, the potential auxiliary has an onsetless allomorph. Compare all three realizations of the auxiliary in (4.207) and the *i* and *si* in (4.208). Thus, the copula *bi* and the auxiliary *si* coincide in this allomorph. But contrary to the copula *bi*, the potential auxiliary *si* can have non-obstruent realization only before syllables with an onset, and not before the onsetless pronouns *à*, *ànu* and *ì*.

- (4.207) [mà í kèrénè bità mà ì gàmboè bità mà í wòlè: bità mà ì béntéré bità]

mà si kèrén-È bità mà si gànbɔ-È bità mà si
 1PL POT squirrel-ART catch 1PL POT pigeon-ART catch 1PL POT
 wòlo-È bità mà si béntere-È bità
 francolin-ART catch 1PL POT bird.sp-ART catch
 We would catch squirrels, we would catch pigeons, we would catch the francolin
 birds, we would catch the birds bentere.

- (4.208) [ká:bà sɪ májìtà fòndè ì májìtà tìgâ: sɪ májìtà kòrò bátà ì májìtà mà ì wò fó: sàŋ kǎ:
 kítì ↑kí kà: rɔ̀ndì]

káaba-È si mayìta fòndo-È si mayìta tìga-È si mayìta kòrò
 corn-ART POT sell fonio POT sell peanut-ART POT sell rice
 báta-È si mayìta mà si wò fó sàŋ kà à kítì kí
 not.pounded-ART POT sell 1PL POT that all buy INF 3SG tie hard
 kà à ròndì
 INF 3SG carry.on.head
 [At this market] corn is sold, fonio is sold, peanuts are sold, unpounded rice is sold,
 we buy all this and tie them up and carry them.

The potential auxiliary is realized as *i* in 51 cases out of 536:

	Full form <i>si/s</i>	Reduced form <i>i</i>	Total
Realization of <i>si</i> :	469	67	535
	88%	12%	

If what follows, I discuss two factors that favor the non-obstruent realization of *si*: first, the occurrence in a partly lexicalized construction containing the auxiliary *si* and the verb *tàran* ‘find’ (4.6.6.1), second, the presence of the immediately preceding N, the same way as with the copula *bi* (4.6.6.2).

4.6.6.1 Auxiliary *si* in the construction with *tàran* ~ *tèren*

The allomorph *i* is the default option when *si* is part of the construction *à i tàran* ~ *à i tèren* (3SG POT find) with evidential meaning, illustrated in (4.209). As argued in Section 3.2.1.0.3, the distribution of the variants *tàran* vs. *tèren* is partly dialectal.

(4.209) [à í tàrà àní kó:mà ànú bà: ròndilèŋ]

à si tàran ànu bi kóma ànu bi à rón-di-len
 3SG POT find 3PL be behind they be 3SG carry.on.head-PC.STAT
 Actually, they are behind and they carry it.

Out of the 28 occurrences of the construction *à i tàran* ~ *à i tèren* in the corpus, *si* is pronounced in its full allomorph only twice and both occurrences in (4.210 a) and (4.210 b) are characterized by a deliberately slow tempo of pronunciation.

(4.210) (a) [dóktérènú bátâ: jé jàn:í l:ógókúpè wò tò à sí tèrèŋ à là lúnè bà k:è]

dókteŕ-È-nu báti à yén yànnín lógokun-È wò tò à
 doctor-ART-PL PFV.OF 3SG see from.now week-ART that in 3SG
si tèren à la lún-È báti ké
 POT find 3SG POSS day-ART PFV.OF come
 The doctors have understood, that in one week she will die.

(b) [kó à sí tèrèŋ kòndê: lè mù ì là dé⁺né gbà: là]

kó à si tèren kòndi-È lè mu ì la dén-È
 say 3SG POT find bird-ART FOC IDENT 2SG POSS child-ART
gbàa la
 trace-ART OBL
 It is possible that the birds are pursuing your child.

The 26 occurrences of the allomorph *i* in this construction constitute more than one third of the 66 occurrences of the allomorph. Thus, the choice of the allomorph is to some extent conditioned by the grammatical context.

	Full form <i>si</i>	onsetless form <i>i</i>	Total
Realization of <i>si</i> in total	322	66	378
	85%	15%	
Realization of <i>si</i> in the construction <i>à (s)i tèren</i>	2	26	28

4.6.6.2 Realization of the auxiliary *si* after N

Another parameter which influences the realization of the potential auxiliary is the phonological context: the presence of N immediately before the auxiliary prevents *s* from disappearing, just as in the case of *bi*. In all the 140 occurrences which contain *si* preceded by N the form is pronounced with *s* in the onset, and, consequently, N is always realized as [n], as in (4.211) below:

(4.211) [í lè tùgùn sì bó wò lún-È]

ì lè tùgun si bó wò lún-È
 2SG LG again POT leave that day-ART
 And you will go out this day.

As shown in Section 4.6.5 the presence of N disfavors the non-obstruent allomorph but does not ban it, and, further on, there is a more complex dependence between the underlying type of N and the relative frequency of the obstruent/non-obstruent allomorphs. At the same time, the difference between *si* and *bi* might be due to the limited data. The copula *bi* is, in general, three times more frequent than *si*: 1260 against 378 occurrences, and one can imagine that a bigger corpus would contain more *si* realized as *i* after N. In any case, the strengthening effect of N is evident both for *bi* and for *si*.

Examples (4.212) and (4.213) show that *-nu + si* can also be realized as [n:i] as it is the case with the copula *bi*, see Section 4.6.5.5.

(4.212) [dém bélé:nù bòlò àn:i kàsi]

dén béle ànu lè bólo ànu si kàsi
 child be.NEG 3PL LG 3PL POT cry
 They had no children and they cried.

(4.213) [wòn:i jê: sòrà:n:i lógó jíni:n sì fɛnfɛ m:à]

wò-nu si jíi-È sòri ànu si lógó jíni ànu si fɛnfɛn
 that-PL POT water-ART scoop 3PL POT wood look.for 3PL POT all
má
 do
 The would scoop water, they would look for wood, they would do everything.

4.7 Summary

This chapter provides an account of the main processes which define the segmental realization of the utterances and which create the bridge between the lexical representation of a morpheme and a large array of allomorphs associated with it in the surface realization.

The homorganic nasal N is one of very few phonemes which is admitted in Kakabe in the coda position. In general the realization of coda phonemes is subject to the constraint according to which coda has to be more or equally sonorant with respect to the following onset. Therefore, when the following onset is an approximant, the nasal is either totally assimilated to it or is deleted, because nasalized approximants are not possible in Kakabe. Apart from that, the realization of N depends on the type of prosodic boundary which separates it from the following onset.

Alternations between alveolars are common across Mande languages. In this Chapter I have described one case of alternation $nd \sim nn \sim l$ attested for the diminutive and the resultative morphemes, $-nden_1$ and $-nden_2 \sim -len$, respectively. The morphemes $-nden_1$ and $-nden_2$ display complex morphonology in combination with the referential article. The final nasal is deleted in all varieties of Kakabe and in CK and part of NK and WK villages there is also assimilation $nd > nn$. Moreover, when the $nd > nn$ assimilation takes place, it can further reduce into n depending of the foot structure of the stem. I have also analyzed the dialectal distribution of the participle allomorphs $-nden \sim -len$ and proposed a hypothesis according to which $-nden$ evolved from $-len$ by analogy to the diminutive suffix.

Section 4.4 has provided an account of the realization of vowel elision between two consonants, and in Section 4.5 I described the case of the combination between vowel elision and assimilation in the reduction of the auxiliaries *báti* and *béle*. The auxiliary *báti* shows an interesting pattern of distribution of its allomorphs across dialects which, as I argue, is due to the fact that in NK the assimilation of *t* can be only partial, whereas in WK it has been generalized to total.

The final section describes the realization of morphemes represented by onsetless syllables or by syllables with a weak onset which can be deleted. Though onsetless syllables are rare in the lexicon, they have very high token frequency, because some of the main functional morphemes, such as personal pronouns and auxiliaries, are often represented by onsetless syllables. For this reason, the hiatus and the need to resolve it is typical for Kakabe utterances.

Part II

Suprasegmental phonology

Chapter 5

Lexical tones

5.1 Introduction

Kakabe is a language of low tonal density. Tonal languages “can roughly be placed on a gradient of tonal density” (Gussenhoven 2004: 34), according to the number of underlying tones corresponding to the number of tone-bearing units. Languages with high tonal density exploit all or almost all tone-bearing units for tonal opposition. Thus, in Sikaritai (a Lakes Plain language of Papua) every syllable of every word is specified for L or H (Donohue 1997). In Eton, a Bantu language, tonal density is rather high and, at the same time, segments specified for tone can undergo deletion, therefore, on various stages of tonal derivation tones can outnumber tone-bearing units:

At the end of the derivation every syllable must carry at least one tone. No special rules are needed to fulfill this requirement. Quite the contrary, sometimes Eton tonology seems to be a struggle to get every distinctive tone attached before the end of the derivation is reached (Van de Velde 2008: 50).

Gussenhoven (2004) mentions that absolute tonal density is rare: “even Mandarin, where every syllable of the root is specified for tone, has root-final ‘neutral’, i.e. toneless syllables”.

Sparse underlying tonal oppositions characterize the tonology of such languages as Japanese and Swedish¹ where only one syllable in the word, namely, the accented syllable, is specified for tone. By the density of lexically specified tones in proportion to the number of syllables, Kakabe is closer to Japanese and Swedish than to Eton. Thus, in an average Kakabe utterance,

1. They are commonly referred to a pitch-accent languages, see though (Hyman 2009) for the criticism of this notion.

a bigger part of tones associated with syllables in the surface realization are derived by rules, compared to the number of tones stemming directly from the lexical specification. The low tonal density can, thus, be seen as the frequent absence of tonal specification of tone-bearing units in the lexicon.

A parameter related to this is the distance between underlying tones and the surface tones. If a tone-bearing unit (TBU) is not specified for tone lexically, it must acquire a tone through the application of a rule. The number and the complexity of tonal rules and, consequently, the distance between the underlying and the surface tonal representations depend, first, on the complexity of tonal sandhi, and, second, on the presence of grammatical tones and operations.

The distance between underlying and surface tones is rather important in Kakabe. The tonology of this language features such processes as H tone insertion due to Obligatory Contour Principle, floating L, deletion of tones of personal pronouns in certain context, shift of H tone to the following L-toned syllable etc. Tonal morphology is not very rich, though. One of the few processes that can be attributed to this category is the tonal compounding, whereby in a complex NP, the tones of all but the first element are deleted.

As for the basic oppositions, the tonal system of Kakabe is characterized by a three-way contrast: H vs. L vs. Ø. Underlyingly every tone bearing unit is assigned H, L or no tone at all (Ø). But at the end of the tonal derivation every tone bearing unit is linked either to H or L tone. Thus, the tree-way opposition at the lexical level gives a two-way opposition at the end of the phonological derivation (see *Hyman 2001* for the discussion of the possible types of tonal oppositions):

Underlying phonological representation (input of tonal derivation)	→	Surface phonological representation (end of tonal derivation)
---	---	--

H vs. L vs. Ø	→	H vs. L
---------------	---	---------

Minimal pairs:

H		L
<i>kónkɔ</i> ‘hunger’	vs.	<i>k̀̀nkɔ</i> ‘mountain’
<i>b́́aa</i> ‘river’		<i>b̀̀aa</i> ‘goat’
<i>ḱ́aa</i> ‘river’		<i>k̀̀aa</i> ‘snake’

Both H and L are engaged in spreading, so they are both phonologically active, and thus opposed to the absence of tone. At the same time, only L can be floating and only L is subject

to the Obligatory Contour Principle. In the languages of Manding-Mokole group in general L tends to be more active, see (Creissels & Grégoire 1993) who claim that in some Manding languages L is opposed to the absence of tone. In this respect, they are opposed to most Bantu languages where, in languages with binary privative tonal oppositions, it is usually the H tone which is marked and active (Hyman 2001).

The answer to the question of the association between TBUs and tone in Kakabe is not straightforward. In general, Kakabe is a mora-counting language. Light CV syllable can host maximum one tone. On the other hand, heavy syllables, the bimoraic CVV and CVN syllable, can host two tones. Yet, this generalization, valid for the structural level, does not give an account of all processes found in realization. In realization of the tonal HL tone combination hosted by a heavy syllable, L very consistently displays the tendency to be realized as floating which for Kakabe means to shift to the right, where possible. This unwillingness of a syllable to host more than one tone can be put in relation with the unstable character of vowel length, and also with the possibility of omitting N in the coda position. This can be seen as tendency to become syllable-counting instead of mora-counting.

On the other hand, there are cases when two tones end up on one mora. This happens when a monomoraic L-toned morpheme is followed by another L and H is inserted to separate the two tones. In this situation this H is variably aligned either on the same mora with the preceding L, or it links to the following syllable. The first type of realization complies with the requirement that H separator tone has to be aligned within the domain of the first tone (see 5.5.1), but goes against the constraint which disallows for two tones to be associated with one mora. Accordingly, the second type of realization goes against the first principle but complies with the second. Finally, sometimes, the L of the monomoraic syllable is simply deleted in this case. This a situation when it is impossible to respect two principles at a time gives rise to variation.

In terms of tone, Kakabe is in many respects a typical Western Mande language, displaying phenomena found in most of them: tonal compactness for complex NPs, downdrift, variation of the type LH ~ LL (which I interpret as the insertion of H Separator tone due to Obligatory Contour Principle), special tonal behavior of L on the 3SG pronoun *à*, and the tonal realization of the referential article.

The analysis of the realization of the referential article in Kakabe and in the related languages makes it possible to reconstruct step-by-step process of emergence of floating tone and the loss of segment. A considerable number of Western Mande languages have a referential article with L tone which has either fully or partially lost its segment. I outline a picture of the different stages of segment loss, and show that this loss follows in many cases the same pat-

tern: assimilation and shift of the L to the right from a CV́V̀ whose the first mora is associated with H tone.

There is a certain continuity between phonetics, intonation and tone. One of the examples is the relation which is attested to hold across languages between different types of downward trends. The declination, downdrift (also referred to as automatic downstep) and downstep (or non-automatic downstep) are commonly treated in the literature as three different stages of phonologization of the downward trends which goes from phonetic to intonation and, finally, to tone (Gussenhoven 2004; Yip 2002). Declination is a phonetic process of gradual lowering applied across the utterance to any tone sequence. Downdrift also involves lowering, but, crucially, applies only to a specific tonal sequence, namely the alternating HLH tones, and not, for example, to the sequence of H tones (Snider 1998; Connell 2001, 2011, *inter alia*). Downdrift is an intonational process, since it participates in the phrasing of speech flow into intonation phrases, its usual phonological domain. Downstep is the lowering of H after a covert L. Thus, it is not an utterance-level operation any more, and, contrary to downdrift, neither is it a consequence of phonological environment. Instead, downdrift is a tonal operation which can participate in distinguishing grammatical or lexical meanings.

In this description, I introduce for Kakabe the notion of Tone Leveling (5.6). This tonal process disfavors valleys in tonal sequences and occupies a central place in Kakabe tonology. In the domain of PhP, it flattens the sequences of the type HLH (where H can be repeated an unlimited number of times) into one-step descent. Its connection to downdrift is seen in the fact that the two processes are licensed by the same tonal sequence. I suggest that the process of Tone Leveling described in the current research for Kakabe is another, ‘tonologized’ derivation of downdrift, along with the downstep.

The Chapter is organized as follows. Section 5.2 introduces downdrift and tonal processes conditioned by the coarticulation of tone. In Section 5.3 I describe the general principles of association between the tone tier and the segmental tier. The section introduces the notion of tone-bearing unit for Kakabe, gives an overview of tonal processes in their relation to the prosodic hierarchy. Section 5.4 describes the lexical tone patterns existing in Kakabe and treats the question of how loanwords are integrated into the system of tonal classes of Kakabe. The manifestation of Obligatory Contour Principle in Kakabe and its scope is discussed in Section 5.5. Tone-leveling is the main PhP-level tonal process, and it shows a complex interplay with the Obligatory Contour Principle (5.6). A special section is dedicated to the realization of monomoraic L-toned morphemes, most of which are functional morphemes, playing central role in the Kakabe grammar, and showing a complex tonal behavior due to the insertion of H conditioned by Obligatory Contour Principle (5.7). Floating L in Kakabe

can be either lexical, or it can result from the segmental merger of morphemes or from the shift of L from a CV̇V̇ syllable. Its realization is described in Section 5.8. The last section is dedicated to two tonal aspects of the tonal realization of the noun phrase: the realization of the NP-final referentiality marker which, as mentioned before, is becoming non-segmental, and the phenomenon of tonal compactness (5.9).

5.2 Automatic tonal processes

In this section I discuss the phonetic effects of the co-articulation of tones: the suppression of the pitch span in sequences of alternating H and L tones in Section 5.2.1, the raising of H before L in HHHL sequences in Section 5.2.2, and the falling realization of L in HL sequences in Section 5.2.3.

5.2.1 Downdrift

Downdrift is automatic only within the IP. It belongs to the domain of intonation, since it is involved in phrasing the speech flow into utterances. Nevertheless, I introduce it here, and not in Chapter 6, dedicated to intonation and tone, because it plays an important role in defining the outline of the tonal curve of Kakabe utterances, and it is therefore essential for the understanding of examples discussed in this chapter. Besides, downdrift is closely linked to such tonal processes discussed in this chapter as tonal leveling to which it is, at least, diachronically related.

It is triggered by HLH alternations of tones within one intonation phrase. The definition of downdrift is given below:

- (5.1) In a sequence of alternating L and H tones belonging to one intonation phrase every following H is pronounced lower than the preceding one.

Downdrift should be distinguished from declination, another downtrend commonly occurring in languages, characterized as “gradual, time-dependent downsloping of the fundamental frequency across points that might be expected to be equal” (Gussenhoven 2004: 98). Contrary to downdrift, declination is applied to any tonal sequences and is best noticed on sequences of H tones which are realized with gradual lowering as the result of the application of declination. Kakabe doesn't have declination, contrary to downdrift.

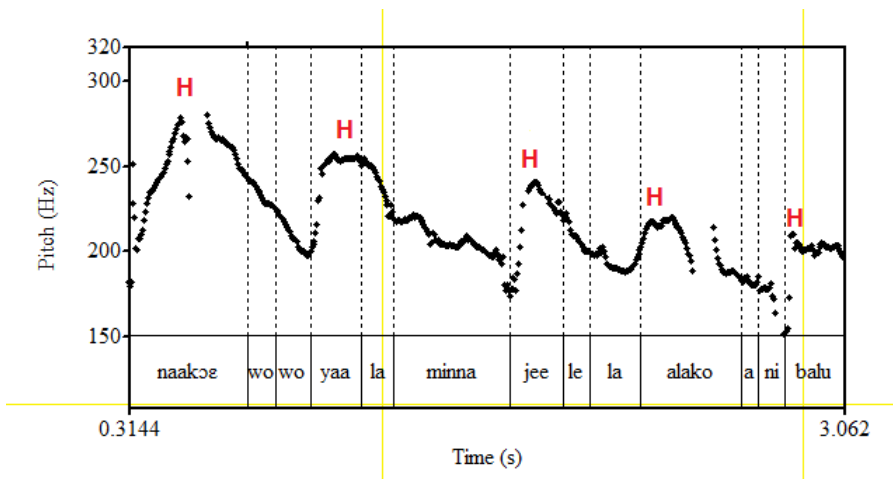
The reader should note that the term “downdrift” used in this study is equivalent to “automatic downstep” in the terminological tradition of Bantu studies and the general literature

of phonology and intonation. The latter uses the term downstep for both the lowering of H caused by covert L (downstep) and the lowering of H caused by overt L (downdrift), distinguishing the two as non-automatic and automatic downstep.

The utterance (5.2) contains five Hs in the surface realization which are united by a common downdrift movement: each successive peak is lower than the preceding one.

- (5.2) *nàákó[†]é* [†]*wó wò yáá* [†]*lámìnnà* *jé[†]é* [†]*lé là*
 nàakó-È wò wò bi à la-mìn-la jíí-È lè là
 garden-ART that 2PL be 3SG CAUS-drink-GER water-ART FOC OBL
á-lá[†]kó *à* *nì* *bá-lú*
álàko *à* *ni* *bálu*
 in.order.to 3SG SBJV be.alive

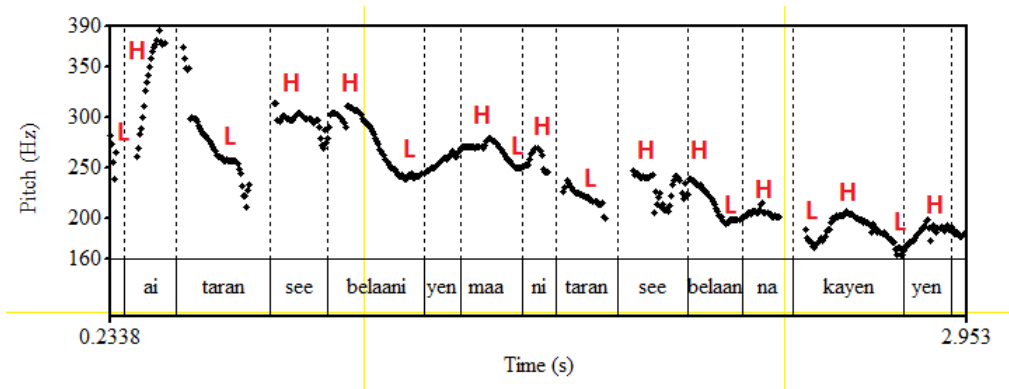
This garden, you water it, so that it grows.



See also 5.3 below with a long succession of Hs and Ls.

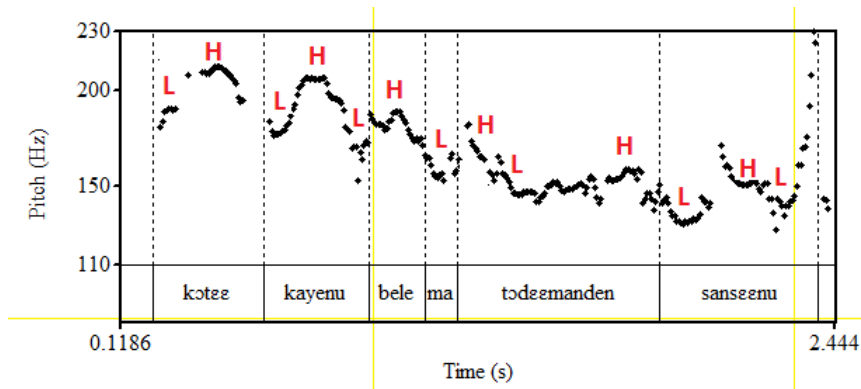
- (5.3) *à í tàràn séé bé-lá-à-nù* *yèn maa ní tàràn séé*
à si tàran séé béle ànu *yen maa à ni tàran séé*
 3SG POT find means COP.NEG 3PL BNF or 3SG SBJV find means
bé-lá-àn *ná* *kà-yé-nì* *yén*
béle ànu *la* *kàyi-È-nu* *yen*
 COP.NEG 3PL POSS man-ART-PL BNF

They don't have any means, or their husbands don't have any means.



As for the realization of Ls in sequences under downdrift, Schuh (1978) claims that only H tones undergo downdrift and downstep, whereas L mostly remain at the same pitch, yet Laniran (1992) on Yoruba and Snider (1998) on Bimboa found that L tones also lower, see Gussenhoven (2004). In Kakabe Ls under downdrift lower as well as Hs. This is illustrated by (5.4) below. The last L in (5.4) does not follow the general lowering because of the rising intonation at the end of the utterance signaling continuation.

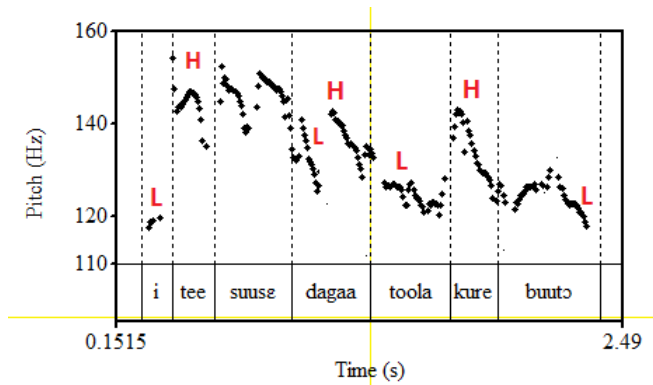
- (5.4) *kòtée kàyèènu bélé mà tódèèmandén sànséènu↑*
kòtɛɛ kàyi-È-nu béle mà tódèɛman-nden sànsɛ-È-nu-R%
 now man-ART-PL be.NEG 1PL help-PC.ST fence-ART-PL-R%
 Now, men don't help us with the fences.



Yet, L occurring immediately after pause can disregard this pattern. If the downdrift domain starts with L, the latter is often pronounced at the bottom of the pitch range and rises steeply to the first H, as at the beginning of the utterance in (5.5). In this case the first LH rise covers the maximum span of the pitch range, within which the succeeding smaller excursions are included.

- (5.5) *ì téé síúsé dàgáá tòlà kú⁺ré búútò*
ì téé síúsɛ dàga tó-la kúru-È búùtò
 2SG POT.NEG dare pot leave yard-ART in

You wouldn't dare to leave a pot in the yard [otherwise it would be stolen].



The initial L, finally, can be realized at approximately the same level, as in (5.3). The three possible types of realization are schematized in Table 5.1 below.

(a)		L1 realized at the bottom of the pitch range Ex. (5.5)
(c)		L1 realized at the level of L2 Ex. (5.3)
(b)		L1 realized higher than L2 Ex. (5.4)

Table 5.1: Three types of realization of the initial L

It should be noted that, though downdrift is opposed to downstep as an automatic process to a non-automatic process, it is automatic only to a limited extent, since it depends on the boundaries of prosodic units. It is totally reset at IP boundary and, within IP, it can be partially reset at the left PhP boundary (see Section 5.3.4.1). Apart from this, downdrift is canceled by pitch rise which precedes the H associated with pragmatically prominent elements and with the H% of the boundary tones, see Sections 6.3.1 and 6.5.1 in Chapter 6.

5.2.2 H-raising, automatic upstep

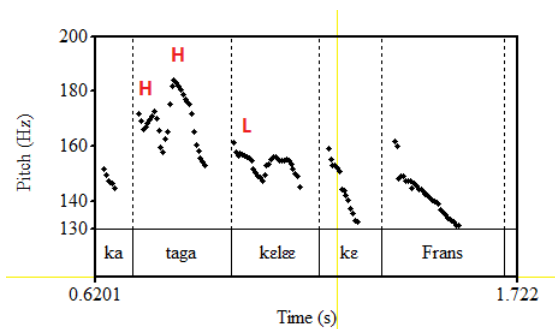
Kakabe has automatic upstep: in a sequence of prosodic units with H tone followed by L tone, the last H is raised:

$$(5.6) \text{ H H} \rightarrow [\text{H} \uparrow \text{H}] / _ \text{L}$$

Automatic upstep is a common phenomenon in languages which also have downstep, it is attested in Bamana, Yoruba, Kirimi, see discussion in (Rialland 2001; Snider 1990; Connell & Ladd 1990). It can be seen as a way to enhance the contrast between H and L which makes the both tones more perceptible. The notion of automatic upstep, equal to H-raising, is a matter of phonetic coarticulation of tones and should not be confused with the intonational upstep which serves to mark prominence.

Thus, in (5.7) the pitch is raised on the second syllable of H-toned verb *tága* ‘go’, due to the following L tone.

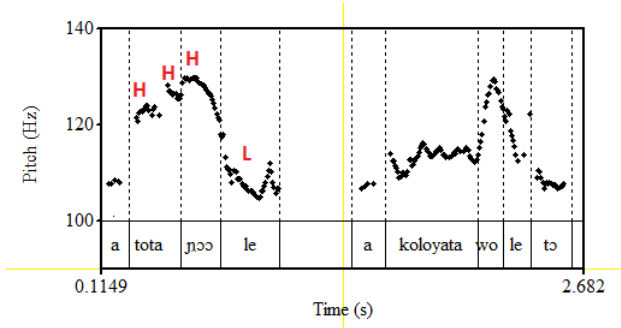
(5.7) [*kà tá[↑]gá kèléé kè Frâns*]
 kà tága kèlé-È ké Frâns
 INF go war.ART do Frans
 ... and to go to do war in France.



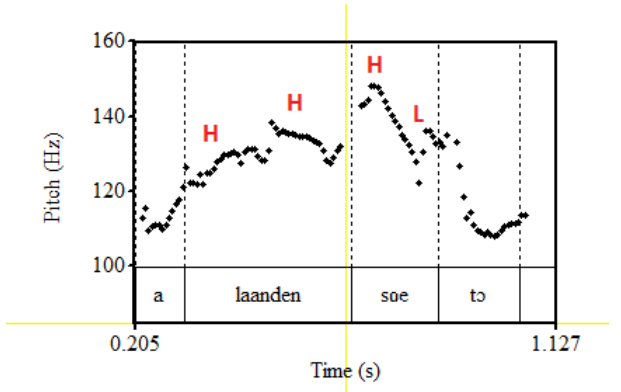
The raising can be reiterated: if the sequence is associated with several underlying Hs and contains multiple morphological or syntactic units, H-raising can be anticipatory. In a sequence $H_1H_2H_3L$ the raising starts already from H_2 . In both (5.8) and (5.9) H tone occupies three successive syllables (highlighted on the figures below the glossed examples) and is followed by L tone. In the resulting phonetic implementation the pitch rises on the second syllable and again on the third syllable due to the automatic upstep².

2. As can be seen, raising can apply to TBU which are not structurally associated with H, as the aorist suffix *-ta* in (5.8) and stative participle suffix *-nden* in 5.9.

(5.8) [à tótá [↑]nó⁺ó lè(0.41) à kòlòyà-tà wó lè tò]
à tó-ta nódò lè à kòloya-ta wò lè tó
3SG leave-PFV.INTR there FOC 3SG grow-PFV.INTR that FOC in
She remained like this, she grew up with it.



(5.9) [à láá[↑]ndén [↑]sòè tò]
à lá-nden sú-È tó
3SG lie-PC.ST night-ART in
She went to bed at night.



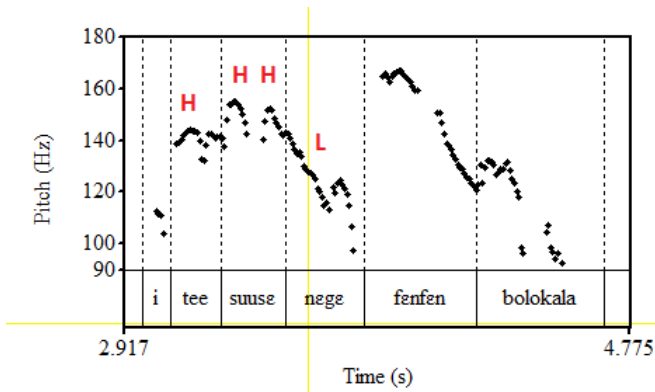
The locus of raising depends on how tone bearing units are grouped in syntactic or morphological units: H rises on the last syntactic or morphological unit.

(5.10) If the sequence associated with H tone(s) is morphologically or syntactically complex, H-raising applies after the last morphological or syntactic boundary within the group.

The effect of the morphological grouping can be seen in (5.11), where both syllables of the verb *súuse* ‘to dare’ manifest prosodic solidarity, being pronounced at the same level and higher than the preceding auxiliary *tée*.

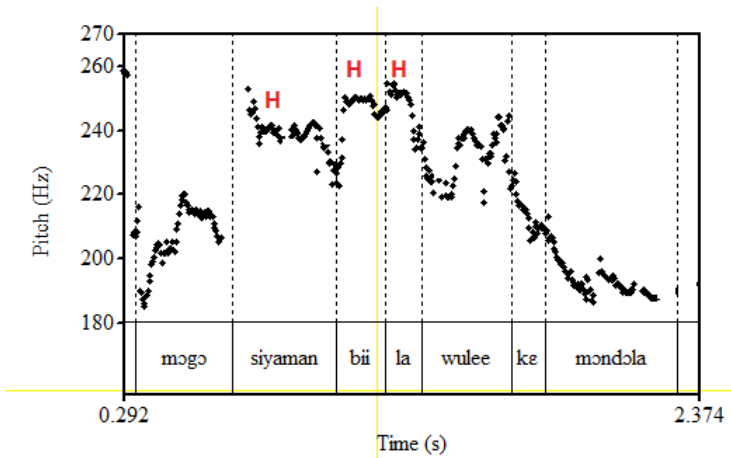
(5.11) [ì tée [↑]súúsé nègè fèn⁺fèn bólókàlà]
ì tée súuse nègè fènfèn bókà-la
2SG POT.NEG dare iron thing leave-GER

You wouldn't dare to leave anything made of iron [otherwise it would be stolen].



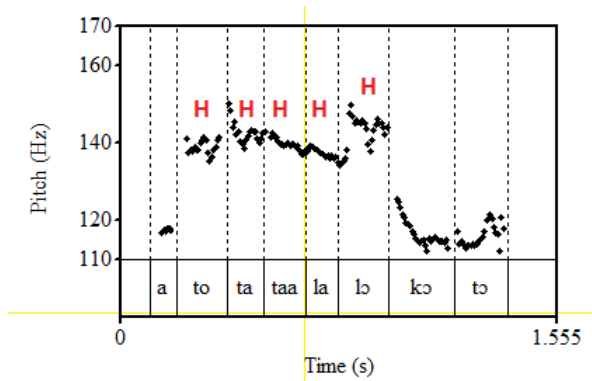
In (5.12) the upstep follows the syntactic grouping of morphemes: F0 rises on the entirety of the combination of *bi* ‘be’ + *i* 2SG + *la* POSS.

- (5.12) [*mə̀gɔ̀ siyámán ˀbii lá wùléé ˀké m̀ndɔ̀là*]
mə̀gɔ̀ siyaman bi i la wùlu-È ke m̀ndɔ̀-la
 man numerous be 2SG POSS dog-ART that feed-GER
 A lot of people feed your dog.



The realization of the tonal contour in (5.13) can also be interpreted as due to syntactic grouping as well: the syllables belonging to the verb and its gerund complement are realized with H tones at the same level, whereas H of the indirect object is raised.

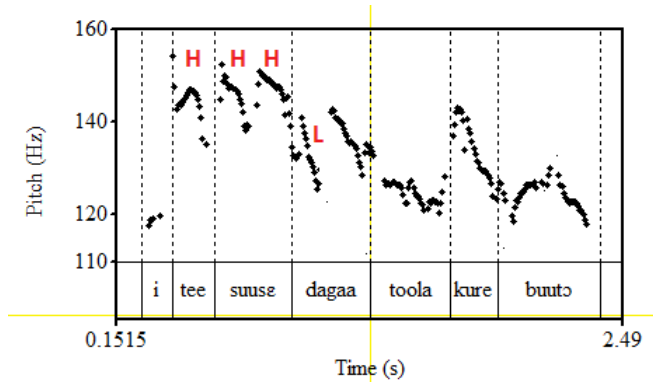
- (5.13) [*à tótá táálá lókɔ̀ tɔ̀*]
à tó-ta táa-la lókɔ̀-È tɔ̀
 1SG keep-PFV.INTR go-GER market-ART to
 He kept going to the market.



In general, the relationship between the process of H-raising and the syntactic, morphological or prosodic grouping of segments is flexible. Besides, the upstep is frequent but not obligatory. Compare (5.11) earlier with (5.14) below, where *súuse* ‘dare’ is pronounced at the same pitch level as the auxiliary *tée*:

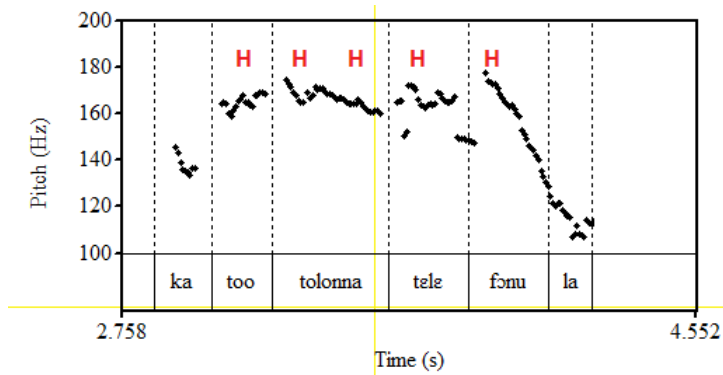
- (5.14) [i tée súuse dàgáá tòòlà kú[↓]ré búútò]
 i tée súuse dàga tó-la kúru-È búùtò
 2SG POT.NEG dare pot leave yard-ART in

You wouldn't dare to leave a pot in the yard [otherwise it would be stolen].



Another example of a sequence of Hs are pronounced at the same level before L is given in (5.15) below:

- (5.15) [kà tó tólónná téléfɔ̀nù là]
 kà tó tólon-la tɛlɛfɔ̀-È-nu là
 INF stay play-GER telephone-ART-PL OBL
 ... and to keep playing with the telephone.



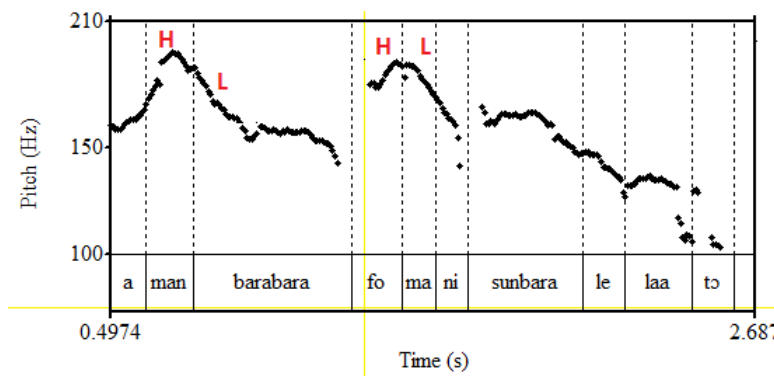
5.2.3 Falling realization of L

Kakabe displays a strong tendency for falling realization of L. This corresponds to the general tendency of the second pitch target to assimilate to the first pitch target: L realized as falling after H, H realized rising after L, see e.g. Ohala & Ewan (1973); Xu & Wang (2001).

See Example (5.16), where the first syllable of L-toned verb *bàrabara* ‘boil’ is realized as falling. Since the transcription in the first line represents the final stage of the phonological derivation, and not the phonetic realization, the falling realization of L is not reflected in it.

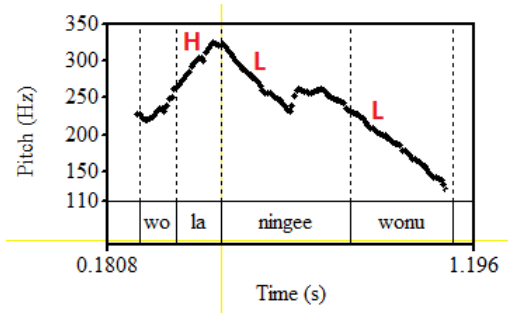
- (5.16) *à mán bàràbàrà fò má nì súnbàrà lè láà tò*
à máni bàrabara fò mà ni súnbara-È lè lá à tò
 3SG COND boil OBLIG 1PL SBJV spice-ART FOC put 3SG in

When it boils, we should put spice into it.



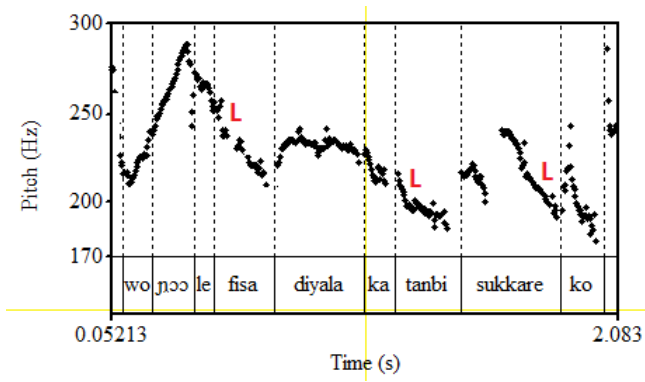
When the host of H is a single mora, HL sequence tends to be realized with the highest pitch at the junction of the segments bearing H and L tones respectively. Thus, in Example (5.17) the high tone of *la* spreads on the beginning of the nominal root so that the first syllable of *nìngéè* is pronounced with a falling tone. The realization of H peak between the two TBU is also illustrated by the realization of the syllables [fò má] in (5.16) above.

(5.17) *wò lá níngéé wònù*
wò la níngi-È wonù
 2PL POSS cow.ART that.PL
 those cows of yours



See also the descending realization of L on *fisa* ‘be better’, *tànbì* ‘pass’ and on the last syllable of *súkkàrè* ‘the sugar’ in (5.18) below.

(5.18) *wò jǒǒ †lé fisa díyálá kà tànbì súkkàrè kò*
wò jǒǒ lè fisa díya-la kà tànbì súkkari-È ko
 that there FOC be.better please-GER INF pass sugar-ART behind
 It is better without sugar



The rising realization of H after L is also attested, but is less systematic compared to its counterpart, the falling realization of L. Thus, H is realized as rising on the possessive linker *la* in (5.17) and on *jǒǒ* ‘there’ in (5.18), but as a plateau on *díya-la* please-GER in (5.18). The rise of H after L might be conditioned by voiced consonants in the onset of the H-bearing syllable. It is generally known that such consonants have a lowering effect on tone, see (Yip 2002). Supposedly, in Kakabe depressor consonants have lowering effect on H only after a L, but this question needs further investigation.

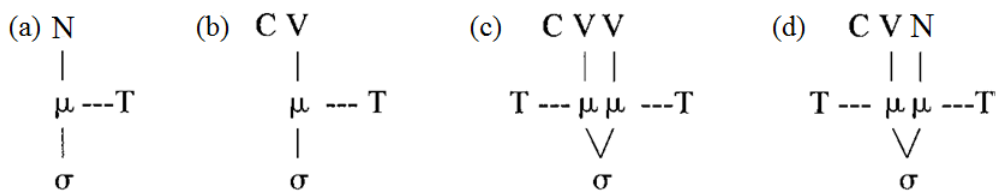
5.3 Association between the tone tier and the segmental tier

This section introduces the principles of the association between the tonal and the phonotactic units, such as syllables and moras, and the general principles of tonal derivation. Second, it gives the outline of how the prosodic hierarchy structures the tonal realization. Compared to this more general introduction, the succeeding sections, 5.5-5.9, describe in detail the implementation of each of these tonal processes and also the tonal processes associated with particular morphological units.

5.3.1 Tone-bearing unit

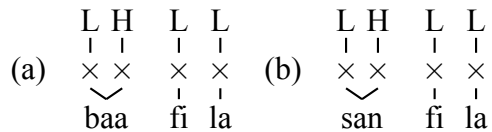
The description of the tonology of Kakabe is made in the framework of the autosegmental approach (Goldsmith 1976; Leben 1973) where the segmental tier is autonomous from the tonal tier. In Kakabe the tone bearing unit (TBU henceforth) is the mora: light mono-moraic and heavy bi-moraic syllables differ in the number of tones they can bear, so that mono-moraic syllables can have only one tone, but bi-moraic syllables can have two tones. In Kakabe heavy syllables consist either of a long vowel or a vowel plus a homorganic nasal. The syllabic nasal exemplified by the 1SG pronoun *ɲ* when it occurs at the beginning of an intonation phrase (see Section 3.3.1.2 in Chapter 3) can bear a tone as well. The possible associations between tones and segmental units are schematized in (5.19) below.

(5.19) Possible associations between tones and moras in Kakabe

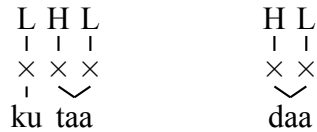


In the autosegmental representation I group together letters representing phonemes which belong to one syllable, following a widespread practice, the symbol “x” stands one mora (in some cases I also use the more explicit symbol “μ” for mora). For example, *bàa* ‘goat’ in the position before another L is pronounced with LH tone, e.g. [bàá filà] ‘two goats’, the same for [sán filà] ‘two years’.

(5.20)



Example (5.21) illustrates the realization of HL on a heavy syllable:

(5.21) *kùtáà* cloth.ART; *dáà* mouth.ART.

Complex tones on one mora are in general avoided in Kakabe, this principle is formulated in (5.22) below.

(5.22) No tonal complexity principle:

A mora is associated with at most one tone at the end of the phonological derivation.

According to the formulation in (5.22), at non-final stages of tonal derivation one mora can be associated to more than one tone, but if this is the case, the tones must distribute over surrounding moras or be deleted by the end of the derivation. Such situation arises always when L-tone morpheme consisting of only one mora appears before an L tone. The strategies used to resolve this situation is discussed in Section 5.7.

The only exception to the non-complexity principle is the LH tone on monomoraic pro-nouns before an L-toned morpheme, but, crucially, this realization has marginal status. This LH realization exists only as a free variant along with two other possible realizations both of which respect the no-complexity principle, see (5.23) (the account of the realization of pro-nouns is given in Section 5.7.3). The instability itself supports the hypothesis that there is a tendency to avoid complex tone on single mora.

(5.23) \mà jìgi-ta\ 1PL go.down-PFV.INTR ‘We went down’

→ (a) [mǎ jìgità] ~ (b) [mà jígità] ~ (c) [má jìgità].

The non-complexity principle underlies the process of the realization of the referential article, described in Section 5.9.1 and the realization of the IP-boundary tones, described in Section 6.4.

Finally, as shown in Section 5.2.3, L is phonetically realized as falling after H, and H can be realized as rising after L, but phonologically they are simple L and H respectively.

5.3.2 Tone domain

L and H spread on all toneless syllables to the right:

$$L\emptyset(\emptyset) \rightarrow LL(L)$$

$$H\emptyset(\emptyset) \rightarrow HH(H)$$

The spread continues until the next TBU with underlying L or H tone. Thus both H and L create a boundary for the spreading of the preceding tone.

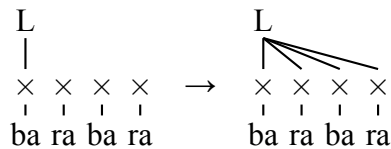
I will use the term tone domain as formulated in (5.24) below.

(5.24) The domain of the tone is the mora to which tone T is associated at the lexical level and all underlyingly toneless moras to the right.

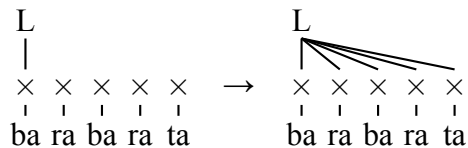
In other terms, the tone domain defines the area where the tone can spread from its original site.

For example, the verb *bàrabara* ‘to boil’ has the underlying L tone which is assigned lexically to the first syllable, and from that position spreads from the first syllable through the stem, (5.25a). When a toneless suffix is added to it, the tone spreads on it also, e.g. the perfective suffix *-ta* (5.25b). The same is true for H tone, see (5.25c).

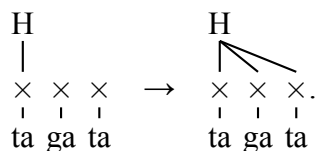
(5.25) (a) /bàrabara/ boil



(b) /bàrabara-ta/ boil-PFV.INTR



(c) /tága-ta/ go-PFV.INTR



The notion of tonal domain plays an important role in the description of how H tone separator is aligned when it is inserted between two underlying Ls, see Section 5.5.

As will be shown in Section 5.4, TBUs which are not assigned any tone underlyingly are often the non-initial syllables of polysyllabic morphemes (5.26a), and many of functional morphemes, as the perfective suffix *-ta* in (5.26b) and the potential auxiliary *si* in (5.26c).

- (5.26) (a) *bàrabara* → *bàràbàrà* ‘to cook’
 (b) *nà + -ta* → *nàtà* come-PFV.INTR
 (c) *à si gbála* → *à sǐ gbálá* ‘It will dry’.

Tone spread to free TBUs applies at the very end of tonal derivation. Thus, it is a default process which provides a tonal realization for all TBUs which remains toneless after the application of all other tonal processes.

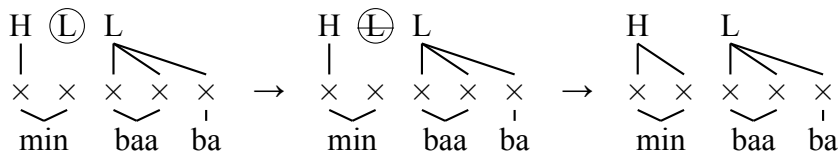
5.3.3 Floating and associated tones

The floating tone is usually defined as a tone not linked to any segment at the level of lexical representation, see (Yip 2002) among many others. In Kakabe only L can float. Four types of cases can be singled out in which floating L appears in the tonal derivation:

1. Floating L as a part of the lexical form: in Kakabe H^L pattern is lexically assigned to a small group of morphemes, e.g. the relativizer min^{L3} ; see the list in Section 5.4.5.
2. L of the pronoun which becomes floating when the pronoun merges with the preceding syllable, e.g. *báti à* PFV.OF 3SG → *bátaa^L*; see Section 5.8.4.
3. Floating realization of the L of the article in the circumstances described in Section 5.7.3.3.
4. Delinking of L as a result of the H spread to the left: LH → ^LH; see Section 5.6.

Following a widely used practice, in the autosegmental representation floating L is signaled by the encircled \textcircled{L} , as in (5.27) below.

- (5.27) $/min^L\ bàaba/ \rightarrow min\ bà\grave{a}b\grave{a}$ ‘whose father’



3. The notation of floating L by a superscript letter is chosen in the consideration of its better visibility compared to a diacritic after the end of the typographic word (min^L rather than min').

The realization of floating L before another L is defined by the following principle.

(5.28) Floating L is deleted before L: $\textcircled{L} \rightarrow \emptyset / _ L$

Typically for Western Mande languages, in Kakabe floating L is realized as downstep of the following H⁴. But when the following H is adjacent to the boundary of a phonological phrase, it is deleted and the floating L links to the syllable which hosted the deleted H at the underlying level; this is part of the more general process whereby L spreads onto H followed by the boundary of a prosodic phrase, see Section 5.6. The realization of floating L before H is formulated in (5.29) below:

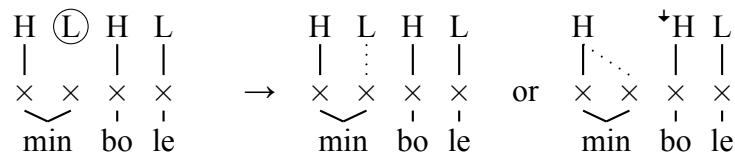
(5.29) (a) Floating L is realized as the downstep of the following H, separated from PhP boundary by L: $\textcircled{L} \rightarrow \downarrow / _ HL\#$

(b) Floating L deletes the following H which is followed by PhP boundary: $\textcircled{L}H\# \rightarrow L$

(c) Floating L links to the last mora before the PhP boundary: $\textcircled{L}\# \rightarrow L$

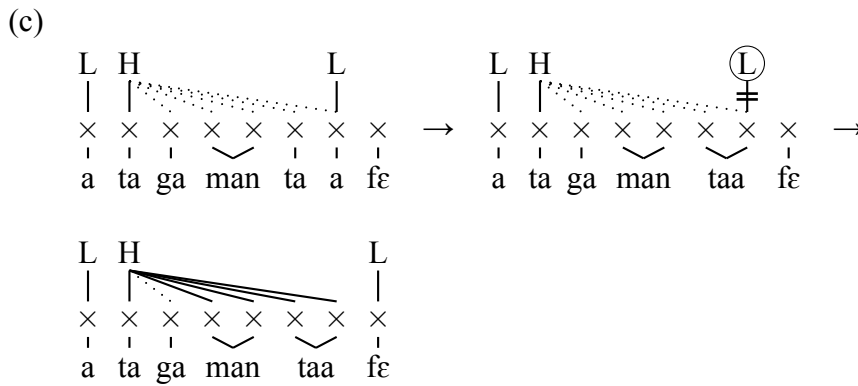
The domain of H preceding \textcircled{L} consists of minimally two moras, as in (5.30 aa), but it can also be much longer. Thus, in (5.30 ab) the domain of H preceding the floating L extends over the verb root (consisting of four moras), the toneless suffix and the toneless postposition *fɛ*. Consequently, the floating L is linked to this postposition, since it is the last mora of the domain:

(5.30) (a) (a) $/\text{mín}^L \text{bólè}/ \rightarrow \text{mín} \text{bólè} \quad \text{or} \quad \text{mín} \downarrow \text{bólè}$
REL hand.ART ‘whose hand’



(b) (b) $/\grave{a} \text{tágaman-ta} \grave{a} \text{fɛ}/ \rightarrow \grave{a} \text{tágámántáá} \text{fɛ}$
3SG walk-PST.INTR 3SG with ‘He walked with it’

4. See Creissels & Sambou (2013) on Mandinka, Dumestre (1994) on Bamana, Creissels (2009a) on Kita Maninka, Green et al. (2013) on Susu, Creissels (2016) on Soninke.



The conjunction *bá(a)^L* ‘since’ and *fí(i)^L* ‘because’ can be realized as monomoraic, but only in the case when L does not link, within the morpheme, otherwise, this would lead to the violation of the non-complexity principle. Thus, in (5.31 a) *fí^L* is realized with the length of 280 ms and L is linked to the morpheme itself, whereas in (5.31 b), where the floating L surfaces as downstep of the following H, the length of its surface realization is 0.90 ms.

- (5.31) (a) *fí* *tún* *à* *náá⁺mú* *nòn*
fí^L *tún* *à* *ni ànu* *nòn*
 because only 3SG SBJV 3PL be.stronger
 The only reason is that he was stronger than them.

- (b) *fí* *⁺fěn* *nà*
fí^L *fěn* *la*
 because thing OBL
 For what reason?

In Section 5.8 I describe how floating L is realized depending on whether is is followed by toneless TBUs, by H or L, or by various combinations of the three.

5.3.4 Prosodic hierarchy and tonal processes

The tonal processes discussed in the remainder of the Chapter (Sections 5.5-5.9) are applied within the limits of specific prosodic units. Table 5.2 represents the association between the central tonal processes in Kakabe and their prosodic domains. The tonal processes are introduced here

	Tonal properties	Section
IP	H tone insertion due to Obligatory Contour Principle: /L ₁ L ₂ / → L ₁ H L ₂	5.5
(Intonation Phrase)	total/partial downdrift reset	5.5.8
	right boundary tone (optional)	6.4
PhP (Phonological Phrase)	Tone Leveling partial downdrift reset (optional)	5.6 5.3.4.1
PW(Prosodic word)	tonal compounding	5.9.2.1
Ft (Foot)	defines the H tone insertion due to Obligatory Contour Principle: morphologically simple words	5.5
σ (syllable)	defines the realization of the referential article	5.9.1
	defines the alignment of ↑HL% boundary tone	6.4.5
μ (mora)	TBU	5.3

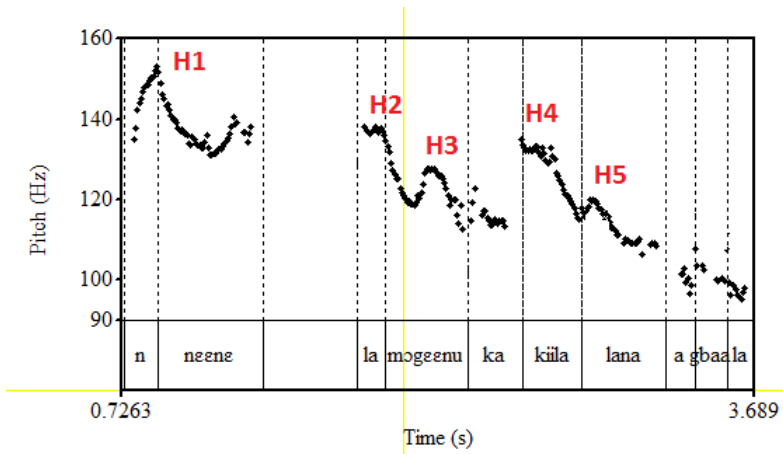
Table 5.2: Prosodic units as domains of tonal processes

5.3.4.1 *PhP and partial downdrift reset*

As said in Section 5.2.1, downdrift is constrained by the boundaries of prosodic units. It is reset at IP boundary and within IP it can be partially reset at the PhP boundary, depending on the discourse salience of the corresponding segment of the utterance.

Example (5.32) illustrates the hierarchical organization of downdrift. Though there is a general lowering of H tones across the utterance, the peak in the middle partially disturbs the decline: H₄ is lower than H₁ and H₂ but is higher than H₃. The tonal contour in (5.32) reflects the fact that the utterance (5.32) contains two PhPs which are integrated into IP, a hierarchically higher prosodic unit. The subject DP *ń nènè lá m̀g̀g̀ènù kà* constitutes the first domain of downdrift, the VP with lexical DP *kíllà lánà* ‘send the envoy’ constitutes the second downstep group, and the whole utterance is the third prosodic domain of higher level including the two first ones. Thus, prosodic units can be organized into hierarchical structures which is reflected the way downdrift shapes the tonal contour of the utterance.

(5.32) *n̄ n̄ɛ̄n̄ɛ̄(0.21) lá m̄òḡé̄n̄ù k̄à k̄íìl̄à lá⁺n̄à à*
n̄ n̄ɛ̄n̄ɛ̄ la m̄òḡɔ̄-È-n̄ù ka k̄íìl̄a-È la-n̄à à
 1SG mother POSS man.ART-PL PFV.TR envoy-ART CAUS-come 3SG
gb̄àà là
gb̄àa la
 trace OBL
 The relatives of my mother sent a messenger for her.

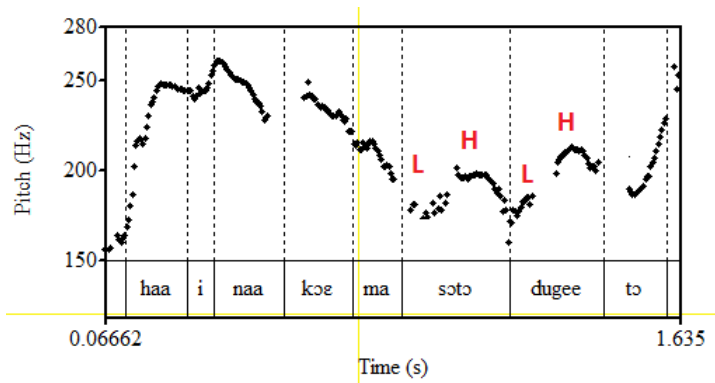


Due to the downdrift, the site of linking of the first H tone in IP is the most prominent position by default. The further an element is from the beginning of IP, the less prominent it is, due to the default prosodic organization of IP. Thus, the downstep reset is a repair mechanism which adjust cases when a discursively salient element is found in a prosodically non-prominent position.

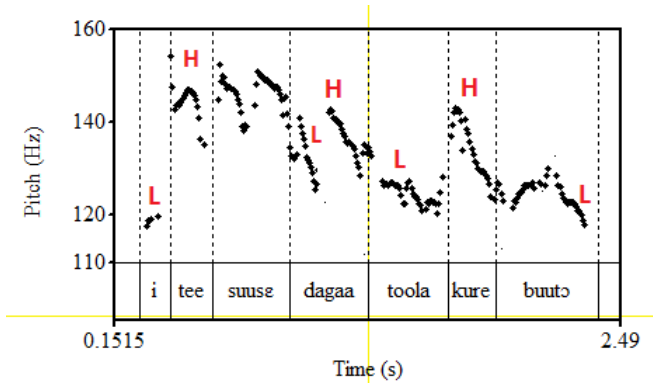
Partial downdrift reset signals discourse salience for which the presence of PhP boundary is an obligatory but not sufficient condition since PhP boundary is not always preceded by this resetting.

Partial downdrift reset typically precedes NPs in the postverbal position. This is due to the fact that, on the one hand, adverbs and indirect objects are usually “not enough” to create an independent IP since they don’t have propositional content, but, on the other hand, they often contain prominent information. Thus, in (5.33) H tone on *dùgèè* is slightly higher than the preceding H, and in (5.34) H tone on *kúrè* is at the same level as the preceding H.

(5.33) ((*i n̄àà k̄ó⁺é m̄á-s̄òt̄ó*)_{PhP} (*dùgèè t̄ò*)_{PhP})_{IP}↑
ì n̄i à k̄ó-È m̄a-s̄òt̄o dùḡu-È t̄o-R%
 2SG SBJV 3SG back-ART VB.PL-get earth-ART in-FinR
 You will get it from the earth.

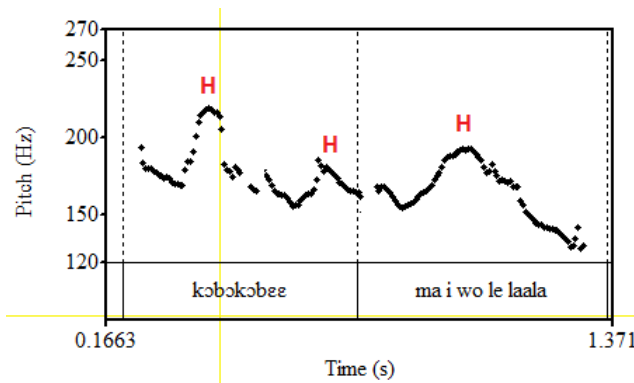


(5.34) ((i tée súúsé dàgáá tòòlà)_{PhP} (kúré búútò)_{PhP})_{IP}
 ì tée súuse dàga-È tò-la kúru-È búùtò
 2SG POT.NEG dare pot leave yard-ART in
 You wouldn't dare to leave a pot in the yard [otherwise it would be stolen].



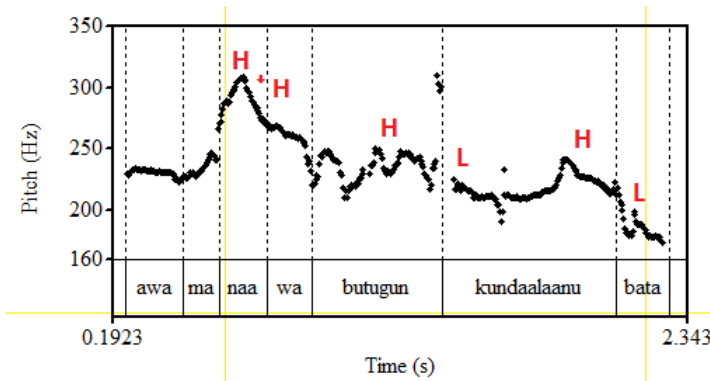
Left topic is one more type of constituent which, on the one hand, is non-propositional and thus tends to lean to some sequence with propositional content to create IP, and, on the other hand, is relatively salient. Downdrift reset usually separates left topic from the following clause. Thus, in (5.35) H belonging to the clause is upstepped with respect to the second H of the left-topic constituent.

(5.35) ((kòbókòbè⁺é)_{PhP} (mà ì wó lè làlà)_{PhP})_{IP}
 kòkòkòbò-È mà bi wò lè lá-la
 eggplant-ART 1PL be that FOC plant-GER
 The eggplant, that is what we plant.



The optionality of partial downdrift reset with respect to a PhP boundary is seen by the comparison between (5.36) where the adverbial phrase is not preceded by any downdrift and (5.33) where it is. This difference is motivated by the difference in salience: postpositional phrase in (5.33) is marked as more salient as the postpositional phrase in (5.36).

- (5.36) ((àwà mà ná⁺á wá bùtúgún kùndààláánù bàtà)_{PhP})_{IP}
 àwà mà ni à wá bùtúgn kùn-dá-laa-È-nu báta
 well 1PL SBJV 3SG go again head-make-AG-PL at
 Well, we go to hair-dressers.



5.3.4.2 Syntactic and morphological correlates of PhPs and IPs

Example (5.37) below reproduces a part of a bigger extract, discussed in Chapter 6 (see Section 6.4.1). The division into lines represents the partition into phonological phrases (PhPs), with the syntactic role of each of the phonological phrases represented to the left from the transcription.

(5.37) Extract from a conversation (Nyamayara, December 2013)

(a)	<i>wó lè</i>	left-disl. topic	As for you,	total D ⁵ reset
(b)	<i>súúmá⁺ yé mán dòn</i>	finite clause	when Ramadan begins	partial D reset
(c)	<i>wò ì fēn dè wàlilà</i>	finite clause	what do you do	total D reset
(d)	<i>súúmá⁺ yé búútè tò</i>	adv. phrase	during Ramadan	no D reset
(e)	<i>wò lá kàyèèni yèn</i>	adv. phrase	for your husbands?	no D reset

In (5.38) are listed the syntactic correlates of PhP. These are constituents which minimally project a PhP, but can also project a separate IP.

(5.38) Adverbial and postpositional (or prepositional) non pronominal phrases, finite clauses⁶, left-dislocated topics, interjections.

According to this, adverbs, e.g. *kóobèn* ‘a lot’, *dóndèn* ‘a little’, *káà* ‘there’, usually form a separate PhP. Conjunctions and prepositions introducing clauses or adverbial phrases are usually preceded by a PhP or IP boundary respectively, e.g. *káa* ‘or’, *kó* quotative, *fó* modal conjunction, *fó* ‘except for’, *háa* temporal conjunction ‘until’ or adverb ‘for a long time’. It should be noted that in Kakabe all morphemes that function as prepositions can also introduce clauses, i.e. all prepositions are also conjunctions, but not all conjunctions can function as prepositions. Finally, interjections, e.g. *èéyì* ‘yes’, *àwa* ‘well, okay’, *káà* and *néè* ‘isn’t it?’, *ngàsí* ‘fine’, usually form an independent IP. See *àwa* and *èyoo* in (5.39) and (5.40) below. Note also the PhP containing the address *Nùmula Kàmara* in (5.39) and PhP formed by the left-dislocated topic phrase *wòlèè do lè* in (5.40).

(5.39) (*èyòò*)_{IP} (*àwà*)_{IP} ((*ñ b́átá⁺ á lón*)_{PhP} (*nùmùlá kàmàrà*)_{PhP})_{IP}

<i>èyoo</i>	<i>àwa</i>	<i>ñ</i>	<i>b́átí</i>	<i>à</i>	<i>lón</i>	<i>Nùmula</i>	<i>Kàmara</i>
DISC	well	1SG	PFV.OF	3SG	know	NOM.F	NOM

Well, I see, Numula Kamara

5. D stands for downdrift.

6. In Section 6.6 I describe a construction in which several negative clauses are joined in one PhP. As it is shown, this merger of clauses in this case is a particular stylistic device which represents negative propositions as units of one list.

- (5.40) (*àwà*)_{IP} (*wòlélé* ⁺*dó* *lè*)_{IP} (*à wíire-ta* *brúsà tɔ*)_{IP}
 àwa wòlo-È do lè à wíire-ta búrusa-È tɔ
 well franconlin-ART one FOC 3SG fly-PFV.INTR bush-ART in
 Well, there was a francolin [bird species] who flew into the bush.

Example (5.41) illustrates an adverbial phrase (which is also a left dislocated topic) preposed to the verbal predication, and projecting a PhP on its own.

- (5.41) (*wò sóè* *bú⁺útó*)_{PhP} (*mògò síyámán nàtà*)_{PhP}
 wò sóo-È búùtɔ mògɔ síyaman nà-ta
 that village-ART in man numerous come-PFV.INTR
 In that area, a lot of people came

If the finite clause is independent, it is preceded by IP boundary which implies PhP boundary and blocks LL contact as well as LHL contact. Dependent clauses create a PhP boundary only which blocks LHL contact only, see Section 5.3.4.

Utterance in (5.42) contains two clauses projecting separate PhP, the second of which is preceded by partial downdrift.

- (5.42) Partial upstep preceding the second clause

- ((*wò ì wúsé⁺né* *sènná wò náà* *dàmù*)_{PhP} [↑](*káá*
 wò bi wúsen-È sèn-la wò ni à dámu káa
 2PL be sweet.potato-ART dig-GER 2PL SBJV 3SG eat or.INTERR
wò wáttòè *bát* *tànbi*)_{PhP})_{IP}
 wò wáttu-È báti tànbi
 that time-ART PFV.OF pass
 Do you dig sweet potato to eat, or this time has passed?

The utterance in (5.43) contains one IP united by downdrift with three PhPs, main clause, adverbial phrase, and the dependent clause.

- (5.43) ((*ì bátáà* *lòn*)_{PhP} (*ḡóó nétò*)_{PhP} (*má lé* ⁺*báh* *hákkilímáyà*
 ì báti à lón ḡóó nétɔ mà lè báti hákkilimaya-È
 2SG PFV.OF 3SG know that in 1PL LG PFV.OF experience-ART
kè)_{PhP})_{IP}
 ké
 do
 You know, in this question, we have experience

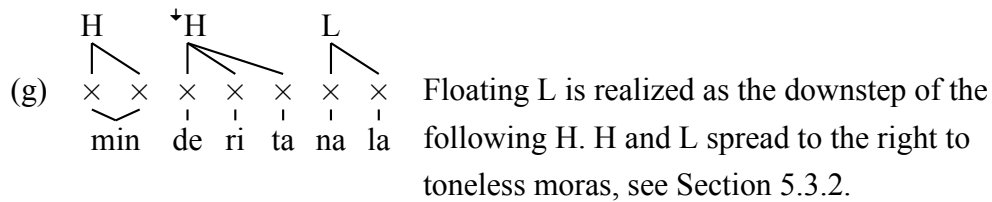
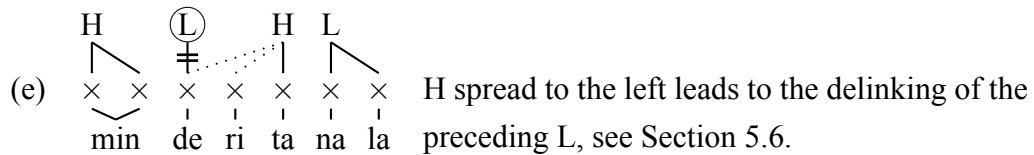
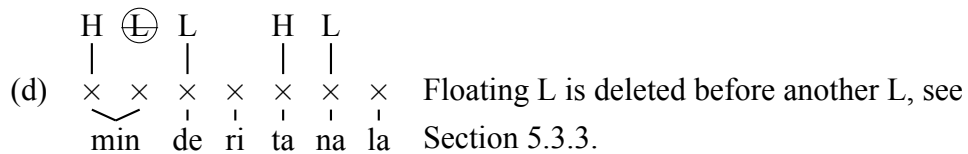
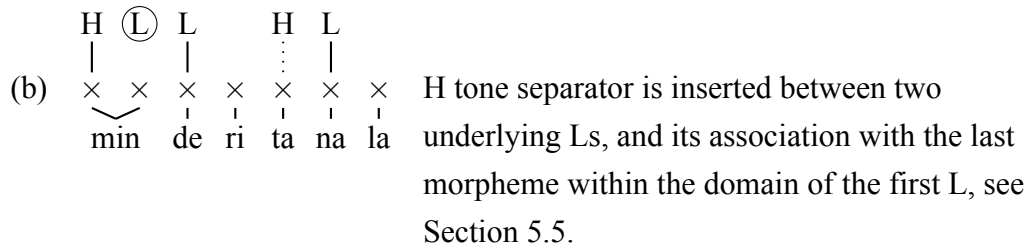
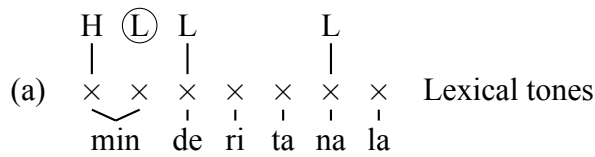
(mà mán bó)_{PhP} (lèkkól là)_{PhP} (wáttòè mín tò)_{PhP} (mà kà
 mà máni bó lèkkól-È la wáttu-È mín^L tò mà ka
 1PL COND leave school-ART OBL time-ART which in 1PL PFV.TR
 mín tètèn)_{PhP}
 mín^L tètèn
 which find
 When we leave, the school, the thing that we find...

5.3.5 Rule ordering and levels of representation

I use the rule-based derivational framework for the description of the Kakabe tonology. In this approach the surface representation is derived from the underlying form through the application of ordered rules at different stages of derivation. Thus, there the underlying level (the input) can be separated from the surface phonological representation by any number of intermediate levels resulting from the sequential application of tonal processes.

Example (5.44) below illustrates a possible progress of the tonal derivation in Kakabe.

- (5.44) *mín* †*déritá* *nàlà*
 mín^L dèri-ta *nà-la*
 REL be.used.to-PFV.INTR come-GER
 ‘The one who used to come’.



Thus, before the derivation is over, the tonal tier can have tones which are not linked to any segment (floating tones). And, the other way round, the prosodic tier can contain TBU which are not assigned any tone. But by the end of the derivation every TBU is assigned one tone. The application of tonal processes is ordered; see Section 5.6.3 for an illustration.

5.4 Lexical tone patterns

In Kakabe the combination of tones within the morpheme is restricted, making the notion of tonal class useful for the description of the language. This means that a simplex morpheme is associated with one of a limited number of tonal patterns. Besides, most of the content mor-

phemes belong to one of the two major tonal classes, where the first syllable is assigned an underlying H or L tone. All verbs and most of nouns belong to one of the two tonal classes: H or L, see Sections 5.4.1 and 5.4.2 respectively. A small number of nouns in Kakabe are characterized by minor tonal patterns with L assigned to the non-initial syllable, see Section 5.4.8.

In the model used in the current work, a tone can link to maximum one TBU at the lexical level. The sequence of equal tone on several TBUs is always the result of tone spread from TBU with tone to toneless TBUs, see Section 5.3.2. Following this principle, tonal patterns differ from each other by the underlying tones only, and not by the number of moras or syllables that a tone is linked to. Thus, *tèntení* ‘especially’ and *kàbí* ‘because’ belong to the same tonal type LH. A lexical tone is underlyingly associated only with one TBU. When there are more TBUs than underlying tones, the surface realization results from the spread of the lexical tone to the right to toneless TBUs, see Section 5.3.2.

The distribution of tonal patterns over morphemes is partially conditioned by their morphosyntactic category. Thus, morphologically simple verbs can be only H or L. Morphologically simple nouns, on the other hand, can be L, H but can also be attributed one of a minor tonal patterns, described in Section 5.4.8. Only functional and derivational morphemes can be toneless (tonal type \emptyset) at the underlying level. All toneless morphemes also display the segmental word-clitic adjustment described in Section 4.2.5. At the same time not all clitics are toneless, thus the focus marker *lè* is L-toned.

A morpheme may have a fixed position with respect to the boundaries of an intonation unit which can have an effect on its tonal realization. Thus, interjections, due to their morphosyntactic properties, are always at the end of an intonation unit and are associated with a particular illocutionary force. For this reason, it is impossible to decide whether their tonal realization is due exclusively to their lexical tone or contains a boundary tone (see 5.4.6). Monomoraic and highly grammaticalized postpositions are underlyingly toneless, whereas less grammaticalized postposition which often can be linked to noun from which they originate, are H, L or HL.

Table 5.3 visualizes the correspondence between the lexical tonal types and the morphosyntactic categories of the morphemes that can be assigned this pattern at the underlying level.

Tonal pattern	Morphosyntactic category
H	verbs, nouns, conjunctions, heavy auxiliaries, etc.
L	verbs, nouns, functional morphemes, etc.
HL	adverbs, interjections, conjunctions, postpositions; minor tonal pattern for nouns
LH	conjunctions, prepositions and interjections
H ^L	numerals, determiners, etc.
L(HL)	interjections
∅	functional and derivational morphemes
discontinuous L	minor tonal pattern for nouns

Table 5.3: Morphosyntactic categories and lexical tone patterns

The tonal patterns are represented in decreasing order of their frequency in the Kakabe lexicon.

5.4.1 Type H

H is assigned only to the first mora, and the remaining moras are not specified for tone. Examples (5.45a) - (5.45c) illustrate H-toned verbs, nouns and functional morphemes respectively.

- (5.45) (a) σ *lá* ‘lie’
 $\sigma\sigma$ *tága* ‘go’
 $\sigma\sigma\sigma$ *tágaman* ‘walk’
- (b) σ *báa* ‘river’
 $\sigma\sigma$ *dógo* ‘younger sibling’
 $\sigma\sigma\sigma$ *sádaka* ‘alms’
 $\sigma\sigma\sigma\sigma$ *káwutali* ‘neighbor’.
- (c) σ *fó* modal sentence-initial marker ‘it is necessary that’
 σ *fí* preposition/conjunction ‘until’
 σ *kó* quotative marker.
 σ *háa* preposition/conjunction ‘until’

Lexical H tone is assigned to all heavy (bi-moraic) auxiliaries in CK and WK. In NK all the heavy auxiliaries have the tonal form H with a floating L, see Section 5.8.3.

(5.46)	CK, WK	NK	
	<i>máa</i>	<i>máa^L</i>	negative perfective auxiliary
	<i>tée</i>	<i>tée^L</i>	negative potential auxiliary
	<i>báti</i>	<i>báti^L</i>	perfective [+OF] auxiliary
	<i>máni</i>	<i>máni^L</i>	conditional auxiliary

5.4.2 Type L

L links to the initial mora of morphemes belonging to the tonal type L. Before another L tone items of this tonal type are realized as LH (and monomoraic morphemes as H in certain circumstances), because a separating H tone is inserted between two L tones, see Section 5.5.

Some examples of L-toned verbs, nouns and determiners are given in (5.47) below.

(5.47)	σ	<i>nà(a)</i>	‘come’	verb
	$\sigma\sigma$	<i>bíta</i>	‘catch’	verb
	$\sigma\sigma:\sigma$	<i>tàlancan</i>	‘split’	verb
	σ	<i>bàa</i>	‘goat’	noun
	$\sigma\sigma$	<i>dòòlè</i>	‘force’	noun
	$\sigma:\sigma\sigma$	<i>jànpata</i>	‘snail’	noun
	$\sigma\sigma$	<i>jètè</i>	‘self’	determiner
	$\sigma:$	<i>nùn</i>	retrospective marker-1	determiner
	$\sigma\sigma$	<i>tèrè</i>	retrospective marker-2	determiner

To this tonal class also belong the postpositions which are historically derived from the combination of an L-toned nominal root and a simple postposition:

(5.48)	complex pp.	noun		pp.	
	<i>kènna</i>	< <i>kèn</i>	‘foot’	+ <i>la</i>	OBL
	<i>kùnma</i>	< <i>kùn</i>	‘head’	+ <i>ma</i>	‘on’
	<i>kùntɔ</i>	< <i>kùn</i>	‘head’	+ <i>tɔ</i>	‘on’

Morphologically simple L-toned morphemes consisting of more than two syllables vary in how separating H tone is aligned on them, see Section 5.5. Nevertheless, I argue that there is no necessity to assume that it is specified lexically.

The alternation between all-L and LH realization of L-initial forms, conditioned by the right context, is common to many Central Mande, and its description has been subject to a lot of debate. Grégoire (1986); Dumestre (2003); Creissels & Sambou (2013) and others describe this H as part of the underlying form. This seems to be an acceptable solution in the case of LH realization of morphologically simple forms. Yet, when any morphologically and syntactically complex forms are concerned, it becomes problematic. It would be necessary to recur to H insertion to account for the tonal realization of nominal compounds. Besides, the LH underlying approach necessitates to attribute to functional morphemes an underlying H which surfaces uniquely before another L. For these reasons, I chose to account for H as the result of tone insertion, see also the discussion on this subject in Section 5.5.2.

L of the two clause-initial L-toned conjunctions and two L-toned interjections which are listed in (5.49) below don't interact with the following L: no H tone is inserted before another L. This exceptional behavior can be associated to their extra-clausal position. The interjections *jàka* 'really', *àwa* 'well', *yòò* 'okay' and the conjunction *kənɔ* 'but' which can also be used as an interjection can form a separate intonation phrase. As shown in Section 5.5.8, the IP boundary blocks the interaction between Ls and no H separator is inserted. At the same time, apparently, they can also be in the same intonation phrase as the following L-toned element and not interact with the latter at the tonal level. Therefore, the absence of tonal interaction is rather their lexical property, even if it is related to their syntactic properties.

- (5.49) *sì* conj. 'if'
kənɔ conj./itj. 'but'
jàka itj. 'really', exclamatory interjection
àwa itj. 'well'
yòò itj. 'okay, I see'.

The first and second person pronouns, the demonstrative *kè* 'this', and the focus marker *lè* (5.50) are monomoraic morphemes with L tone. Before another L tone they display special tonal behavior which is discussed in Section 5.7.

- (5.50) personal pronouns *ɲ* 1SG demonstratives *kè* 'this'
ì 2SG anaphoric pronoun *wò* 'that'
mà 1PL focus marker *lè*
(w)ò 2PL

The 3SG pronoun *à* and the infinitive marker *kà* differ from the other L-toned morphemes by the fact that before another L, separating H tone cannot be linked on the morpheme itself. I

use underscored L to refer to this kind of L tone. In Section 5.5 it is shown that H tone is also inserted between L and L, but it can be realized only when L is followed by a toneless morpheme. It should be noted that the 3SG *à* displays the same tonal behavior in many of Manding languages; see Dumestre (1994), Creissels (2009a: 38) and Creissels & Grégoire (1993).

5.4.3 Type HL

The tonal pattern HL is common for adverbs, interjections, conjunctions.

<i>bútùn</i>	adv.	‘yet’
<i>bútúgùn</i>	adv.	‘at first’
<i>sérùn</i>	adv.	‘last year’
<i>kúnùn</i>	adv.	‘yesterday’
<i>kámà</i>	adv.	‘how’
<i>kómìn</i>	adv.	‘where’
<i>dóndèn ~ dóndén</i>	adv./dtm.	‘a little bit’
<i>jóò ~ jóó ~ jɔ</i>	adv./dtm./pron.	‘there’
<i>jóòla ~ jɔla</i>	adv.	‘there’ < <i>jóó</i> ‘there’ + <i>la</i> OBL
<i>sánnìn</i>	conj./prep.	‘starting from’
<i>àwà ~ àwa</i>	itj.	‘well’
<i>fáyidà ~ fáyida</i>	itj.	‘almost/indeed’
<i>jóò ~ yóò</i>	itj.	‘okay, I see’
<i>yándì</i>	itj.	‘please!’
<i>tóolì</i>	itj.	‘welcome!’

To this tonal class also belong the postpositions which are historically derived from the combination of an H-toned noun denoting a body part and a simplex postposition. The variants with the alignment of L on the second or on the third mora, e.g. *búútɔ ~ búutò* ‘inside’, are in free variation. The toneless allomorph with the reduced first vowel (for those postposition whose first part originates from a CVV noun), e.g. *butɔ* is due to the form reduction as part of the grammaticalization process.

<i>búùtò ~ búútò ~</i>	‘inside’	<	<i>bíú</i> ‘stomack’	<i>tò</i> ‘in’
<i>butò</i>				
<i>téèma ~ téemà ~</i>	‘between’	<	<i>téé</i> ‘waist’	<i>ma</i> ‘on’
<i>tema</i>				
<i>kóòma ~ kóómà ~</i>	‘behind’	<	<i>kóó</i> ‘back’	<i>ma</i> ‘on’
<i>koma</i>				
<i>kânma ~ kánmà</i>	‘on (a surface)’	<	<i>kán</i> ‘neck’	<i>ma</i> ‘on’
<i>~ kanma</i>				
<i>jààtò ~ jáatò ~</i>	‘in front of’	<	<i>jáa</i> ‘eye’	<i>tò</i> ‘in’
<i>jatò</i>				
<i>jààkòtò</i>	‘in front of’	<	<i>jáa</i> ‘eye’	<i>kòtò</i> ‘under’

The fact that HL is associated with the adverbial position is manifest in the tonal realization *dónden* ~ *dóndèn* ‘a little, rather’ which can be used as an adverb or as a noun or as a determiner. As an adverb it is always realized with the HL tone, as in (5.51) and (5.52) below:

- (5.51) *lúú⁺mé kòlò dóndèn*
lúumò-È kòlo dónden
 market-ART big little
 The market is rather big.

- (5.52) (*mà là tóóróyà dóndèn*)_{IP} (*mà yáá ⁺fóla lè*)_{IP}
mà la tóóróya-È dónden mà bi à fò-la lè
 1PL POSS problem-ART little 1PL be 3SG say-GER FOC
 Our problems, we will talk about it a little bit.

When *dónden* is a part of NP, as in (5.53), or NP as in (5.54), there is no L on the second syllable.

- (5.53) *wálè dóndén tólén yàn*
wáli-È dónden tó-len yàn
 work-ART little leave-PC.ST there
 There is a little bit of work left.

- (5.54) *à nì dóndén tà*
à ni dónden tà
 3SG SBJV little take
 she would take a little bit.

In (5.55) *dónden* is used pronominally in the position of the DO, and it has no L, so that H spreads on the following causative prefix:

- (5.55) *à ni dónđen nátànbi mà yèn*
à ni dónđen la-tànbi mà yen
 3SG SBJV little CAUS-pass 1PL BNF
 They should give us a little bit.

When *dónđen* is used adverbially, it can be reduplicated, expressing the meaning ‘little-by-little’, in this case it is always realized as *dónđen dónđen*, with L on the second syllable of the both instances.

- (5.56) *dón⁺dén dónđen wó⁺té siyàyàtà*
dónđen dónđen wóti-È siyaya-ta
 little little money-ART accumulate-PFV.INTR
 Little-by-little she accumulated some money.

Similarly to *dónđen ~ dónđen*, the allomorphs *ɲóò ~ ɲóó ~ ɲɔ* ‘there’ are also distributed following the syntactic function of the morpheme. As an adverb, it is always realized as HL *ɲóò* and as a determiner or a pronoun it is realized with H tone *ɲóó*. And similarly to complex postpositions which have full and reduced variants, e.g. *búùtɔ ~ butɔ*, it also has a reduced allomorph *ɲɔ*, with a short vowel and no underlying tone which occurs as a free variant both in the determiner and in the adverbial position.

5.4.4 Type LH

LH lexical tone is assigned to certain conjunctions, prepositions and interjections, e.g.:

- (5.57) *dèpí* conj./prep. ‘since, starting from’
kàfí conj. ‘as far as’
kàbí conj. ‘since, because’
yànnín conj./prep. ‘before’
pàsé conj. ‘because’
tèntení itj. ‘especially’.

Unlike the morphemes of L type, these morphemes are always LH and never all L, see (5.58) and (5.59) where *dèpí* ‘since’ is realized as LH both before L and before H.

- (5.58) *dèpí ràyì bóò fɔlòtà*
dèpí ràyì bóɔ-È fɔlɔ-ta
 since rail take.off-ART start-PFV.INTR
 From the moment when taking off of the rails started...

- (5.59) *dèpí júma sálè fólòtà*
dèpí júma sáli-È fólò-ta
 since Friday prayer-ART start-PFV.INTR
 From the moment when the Friday prayer started...

5.4.5 Type H^L

The morphemes with the tonal type H^L (H with floating L) are listed in (5.60).

- (5.60) *mín^L* ‘which’ (relativization marker)
yón^L ‘who’
kélen^L ‘one’
mùgan^L ‘twenty’
ńógón^L~ńógòn ‘each other (reciprocal pronoun)’
tán^L ‘ten’
bii^L ‘-ty’ (prefix used to make name of multiples of tens)
baa^L ‘since’
fi^L ‘because, for’ (preposition/conjunction)
fèn^L ‘what’ (with the relative maning)⁷

The units like *bá^L~baà~báyì, ńógón^L~ńógòn* vary between HL and H^L, L tone can either link to the last mora of the morpheme or it can be floating. The numerals that end with a floating L are *kélen^L* ‘one’; *wóor^L* ‘six’; *kòntò^L* ‘nine’; *tán^L* ‘ten’ and *mùgan^L* ‘twenty’; see also Section 5.8.2. The realization of the floating L is described in Section 5.8. H^Llexical pattern is also associated with heavy auxiliaries in NK, see Section 5.8.3.

5.4.6 Type L(HL) or L with boundary tone

Interjections are realized with the rising-falling LHL lexical pattern.

- (5.61) *ènéè* itj. interrogative marker
àmìni itj. ‘amen’
ńógósà itj. ‘maybe’
ò?óyè itj. ‘no’
hìì itj. ‘yes’

7. The negative pronoun *fèn* ‘nothing’ is assigned H tone without any floating L.

At the same time, since, by definition, interjections form an independent IP and are associated with a particular type of illocutionary force, this tonal pattern can contain a boundary tone: it is likely that HL is the boundary tone $\uparrow\text{HL}\%$. H is realized at the top of the pitch range (therefore the tone is automatically $\uparrow\text{HL}$). At any case, since, as has been said, the interjection forms an independent IP, and IP is always preceded by downdrift reset. See the discussion in Section 6.4.5.8 in Chapter 6.

5.4.7 Type \emptyset

Toneless morphemes receive their tones through the rules of derivation depending on the contexts, prosodic boundaries etc. A considerable part of functional monomoraic morphemes don't have any lexical tone. All light auxiliaries, the three verb prefixes (the causative marker *la-*, the reflexive marker *ta-* and the verbal plurality marker *ma-*), the light postpositions and many of the suffixes belong to this type:

(5.62)	<i>si</i>	potential-future auxiliary	<i>ta-</i>	reflexive prefix
	<i>ni</i>	optative-subjunctive auxiliary	<i>ma-</i>	verbal plurality prefix
	<i>ka</i>	perfective auxiliary	<i>la-</i>	causative prefix
	<i>-nu</i>	plural suffix	<i>tɔ</i>	postposition 'in'
	<i>-la</i>	gerund suffix	<i>la₁</i>	oblique postposition
	<i>-ri</i>	antipassive nominalization suffix	<i>la₂</i>	possessive marker

It should be kept in mind that often, in descriptions of languages related to Kakabe, analogous morphemes are described as H toned, and this is explained by the fact what I treat as H inserted in the course tonal derivation (see Section 5.5), is treated there as part of the lexical form. Thus, the Kakabe oblique postposition *la₁* as well as *la₂* the possessive marker have analogues in many related languages, where they are analyzed as H-toned, e.g. *lá* with the both same meaning in Maninka, Mandinka, Xasonka and also in the most descriptions of Bamana, except for the latest publication by Vydrin (2017a). Yet, this H systematically disappears before another L, so it is rather derivational than a lexical tone. Similarly, Grégoire (1986) attributes H tone to *-nú* and *-lá* which correspond to the Kakabe plural suffix *-nu* and the gerund *-la*. She mentioned them in the discussion of whether it is justified to attribute H to such forms which manifest it only before L, see (1986: 16-17).

Almost all derivational suffixes are underlyingly toneless, they are listed below:

(5.63)	<i>-kaa</i>	suffix used to form names of inhabitants
	<i>-baga</i>	agent noun suffix
	<i>-bɔnɔ</i>	‘-less’, suffix with privative meaning
	<i>-laa</i>	deverbal agent nominalization suffix
	<i>-nden₁</i>	diminutive suffix
	<i>-nden₂</i>	stative participle suffix
	<i>-nɔgɔ, -nan, -nan</i>	ordinal numeral suffixes

Some of the derivational suffixes can be traced back to nouns. The suffix *-bɔnɔ* is related to the noun ‘loss, misfortune’, cf. *bɔnɔ* in Maninka, Susu, Jalonke, etc. The diminutive suffix *-nden* is related to *dén* ‘child’ in Kakabe representing a common Mande root present in big number of languages. These elements became suffixes though the process of NP compounding which implies the loss of the tones of all non-initial elements; see Section 5.9.2.1.

5.4.8 Minor tonal types of nominal roots

Unlike the two major tonal types L and H, where only the first syllable is lexically specified for lexical tone, minor tonal types are characterized by the assignment of L tone to non-initial syllables. The minor patterns are neutralized to the major tonal types L and H in numeral phrases and compounds, see Section 5.9.2.2. The morphemes with minor tonal patterns are either unmotivated reduplication forms (5.64 a), borrowings (5.64 b), or morphemes which are supposedly etymologically complex (5.64 c). In the surface realization, H separating tone appears between Ls, see the last column in (5.64 a)-(5.65) representing the citation form with the referential article *-È*. This is due the obligatory contour principle, see Section 5.5.

(5.64) (a) Unmotivated reduplication roots

òssòs	‘eggplant’	<i>kàbɔkàbɔ</i>	+ <i>-È</i>	→	<i>kàbókàbéè</i>
òssòs	‘warthog’	<i>kìdakìda</i>	+ <i>-È</i>	→	<i>kìdákìdáà</i>
òssòs	‘pangolin’	<i>kònsɔkànsa</i>	+ <i>-È</i>	→	<i>kònsókànsáà</i>
òssòs	‘gallbladder’	<i>kùnankùnan</i>	+ <i>-È</i>	→	<i>kùnánkùnánè</i>

(b) Borrowings

òssòs	‘nightjar (bird species)’	<i>tànbádùfa</i>	< Pul. ⁸	+ <i>-È</i>	→	<i>tànbádùfáà</i>
òssòs	‘helicopter’	<i>èliskòpter</i>	< Fr.	+ <i>-È</i>	→	<i>èliskòptèrè</i>
òssòs	‘evening’	<i>àlansàra</i>	< Pul.	+ <i>-È</i>	→	<i>àlánsàràà</i>

8. The word is attested in many Manden languages and in Pular it is, most likely, a Mande borrowing (Vydrin,

(c) Supposedly etymologically complex

óòóó ‘scorpion’ *jónkònkò* + -È → *jònkònkéè*
cf. *jón* ‘slave’

óóóóó ‘tree (sp.)’ *kètújànkuma* + -È → *kètújànkúmà*
cf. *jàkuma* ‘cat’ in Bamana

It should be noted that there is no clear boundary between the cases like (5.64 c) and the idiomatic combinations of roots which are discussed in Section 5.9.2.1.

Nouns in (5.65) represent the sub-type HL, all borrowings from Pular which is distinguished by the fact that when they combine with the referential article *-E* the final L and the L of the article merge, and no separating H is inserted, see also (5.67) in Section 5.4.9 for the whole list and the discussion.

(5.65) Pular borrowings with L tone on the syllable originating from the class suffix

óóó(ó) ‘shorts’ *fártawàl(i)* < Pul. + -È → *fártàwàlè*
óóó(ó) ‘centipede’ *káatatl(i)* < Pul. + -È → *káátátalè*
óóó(ó) ‘shovel (to stir peanut)’ *sáaragàl(i)* < Pul. + -È → *sáárágàlè*.

5.4.9 Tonal adaptation of loanwords

In Kakabe the two main sources of loanwords are Pular and French. Loanwords follow the correspondence between lexical tonal patterns and the grammatical categories which characterize the original Kakabe words. Thus, all the verbs and the majority of nouns belong to either H or L tonal classes, adjectives, conjunctions can also be assigned HL, LH, LHL tones, as their original Kakabe counterparts:

p.c.). Nevertheless, the form of the word in Kakabe indicates that it is more likely to be a secondary borrowing from Pular, cf. Bamana *ntúba*, *ntúga*, *ntúfa* and Pular *tanbadufa*.

(5.66) (a)	conj.	H	<i>káa</i>	interrogative ‘or’	< Pul.	<i>kaa</i>
	conj.	LH	<i>kàbí</i>	since	< Pul.	<i>kabii</i>
	conj.	HL	<i>kére</i>	interrogative conj.	< Pul.	<i>kori/kere</i>
	conj.	LHL	<i>sinàà</i>	otherwise, except	< Pul.	<i>sinaa</i>
	conj.	LH	<i>dèpí</i>	‘since’	< Fr.	<i>depuis</i>
	conj.	LH	<i>pàsé ~ pàséke</i>	‘because’	< Fr.	<i>parce que</i>
	itj.	LHL	<i>hīī</i>	‘yes’	< Pul.	<i>hihi</i>
	itj.	LH	<i>ngàsí</i>	okay, that’s fine	< Pul.	<i>gasi</i>
	itj.	L	<i>yòò</i>	‘well’	< Pul.	<i>yoo</i>
	adv.	LH	<i>fàhín</i>	‘again, always’	< Pul.	<i>fahin</i>
	adv.	HL	<i>tóòdè</i>	at all, anyway, moreover	< Pul.	<i>toode</i>
	adv.	H	<i>láv</i>	‘early’	< Pul.	<i>law</i>
	adv.	LH	<i>túsur ~ túsúr</i>	‘always’	< Fr.	<i>toujours</i>
(b)	n.	L	<i>fēete</i>	winnower	< Pul.	<i>feete-wo</i>
	n.	H	<i>kánsa</i>	stony area	< Pul.	<i>kansa-ngere</i>
	n.	L	<i>tèni</i>	‘uniform’	< Fr.	<i>tenue</i>
	n.	L	<i>sòfēr</i>	‘driver’	< Fr.	<i>chauffeur</i>
	n.	H	<i>liniwersite</i>	‘university’	< Fr.	<i>l’université</i>
	n.	H	<i>róbel</i>	‘rebel’	< Fr.	<i>rebelle</i>
(c)	v.	L	<i>jàlbe</i>	‘shine’	< Pul.	<i>jalbu-gol</i>
	v.	H	<i>jille</i>	‘mix’	< Pul.	<i>jillu-gol</i>
	v.	L	<i>dèpansi</i>	‘spend’	< Fr.	<i>dépenser</i>
	v.	H	<i>wóte</i>	‘vote’	< Fr.	<i>voter</i>

So far, there seems to be no regularity in the choice between L or H tonal pattern for the loanwords. However, if a loanword belongs to L class, a correlation can be found between the position of the accented syllable of the source words and the domain of H separator tone, see Section 5.5.5.

Pular nouns are marked with a class suffix, but most of them can also be used in a suffixless generic form. When nouns are borrowed to Kakabe from Pular, most often, they are borrowed in this suffixless form. But in some cases (mostly, when the noun in Pular has no generic suffixless form), the suffix is preserved. If a loanword originates from a Pular noun of the class NGOL and NGAL and is borrowed with the class marker *-ol* and *-al* respectively, then the class suffix is associated with L tone, the list is given in (5.67) below. The tonal behavior of these nouns is special in that no separating H tone is inserted when they are followed by L

tone, see Section 5.9.1.5.

(5.67)	‘shorts’	<i>fártawàl</i>	< Pul.	<i>fartawal</i>	NGAL
	‘shovel (sp.)’	<i>sáaragàl</i>	< Pul.	<i>saaragal</i>	NGAL
	‘mirror’	<i>ndáarogàl</i>	< Pul.	<i>ndaarogal</i>	NGAL
	‘honor’	<i>téddungàl</i>	< Pul.	<i>teddungal</i>	NGAL
	‘wall’	<i>jínbàli</i>	< Pul.	<i>jimbal, gimbal</i>	NGAL
	‘centipede’	<i>káatatàlu</i>	< Pul.	<i>kaatatal</i>	NGAL
	‘table’	<i>táabàli</i>	< Pul.	<i>taabal</i>	NGAL
	‘neighbor’	<i>káwutàli</i>	< Pul.	<i>kawtal</i>	NGAL
	‘throat’	<i>kónondòlu</i>	< Pul.	<i>konondol</i>	NGOL
	‘speech’	<i>kóngòl</i>	< Pul.	<i>kongol</i>	NGOL

5.5 Obligatory contour principle

The Obligatory Contour Principle (OCP henceforth), was formulated first by *Leben (1973)*, it is given in (5.68) below:

(5.68) Obligatory Contour Principle:

Adjacent identical elements are prohibited.

It was originally formulated to deal with tonal phenomena and then was extended to segments (McCarthy 1979, 1986; Yip 1988). OCP can be seen as a particular type of dissimilation constraint which keeps the identity of phonological units. The question of keeping distinct identity is especially relevant for tone units, considering the specificity of their relationship with the segmental tier, since one underlying tone which spreads onto two TBUs can be confused with two identical underlying tones associated with adjacent TBUs.

Tone languages where OCP is applied can use different types of strategies to preserve the distinctness of the tone units. The tone deletion strategy (Meeussen’s Rule) is widespread among Bantu languages. The tone fusion is applied, for example, in such language as Shona, Bamilike, see Yip (2002: Section 4.10). In Kishambaa the identical H tones are downstepped (Odden 1982). In Central Mande, the insertion of a different tone is a strategy, widely used to avoid OCP violation, it is attested in Bamana, Soninke, Kita Maninka and other languages (as I mention later in Section 5.5.2, the authors of the descriptions of these languages formulate it differently, but the phenomenon is largely similar to what is attested in Kakabe).

In Bantu languages, the tone which usually follows OCP constraint is in most cases H. By contrast, in those Mande language, where OCP operates at the tone level, it prohibits sequences of underlying L tones. This correlates well with the fact that, in general, in Bantu the more active tone is H (Hyman 2001) whereas in Central Mande it is usually L (Creissels & Grégoire 1993).

A big part of current section will be concerned with the question of how the inserted H is aligned between the two L tones. I have shown that it can be defined by morphological, semantic/syntactic or metrical aspects, Sections 5.5.3, 5.5.4 and 5.5.6 respectively. Finally, the alignment of the inserted H follows a specific pattern if loanwords are concerned, see Section 5.5.5. The question of L-toned morphemes which violate OCP principle in certain contexts is discussed in Section 5.5.7. An IP boundary blocks the interaction between L tones, as a result, no H tone is inserted between two adjacent Ls belonging to two different clauses, see Section 5.5.8. Finally, OCP violation can be avoided by the merger of two L tones. This strategy is optionally applied in NK when L-toned pronoun is followed by another L toned morpheme, see Section 5.5.9. The insertion of H when monomoraic L-toned morphemes are concerned is tightly linked to the process of Tone Leveling, and therefore it is described in Section 5.7, after the description of Tone Leveling.

5.5.1 Definition of OCP in Kakabe

In Kakabe OCP concerns underlying L tones. The adjacency of identical underlying tones is avoided by the insertion of H tone between the two L tones. I will henceforth refer to this H tone as H separator tone (HS tone henceforth), and the two tones that are separated by it as L_1 and L_2 .

(5.69) Obligatory contour principle in Kakabe:

Two underlying L tones have to be separated by HS

$L_1 L_2 \rightarrow L_1 HS L_2$

The application of OCP is illustrated in (5.70) below:

(5.70) /mùsu fila/ \rightarrow mùsú filà ‘two women’

L		L						
						L	H	L
x	x	x	x	→	x	x	x	x
mu	su	fi	la		mu	su	fi	la

HS is linked to the underlyingly toneless TBU of the first item with the lexical tone.

(5.71) HS has to be linked within the domain of L_1 .

The domain of L corresponds to the sequence of segments on which L spreads in the absence of HS, see the definition of tone domain in Section 5.3.2. Thus, the domain of HS is included in the domain of L_1 :

(5.72) (L_1 (HS)) (L_2)

The alignment of HS depends the internal organization of L_1 domain in the following way:

(5.73) HS is linked to the last and hierarchically highest unit within L_1 domain, according to the hierarchy:

syntactic/semantic unit > morphological unit > prosodic unit.

If the morpheme is a loanword, the alignment of HS depends on the position of the stressed syllable in the source word.

Thus, if L_1 domain consists of more than two morphemes which are divided into two syntactic or semantic groups, the domain of HS is the second of these two syntactic or semantic units. If the highest boundary within L_1 is morphological, HS links to the last morpheme. If L_1 contains no morphological boundaries but more than two TBUs, HS realization depends on the grouping of these TBUs into feet. These effects of each of these factors on HS alignment are described in the following three subsections.

5.5.2 OCP in Western Mande and its analysis

The phenomenon of LH ~ L variation in the realization of L-initial morphemes is attested in many Western Mande languages.

In Kakabe I apply HS insertion analysis to all cases. First, the [LH] variant never appears before H. Second, there are cases when surface H cannot be explained either as the default H realization of a toneless TBU, or through the retraction of L domain because of the cases when two separate Ls link to adjacent moras, e.g. when L-toned monomoraic pronouns occur before L, e.g. \mà nà-ta\ → *mǎ nàtà* ~ *mà nàtà*; it is discussed in detail in Section 5.7. Finally, I posit for Kakabe the opposition H vs. L vs. Ø and the rule of automatic H and L spread on toneless syllables. In this configuration, zeros are targets of the spread of the preceding tone, instead of being realized as H by default.

With the exception of Vydrin (2016b), in the existing literature the variation LH ~ L is usually not described though the notions of OCP and HS insertion which is used in the current description. H present on L-initial morphemes before another L is treated as part of the lexical tonal pattern in (Dumestre 2003) for Bamana, (Creissels 1988) for Koro (< Maninka-Mori < Manding), (Creissels & Sambou 2013) for Mandinka, (Creissels 2016) for Kankan Maninka (Grégoire 1986). For example, according to these descriptions, *mùso* ‘woman’ has LH tonal pattern, where H is deleted in *mùsò té yàn* ‘there is no woman here’. Spears (1968) describes the variable realization of L-initial morpheme in Maninka as tone dissimilation (which is, essentially, analogous to treating it as due to OCP): H does not belong to the lexical form, and when one L-toned morphemes appears before another L-toned morpheme, H tone is inserted though dissimilation.

5.5.2.1 Kita Maninka (Creissels 2009)

In the case of Kita Maninka, Creissels (2009a) treats L as the marked tone opposed to a zero, and TBUs not occupied by L are by default realized as H. So, the question whether H is part of the lexical pattern or not, does not arise. At the same time, the domain of L can be different and it is specified lexically. The author signals the domain of L by underlining; this notation is reproduced in (5.74).

(5.74) Kita Maninka (Creissels 2009a)

$\sigma\sigma$	<i>h<u>iri</u></i>	→	<i>hìri</i>	‘sell’
$\sigma\sigma$	<i>k<u>asi</u></i>	→	<i>kàsì</i>	‘cry’
$\sigma\sigma\sigma$	<i>s<u>inoko</u></i>	→	<i>sìnoko</i>	‘sleep’
$\sigma\sigma\sigma$	<i>j<u>ininka</u></i>	→	<i>jìninka</i>	‘ask’

From its lexically specified domain, L spreads until the end of the morphemes, as in (5.75a) and (5.75c), where it is followed by toneless (surface H) morpheme. On the other hand, L does not spread if an L-toned morpheme follows, as in (5.75b) and (5.75d). When two L-domains are adjacent, as in (5.75d), the first L retracts.

(5.75) Kita Maninka (Creissels 2009a)

(a)	<i>j<u>ankuma</u> nani</i>	→	<i>j<u>ankuma</u> nani</i>	→	<i>jànkùmà nání</i>	‘four cats’
(b)	<i>j<u>ankuma</u> s<u>aba</u></i>	→	<i>j<u>ankuma</u> s<u>aba</u></i>	→	<i>jànkúmá sàbà</i>	‘three cats’
(c)	<i>m<u>usu</u> nani</i>	→	<i>m<u>usu</u> nani</i>	→	<i>mùsù nání</i>	‘four cats’
(d)	<i>m<u>usu</u> s<u>aba</u></i>	→	<i>m<u>usu</u> s<u>aba</u></i>	→	<i>mùsú sàbà</i>	‘three cats’

Thus, there are two main differences between Creissels’s analysis of LH ~ L realization in Kita Maninka and my analysis for Kakabe. First, L in Kita Maninka can be link to several TBUs at the lexical level, whereas in Kakabe it is associated with one TBU only at the lexical level. Second, this domain of L can either progress or retract depending on the context, whereas L of Kakabe always (automatically) spreads.

To this difference in analysis corresponds the actual difference in the data. Unlike in Kakabe, in Kita Maninka there are contexts where L-toned morphemes can be realized with LH rising pattern even before the next H (underlyingly toneless TBU in Kita Maninka). This happens, for example, before the negative auxiliary *man* (5.76b). In this context surfaces the contrast between L associated only with the first syllable (5.76a) and L associated with both syllables (5.76a). Returning to the discussion of OCP, in the cases like (5.76b) the surface H cannot be related to OCP, since it appears where no demarcation is needed.

- (5.76) Kita Maninka (Creissels 2009a)
- (a) *hali man ye ye* → *hàlì mán yé yè* ‘One didn’t see any donkeys there’
- (b) *tali man la bi* → *tàlì mán lá bì* ‘One didn’t tell any tales today’

But the situation in Kita Maninka is even more complex than this, and there is a number of cases for which Creissels ends up using the operation H insertion. There is a minor tonal pattern where L is separately associated to two adjacent syllables, e.g. the proper name *modu*. This discontinuity of L association at the underlying level results in the surface realization *mō-dù*. LH on the first syllable results from the insertion of H which he refers to as a demarcating tone “insertions d’un haut démarcatif” (Creissels 2009a: 25).

5.5.2.2 Mandinka (Cressels and Sambou 2013)

In Mandinka, contrary to Kita Maninka, there are no arguments to treat L as marked opposed to zero⁹. For items with rising LH pattern the position of H is specified lexically, cf. *kàmbààné* ‘boy’ with H appearing on the last syllable vs. *màṅkááné* ‘amulet’ with H appearing on the second syllable (Creissels & Sambou 2013: 43). In most cases, H in LH pattern does not always disappear before H: it can occasionally be preserved. The preservation of H is more likely if it is hosted by a heavy syllable. Finally, if H is hosted by more than one syllable, its preservation is normal and its deletion is exceptional. As the authors admit, additional research is needed to make statement about the realization of H as the part of LH pattern.

9. “Il ne nous a pas semblé qu’il existe en mandinka une dissymétrie entre ton bas et ton haut de nature à rendre vraiment avantageux un tel traitement [selon lequlel le ton bas marqué est opposé à zéro]” (Creissels & Sambou 2013: 35).

5.5.2.3 *Soninke (Creissels 2016)*

In Soninke H preceded by L can disappear before suffixes starting with H, see the disappearance of the last H in two verb roots in (5.77) below.

- (5.77) Soninke (Creissels 2016: 57)
bòosí ‘pull out’ → *bòosì-ndé* ‘pulling out’
háasìdàaxú ‘envy’ (v) → *háasìdàaxù-ndé* ‘envy’ (n.)

But when an L-toned root is separated from the following H by a word boundary, L cannot spread until the end of the root. Thus, in (5.78) below L does not spread on the last syllable of *yàxàré* ‘woman’ even though the latter is followed by H.

- (5.78) Soninke (Creissels 2016: 33)
Yàxàré má rì
 woman PFV.NEG come^L
 The woman didn’t come.

5.5.2.4 *Koro (Creissels 1988)*

In Koro H can be inserted between two L tones even if the first of the two adjacent L tones one is floating. Thus, in (5.79) below H appears after floating L of the referential article, and the author describes it as a part of the lexical form of the article. In general, in Koro tones tend to be realized more to the right than in analogous forms in other Manding languages. One of the consequences of this is that tones which are linked in other Manding languages are often floating in Koro, cf. Bamana *mùsò* ‘woman’ vs. Koro *mìsò^H* ‘woman’. Creissels distinguishes in Koro two tonal subclasses for disyllabic L-initial morphemes: LH vs. LL^H where H links to the second syllable or is floating, e.g. *mìsrí* ‘mosque’ vs. *mìsò^H* ‘woman’.

In (5.79) below, following the rules described in (Creissels 1988), H links to the syllable to the following syllable, and the floating L of the article is realized as downstep.

- (5.79) Koro (Creissels 1988: 103)
tyá dénǐ^L jrǐnà → *tyá dénǐ^{LH} jrǐnà* → *tyá dénǐ^L jrǐnà* → [tyá dénǐ[↓] jrǐnà]
tyá dénǐ^L jrǐnà
 go child-ART ask
 Go ask the child.

H before the floating L of the article can also be floating. In (5.80) this results in a sequence of three floating tones HLH: the first H appears between the L the noun root *mìsò* and the second

L between the L of the article and the L of the following verb (the rules of the realization of the floating tones combine with the rule of H spread, see the article for the description).

(5.80) Koro (Creissels 1988: 103)

tyá mùsò^L jrijà → tyá mùsò^{HLH} jrijà → [tyá mísò jrijà]

tyá mùsò^{H-L} jrijà

go woman-ART ask

Go ask the woman.

It seems that HS insertion analysis would be more economical in the case of Koro, since that would permit to dispense with lexical floating H altogether.

5.5.2.5 Bamana and ‘liaison H tone’ (Rialland 1989)

Rialland & Badjímé (1989)¹⁰ use the notion ‘H liaison tone’ (“ton haut de liaison”), taken up by Weidman & Rose (2006) and also reproduced in (Clements 2000). Similarly to Koro, in Bamana Hs are also present only before L-toned morphemes, so HS insertion analysis would supposedly also be valid for these two cases, and it is, in fact, adopted in the most recent description of Bamana by Vydrin (2017a). Dumestre (2003) considers this H a part of the lexical tonal pattern of the word. By contrast, Rialland & Badjímé (1989) consider that this H is postlexical. The term ‘H liaison tone’ (“tone haut de liaison”) which they use is taken up by Weidman & Rose (2006) in their description of the realization of tones in polysyllabic Bamana nouns. According to Rialland & Badjímé, H liaison tone follows nouns, verbs, numerals and adjectives, but not functional morphemes.

Another particularity of the tonology of Bamana, according to Rialland & Badjímé (1989), is the spread of H on the following syllable. Thus in (5.81a) *bá + dòn* is realized as *bá dòn*. If the L-toned noun is monosyllabic, the H of liaison links only to the next syllable after the noun, see (5.81c) *bà dòn* resulting from *bà + liaison H + dòn*. If the noun is disyllabic, the H links both to its second syllable and to the syllable after it see (5.81c). This linking of H to the right is blocked by the L of the article, see (5.81d, f, h).

(5.81)

10. Note that “Bamana” in English correspond to French “Bambara”.

Realization of nouns in Bamana before *dòn* and *té* (Rialland & Badjímé 1989: 6)

(a)	bare noun	<i>bá dôn</i>	<i>bá té</i>	‘It is/it is not a river’
(b)	N+ART	<i>bá dòn</i>	<i>bá ⁺té</i>	‘It is/it is not the river’
(c)	bare noun	<i>bà dôn</i>	<i>bà té</i>	‘It is/it is not a goat’
(d)	N+ART	<i>bǎ dòn</i>	<i>bǎ ⁺té</i>	‘It is/it is not the goat’
(e)	bare noun	<i>bá lá dôn</i>	<i>bá lá té</i>	‘It is/it is not a balafon’
(f)	N+ART	<i>bá lá dòn</i>	<i>bá lá ⁺té</i>	‘It is/it is not the balafon’
(g)	bare noun	<i>bà là dôn</i>	<i>bà là té</i>	‘It is/it is not a porcupine’
(h)	N+ART	<i>bá lá dòn</i>	<i>bà lá ⁺té</i>	‘It is/it is not the porcupine’

Contrary to Bamana described in Rialland & Badjímé (1989)¹¹, in Kakabe the insertion of H is not limited to lexical morphemes. As I show in 5.7, the special tonal behavior of functional morphemes is due to the fact that they are monomoraic, but at any case, they also trigger H insertion before the following L. The linking of H to the following syllable, as in the case of Bamana monosyllabic nouns (5.81c), in Kakabe is possible with monomoraic L-toned pronouns; see Section 5.7.

To sum up, Bamana (at least, in the variety, described in Rialland & Badjímé 1989), first, restricts the H insertion to content morphemes and, second, displays a tendency for the late linking of H tone which is also found in Koro.

5.5.2.6 Summary

All the discussed languages have LH ~ L alternation for L-initial morphemes. But, differently from Kakabe, this H is not always deleted before another H: In Soninke H disappears only before H-initial suffixes, in Kita Maninka it disappears before most H-initial morphemes, and in Mandinka the preservation of H before another H is supposedly marginal. In Kakabe LH ~ L surface alternation is an OCP-related phenomenon, since whenever two L-initial morphemes are adjacent, the first of them is realized as LH. But H (or the impossibility of L to spread on the last syllables in the case of Kita Maninka) is also part of the lexical pattern at least for part of the morphemes. At the same time, the example of *modu* → *mòdù* in Kita Maninka

11. Though, Vydrin (2017a) analyzes it differently from Rialland & Badjímé (1989) and the same way as in Kakabe.

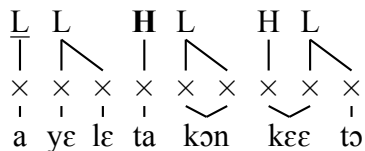
suggests that the notion of HS insertion may be necessary at least in some cases.

In the following subsections (5.5.3-5.5.6) I show that in Kakabe the alignment of HS can be predicted from the internal structuring of the tonal domain (though when the domain of the first L tone contains multiple morpheme, it is not always predictable). At the same time, I do not exclude that the HS alignment has been lexicalized in certain sporadic cases. It should be noted that the unpredictability of the alignment of H does not preclude the analysis where this H is inserted and not specified as a part of the lexical tonal pattern of the morpheme. The lexical specification concerns the limits of L domain in the tonal derivation, and the inserted H is aligned on the remaining toneless TBUs.

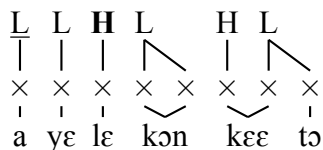
5.5.3 Morphological grouping of TBUs within L₁ domain

In (5.82) HS is linked on the underlyingly toneless suffix *-ta* which is within the domain of the lexical L of *yèlɛ* ‘to mount’. In (5.83) HS is linked to the final syllable of the verb.

- (5.82) *à yèlɛ́tá kònkéè tò*
 à yèlɛ-ta kònkɔ-È tɔ
 3SG go.up-PFV.INTR mountain.ART in
 He went up the mountain.

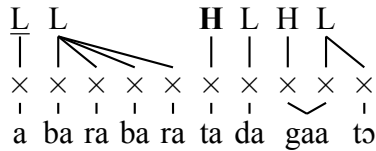


- (5.83) *à yèlé kònkéè tò*
 à yèlé kònkɔ-È tɔ
 3SG mount mountain.ART in
 Take it up the mountain!

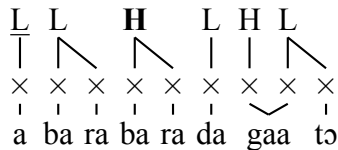


See also Examples (5.84) and (5.85) with the four-syllable verb *bàrabara* ‘boil’.

- (5.84) *à bàràbàrà-tá dàgáà tò*
à bàrabara-ta dàga-È tò
 3SG boil-PFV.INTR pot.ART in
 It boiled in the pot.



- (5.85) *à bàràbàrá dàgáà tò*
à bàrabara dàga-È tò
 3SG boil pot-ART in
 Boil it in the pot!



In all examples of isolated words in the remainder of this section, I indicate the alignment of HS by the diacritic for H “ ´ ” on the leftmost TBU, implying that it spreads from there to all the succeeding toneless TBUs, e.g. the notation *bàrabára* ‘boil’ means the realization [bàràbàrá] before L.

In reduplicated roots HS is linked to the second element, see (5.86) below.

- (5.86) v. ‘to boil’ *bàra=bára* n. ‘tempest’ *figi=figi*
 v. to turn *firi=firi* n. ‘scratch’ *gòro=góro*
 v. ‘to tremble’ *yèrè=yéèrè* n. ‘dust’ *bùrun=búrun*
 v. ‘be very fat’ *bùlu=búlu*
 v. ‘swing’ *lènten=lénten*
 v. ‘twinkle’ *mèñe=méñe*

There is one case when the linking of H does not follow the morphological boundary: HS is linked before the nominalization suffix *-ri* (~ *-ru* ~ *-ro*):

- (5.87) shooting *fòyíri*
 greeting *kòntóro*
 giving a present *sànbáru*.

5.5.4 L₁ domain with more than two morphemes and HS alignment

When an L₁ domain includes more than two morphemes, the alignment of HS can be motivated by the semantic association between the morphemes in question. That is, if an L₁ domain contains morphemes A, B and C, HS would start on C if the semantic association is stronger between A and B or on B and spread on C if the semantic link is stronger between B and C than between A and B.

The alignment of HS motivated by semantic associations between morphemes is illustrated by Example (5.88) where the L₁ domain in questions is the nominalization *sànsàn-dònkòè* ‘the fences building’. The roots *sànsan* ‘fence’ and *dòn* ‘build’ form one semantic which is in the scope of the nominalization marker *kó* and therefore HS starts on the last morpheme of the three.

- (5.88) *ànù bélé wò tádèèmànná sànsàndònkòè là*
 ànu béle wò ta-dèèman-la sànsan-dòn-kó-È là
 3PL be.NEG 2PL REF-help-GER fence-build-NMLZ-ART OBL
 They don’t help you with fence building.

Yet, in many cases of a multi-morphemic L₁ domain, the alignment of HS is unpredictable. Thus, it is not clear why in (5.89) the derivative suffix *-ya* is tonally grouped with the verb root, and the stative participle suffix *-len* hosts HS rather than the other way round:

- (5.89) *wó lé †lé mànsàyàlén mùséènu fó kùnma*
 wò lè lè mànsa-ya-len mùsu-È-nu fó kùnma
 2PL LG FOC chief-ABS-PC.STAT woman-ART-PL all on
 You are the leader of all the women.

Example (5.90) shows that the grouping cannot always be predicted from the grammatical category of the morpheme, since morphemes of the same grammatical category can be grouped differently: in (a) and (b) the verb root is grouped together with the nominalization marker *-laa*, and in (c) and (d) it is grouped together with the nominal root before it.

- (5.90) (a) *kànkàyàkéélàà kànka-ya-ké-laa-È* ‘thief’
 steal-ABST-do-NMLZ.AG-ART
 (b) *nààfulùkòlólàà nàafulu-kòlo-laa-È* ‘cattle breeder’
 cattle-breed-NMLZ.AG-ART
 (c) *kùndààlàà kùn-dáa-laa-È* ‘hairdresser’
 head-do-NMLZ.AG-ART
 (d) *sènèwòtòlàà sènè-wótò-laa-È* ‘field worker’
 field-plough-NMLZ.AG-ART

The alignment of HS on NPs containing more than one lexical root and a diminutive suffix may also be aligned differently. HS is aligned either on the last morpheme before the article which is the diminutive suffix, as in (5.91), or earlier, as in (5.92)¹².

For some cases the HS alignment can be explained through the semantic relationships between morphemes within the NP. In the case of the NP *má dìnṣògò dénmúsúnnéè* in (5.92c), only *dénmusu* ‘girl’ is in the semantic scope of the diminutive suffix. By contrast, in *jònmù-sùndéè* ‘little slave-woman’ (5.91c), the scope of the diminutive marker is over both ‘slave’ and ‘woman’.

- (5.91) (a) *kùta-gbɛɛ-nden-È* → *kùtàgbèèndéè*
 clothes-white-DIM-ART → ‘little white cloth’
- (b) *mààfi sòngò-nden-È* → *mààfi sòngònnéè*
 sauce → ‘some money for the sauce’
 money-DIM-ART
- (c) *jòn mùsù-nden-È* → *jònmùsùndéè*
 slave → little slave-woman
 woman-DIM-ART
- (5.92) (a) *nègè-sáákún-nden-È* → *nègèsáákúndéè*
 iron-box-DIM-ART → little iron box
- (b) *nègè kúntú-nden-È* → *nègè kúntúnnéè*
 iron piece-DIM-ART → ‘a little piece of iron’
- (c) *má dìnṣògò dén-músú-nden-È* → *má dìnṣògò dénmúsúnnéè*
 1PL friend → ‘the girl friend our friend’
 child-woman-DIM-ART

In Examples (5.93 a)-(5.93 c), the L₁ domain includes one noun root and two adjectival roots. HS is realized on the two adjectives, but, again, no semantic motivation for this realization can be found.

12. The distribution of the allophones *(n)néè* ~ *(n)déè* is described in Section 4.3.2 in Chapter 3.

(5.93) (a) *à bání dòrìkì gbéé báá bilà*
 à bání dòrìkì gbéé báa-È bila
 3SG PFR shirt white-ART big put.on
 He put on the big white shirt.

(b) *nìngì mùsù kótó báà fàgàndèn dúnkì tò*
 nìngì mùsù kótó báa-È fàga-nden dúnkì-È tò
 cow woman old big-ART die-PC.STAT wetland-ART in
 The big female cow is dead.

(c) *ì ní dèèmàrì báa fólè sòtò*
 ì ní dèemari báa fólò-È sòtò
 2SG SBJV help big first-ART get
 You would get a substantial help at the beginning (litt.: “big initial help”).

5.5.5 HS domain in L-toned loanwords

As has been already said, the assignment of L and H in loanwords is unpredictable. However, if the loanword is polysyllabic and belongs to L tonal class, there is a correlation between the alignment of HS in L-toned loanwords and the position of the stressed syllable in the source word, either in French or in Pular.

5.5.5.1 French loanwords

Example (5.94) shows that HS is aligned with the syllable which corresponds to the last syllable in the French source word which is the stressed syllable, since stress is always final in this language.

(5.94)	<i>wìtamín ~ vítamín</i>	‘vitamine’	< Fr. <i>vitamine</i>
	<i>fêrmetír</i>	‘fastening’	< Fr. <i>fermeture</i>
	<i>prèsidán ~ prèzidán</i>	‘president’	< Fr. <i>président</i>
	<i>fòtografú</i>	‘photographer’	< Fr. <i>photographe</i>
	<i>dèlegasión</i>	‘delegation’	< Fr. <i>délégation</i>
	<i>dìmasión</i>	‘dimesion’	< Fr. <i>dimension</i>
	<i>òperasión</i>	‘operation’	< Fr. <i>opération</i>
	<i>prèzantasión</i>	‘presentation’	< Fr. <i>présentation</i>
	<i>dàraapó ~ dràpó</i>	‘flag’	< Fr. <i>drapeau</i>

When an epenthetic vowel is inserted before the syllable which hosts HS, it is included in the domain of HS, under the condition that it is not the first vowel in the word, see Section 3.4.3

in Chapter 1 for the description of vowel epenthesis in loanwords. Compare (5.95a) where the epenthetic vowel (highlighted in bold) precedes the vowel corresponding to the stressed vowel in French and (5.95b) where it does not.

- (5.95) (a) *rà**dí**yɔn ~ ràdyón* ‘radio’ < Fr. *radio*
*à**bí**yɔn ~ àbyón* ‘plane’ < Fr. *avion*
sèkére ~ sèkré ‘secret’ < Fr. *secret*
pàséké ~ pàské ‘because’ < Fr. *parce que*
mètíye ‘profession’ < Fr. *métier*
- (b) *àparantí* ‘apprentice’ < Fr. *apprenti*
dàraapó ‘flag’ < Fr. *drapeau*
kèreyón ‘pencil’ < Fr. *crayon*

When the epenthetic vowel precedes the host of HS but is the first vowel in the word, then it can be realized either with H or with L, cf. (5.96a) and (5.96b).

- (5.96) (a) *fáran* ‘franc (money)’ < Fr. *franc*
Fárans ‘France’ < Fr. *France*
míliyɔn ~ mílon ‘million’ < Fr. *million*
- (b) *fèrén* ‘brake’ < Fr. *frein*
kíliyan ‘client’ < Fr. *client*
pìrì ‘price’ < Fr. *prix*
kílási ‘(glass) bottle’ < Fr. *glasse*
pìné ‘tyre’ < Fr. *pneu*
kílé ‘screw driver’ < Fr. *clé*

5.5.5.2 Pular loanwords

In Pular the position of stress depends on the syllable weight. To begin with, there is a primary and a secondary stress in the prosodic system of Pular. The primary stress is assigned to the first heavy syllable in the word, and the weight of the syllable is defined according to the following hierarchy: CVVC > CVV > CVC > CV. Niang (1997), claims that the final syllable is never stressed even if it is heavy. Contrary to this, Evans (1996) states that if a polysyllabic noun contains a long vowel in the final syllable, then there are two stressed syllables: the first syllable and the last syllable with the long vowel, e.g. *Sumayee* ‘Ramadan’ and the toponym *Dalabaa*. I have only one example of a Kakabe noun borrowed from a polysyllabic Pular

noun with a long final vowel, and the noun is all-H in Kakabe (the last vowel is shortened since Kakabe does not tolerate final long vowels in nominal roots): *fulawa* ‘village’ < Pul. *fulawaa*.

In the absence of heavy syllables the stress is assigned to the first syllable in Pular:

(5.97) Pular stress patterns (Downing 2010: 115 < Niang 1997)

aduna ‘world’

dadorde ‘waist’

tallorde ‘place for rolling’

halkaade ‘to perish’

haalpulaar?en ‘speakers of Pulaar’.

The rise of the pitch is one of the phonetic correlates of stress in Pular (see Anyanwu 2002 for discussion). The correlation between the position of the stress in the Pular source form and the alignment of HS in the Kakabe form is formulated in (5.98a) and (5.98b) below:

(5.98) (a) If the Pular form has the primary stress on the first syllable, the corresponding Kakabe form is either L- or H-initial. If in Kakabe it gives L root, HS is aligned on the second syllable in the Kakabe form.

(b) If the Pular form has the primary stress on a non-initial syllable, the corresponding Kakabe form is L-toned and HS is aligned on the syllable which is stressed in the source form.

It should also be noted that Pular forms containing the *-al* class suffix result in HL pattern¹³, with L aligned on the syllable corresponding to the class suffix, e.g. *káatatal* ‘centipede’ < Pul. *kaatatal* see (5.67) in Section 5.4.9 for the whole list and the discussion.

Table 5.4 illustrates the fact that Pular source forms that have a long vowel in the initial syllable which is, consequently, stressed, in Kakabe become either H-toned or L-toned. But if the word in Kakabe is L-toned, the presence of a long vowel in the first syllable does predict the alignment of HS: HS starts on the second and never on the third syllable. The alignment of HS in this case follows the principle internal to Kakabe prosody: a heavy syllable is followed by a foot boundary, and HS alignment is sensitive to foot domain, see the Metrical principle of HS alignment (5.102) in Section 5.5.6. Note also the variation in tone *báafàli* ~ *bàafàli* ‘door’ < Pul. *baafal*.

13. With the exception of *báafàli* ~ *bàafàli* ‘door’ < Pul. *baafal* which is either H or L.

	Kakabe /H/ or /HL/	Pular		Kakabe /L/	Pular
‘March’	<i>máarasi</i>	< <i>maarasi</i>	‘calf’	<i>bòɔbóti</i>	< <i>booboti(hol)</i>
‘aluminium’	<i>báafata</i>	< <i>baafata</i>	‘old man’	<i>kiikála</i>	< <i>kiikalajo</i>
‘goat’	<i>siikuli</i>	< <i>siikuli</i>	‘thunder’	<i>fàrɲítɛɛ</i>	< <i>farɲitere</i>
‘antelope’	<i>tóogɛɛ</i>	< <i>toogere</i>	‘orange’	<i>lèɛmúne</i>	< <i>leemune</i>
‘onion’	<i>jáabɛɛ</i>	< <i>jaabeere</i>	‘market’	<i>màakíti</i>	< <i>maakiti</i>
‘mosque’	<i>jáamiye</i>	< <i>jaamiɲu</i>	‘door’	<i>bàafáli</i>	< <i>baafali</i>
‘crab’	<i>géɛgɛɛ</i>	< <i>geegere</i>			
‘centipede’	<i>káatátàl</i>	< <i>kaatatal</i>			
‘table’	<i>táabàli</i>	< <i>taabal</i>			
‘door’	<i>báafáli</i>	< <i>baafali</i>			

Table 5.4: Trisyllabic Pular loanwords with first long vowel

Forms in (5.99a) and (5.99a) below illustrate the principle (5.98b) : Pular forms with the second stressed syllable (stressed since its heavy) give the Kakabe L-tone morphemes with HS appearing on the second syllable.

(5.99) (a)	Kakabe	Pular
‘banana’	<i>bànáana</i>	< <i>banaana</i>
‘bottle’	<i>bìníiri</i>	< <i>biniiri</i>
‘bread’	<i>bìréedi</i>	< <i>bireedi</i>
‘Guinea worm’	<i>bùríuti</i>	< <i>buruute</i>
‘foliage’	<i>fitáari</i>	< <i>fitaare</i>
‘gun’	<i>fínkáari</i>	< <i>finkaari</i>
‘horn’	<i>gàláadi</i>	< <i>galaade</i>
‘generation’	<i>jàmáanu</i>	< <i>jamaanu</i>
‘hairstyle (sp.)’	<i>jùbáado</i>	< <i>jubaado</i>
‘boubou’	<i>kàftáanu</i>	< <i>kaftaane</i>
‘sperm’	<i>màníiyú</i>	< <i>maniiyu</i>
‘hospital’	<i>làbutáani</i>	< <i>labutaane</i>
‘spider’	<i>márijáaja</i>	< <i>marijaaja</i>
‘accident’	<i>màsiibo</i>	< <i>masiibo</i>
‘business’	<i>mùráado</i>	< <i>muraado</i>
‘district’	<i>nòkkúure</i>	< <i>nokkuure</i>
‘bowl’	<i>pàráasi</i>	< <i>paraasi</i>
‘pickaxe’	<i>pìkáasi</i>	< <i>pikaasi</i>
‘sweet potato’	<i>pùtéete</i>	< <i>puteete</i>
‘hat (resp.)’	<i>sàláala</i>	< <i>salaala</i>
‘problem’	<i>sàttéende</i>	< <i>satteende</i>
‘blanket’	<i>sùddáare</i>	< <i>suddaare</i>
‘tomato’	<i>tàmáati</i>	< <i>tamaati</i>
‘orphan’	<i>àliyatiima</i>	< <i>aliyatiima</i>
‘potato’	<i>pònpiteeri</i>	< <i>pompiteeri</i>

(b)	Kakabe	Pular
‘scissors’	<i>mèkékke</i>	< <i>mekekke</i>
‘tax’	<i>sàgáalle</i>	< <i>sagalle</i>
‘drum sp.’	<i>tábálde</i>	< <i>tabalde</i>
‘boubou’	<i>wàránba</i>	< <i>waramba</i>

5.5.6 Metrical organization of TBUs and the alignment of HS

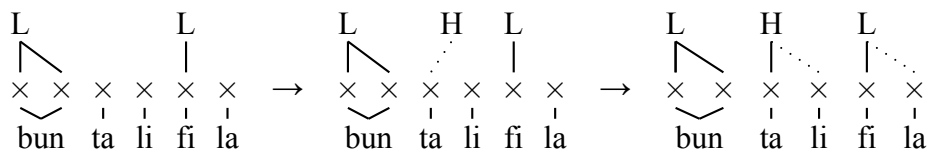
Surface distribution of tones can depend on metrical structure. Association of tone with feet within metrical structure have been proposed by a number of researchers (Sietsema 1989; Bickmore 2003; de Lacy 2002). Tonal feet constitute binary groupings of tone bearing units into metrical constituents. Leben (2002; 2003) and Weidman & Rose (2006) propose a foot-based account of the tone assignment in polysyllabic noun roots in Bamana.

Examples (5.100a) and (5.100b) illustrate the alignment of HS depending on the phonotactic grouping of syllables into feet within the L_1 domain (in the absence of morphological boundaries inside the L_1 domain).

In (5.100a) the first syllable is heavy and therefore is followed by a foot boundary. The following two light syllables form a foot, to which HS is associated.

In (5.100b), the first two light syllables form one foot, and HS links to the second (degenerate) foot of the noun.

(5.100) (a) (bùn)(tali) (fila) → *bùntáli filà*
 scorpion two 'two scorpions'



(b) (sàma)(ta) (fila) → *sàmàtá filà*
 shoe two 'two shoes'



Besides, some lexemes manifest variation in the alignment of HS. For example, the combination of the nominal root *jàmana* 'land' with the referential article *-È* is realized either with the high tone on the second syllable (5.101 a) or on the third syllable (5.101 b and 5.101 c):

(5.101) (a) *mà lá jàmánàà mà bélé tóórólén*
 mà la jàmana-È mà béle tóorɔ-len
 1PL POSS land-ART 1PL COP.NEG suffer-PC.ST

In our country, we don't suffer.

(b) *ó lè tùgùn ómà là jàmánà tàfɔ*
ó lè tugun ómà là jàmana-È ta-fɔ
 2PL FOC again 1PL.INCL POSS land-ART REF-say
 And you, tell us about our country

(c) *má lè là jàmáná⁺á tɔ yàn kòtɛ̀ɛ̀*
mà lè la jàmana-È tɔ yàn kòtɛ̀ɛ̀
 1PL LG POSS land.ART in that now
 Now in our country...

In trisyllabic simplex morphemes with L tone, HS domain starts on the second foot, according to the following grouping:

(5.102) If all syllables are light, the foot boundary precedes the syllable with the stronger onset (Section 5.5.6.1).

If one of the syllables is heavy, foot boundary follows a heavy syllable (CVN or CVV), see Section (Section 5.5.6.2).

5.5.6.1 Onset strength

As stated above, the onset strength defines the grouping of light syllables onto prosodic feet and, therefore, the alignment of HS. Table 5.5 below represents the sonority scale, based on (Zec 2007: 178), where the strength of the phoneme grows top-down:

V	low vowels	
	mid vowels	
	high vowels/glides	y
L	rhotics	r
	laterals	l
N	nasals	m, n
C	voiced fricatives	
	voiced stops	
	voiceless fricatives	
	voiceless stops	

Table 5.5: Sonority scale

The variation in tonal behavior of the noun *jàmana* ‘country’, as illustrated in (5.101 b), corroborates the principle formulated in 5.102: since the onsets of the second and the third syllable are of equal strength, this word is pronounced variably either with HS on the second or on the third syllable.

Table 5.6 below compares the syllable onsets of trisyllabic nouns with LLH and LHH patterns before another L. As can be seen, the domain of HS starts after a stronger onset.

	LLH			LHH	
‘porcupine’	<i>bàlamá</i>	l-m	‘genet’	<i>filfildu</i>	lf-lf
‘ashes’	<i>bùgutá</i>	g-t	‘lizard’	<i>sàgári</i>	g-r
‘cashew’	<i>yàlagí</i>	l-g	‘punishment’	<i>sògórò</i>	g-r
‘shirt’	<i>dòrokí</i>	r-k	‘hawk’	<i>sègélé</i>	g-l
‘basket’	<i>gbàsaká</i>	s-k	‘burial’	<i>sùtura</i>	t-r
‘bitter tomato’	<i>jàgatú</i>	g-t	‘hat’	<i>kùffùne</i>	ff-n
‘chain’	<i>jòloké</i>	l-k			
‘louche’	<i>kàlamá</i>	l-m			
‘lizard’	<i>mùlukú</i>	l-k			
‘shoe’	<i>sàmatá</i>	m-t			
‘earth worm’	<i>tònókó</i>	n-k			
‘spatula’	<i>wèlegé</i>	l-g			
‘to entrust’	<i>kàrifá</i>	r-f			
‘to develop’	<i>sàbatí</i>	b-t			
‘to turn’	<i>yèlemán</i>	l-m			

Table 5.6: LHH vs. LLH and the syllable onsets

This situation with the placement of HS in Kakabe is akin to the effect onset sonority and complexity on the placement of stress, a phenomenon which has been discovered relatively recently; see, for example, Everett & Everett (1984); Gordon (2005); Topintzi (2010); Ryan (2014). It was first described for Pirahã, where stress falls on the heaviest syllable according to the following hierarchy: KVV > GVV > VV > KV > GV; K stands for a voiceless consonant and G for a voiced consonant (Everett & Everett 1984). The correlation between the placement of stress and the type of syllable onset is also found in Russian and English (Ryan 2014).

5.5.6.2 CVN and CVV syllables

Table 5.7 shows that nouns with CVN as the first syllable are realized with LHH pattern, and nouns with CVN as the second syllable are realized with LLH pattern.

	LHH		LLH
‘manioc’	<i>bàntára</i>	‘plant sp.’	<i>fɔ̀rɔ̀ndɔ̀</i>
‘scorpion’	<i>bùntáli</i>	‘coffin’	<i>gbàlangá</i>
‘genet’	<i>flfildu</i>	‘to fling’	<i>cùrunkán</i>
‘cola (tree)’	<i>gùnbánbe</i>	‘to roll’	<i>wìrindí</i>
‘trunk’	<i>kànkíra</i>	‘spin’	<i>wùrundú</i>
‘mosquito’	<i>sònsóli</i>		
‘stone’	<i>sìnkúru</i>		
‘whisk’	<i>sùngbála</i>		
‘ant’	<i>sìnsíla</i>		
‘to sleep’	<i>kìnnóḡ</i>		

Table 5.7: Alignment of HS and CVN syllable

5.5.6.3 Vowel length

Long vowels are rare in polysyllabic morphemes which are not borrowings from Pular or French. There are only two such words with underlying L tone, they are given in (5.103) (*sàafúna* is actually from Arabic, but this is a relatively ancient borrowing).

- (5.103) ‘cattle’ ɔ̀:ɔ̀ɔ̀ *nàafúlu*
 ‘soap’ ɔ̀:ɔ̀ɔ̀ *sàafúna*

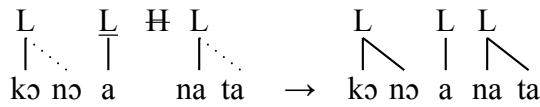
The effect of vowel length in borrowings is discussed in 5.5.5.

5.5.7 Lexical items blocking HS insertion

As already said in Section 5.4.2, L-toned conjunctions and L-toned interjections don’t interact with the following L, meaning that no HS is inserted in their L domain. Apart from that, HS cannot link either to the 3SG pronoun *à* or to the infinitive marker *kà*, and it can be realized only if *à* or *kà* are followed by a toneless morpheme.

In (5.104) below no HS is inserted between the conjunction *kònɔ̀* ‘but’ and the following L of *à*, see Section 5.4.2. By contrast, between the 3SG *à* and the verb *nà* ‘come’ HS is inserted, but here it cannot be linked to it, because no toneless TBU is available. If HS cannot be linked within the L₁ domain, it is deleted.

- (5.104) *kònɔ̀ à nà-tà*
 but 3SG come-PFV.INTR
 But he came.



When L-toned morpheme is followed by a toneless morpheme and then by L, HS links to the toneless TBU. Thus, the potential auxiliary *si* is pronounced with H in (5.105a), as well as the underlyingly toneless refractive prefix *ta-* in (5.105c).

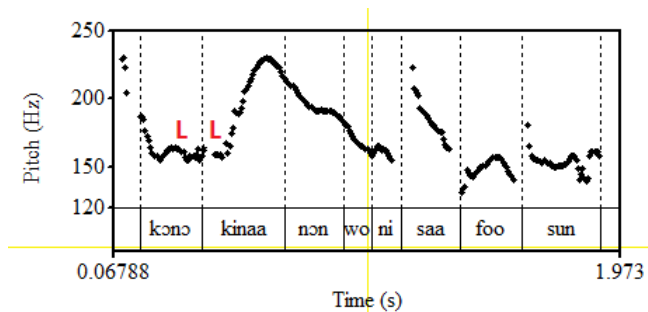
- (5.105) (a) /à si bòyi/ → à *sí* bòyi 3SG POT fall ‘He will fall’
 (b) /à si tága/ → à *sì* tágá 3SG POT go ‘He will go’
 (c) /kà ta-bòyi/ → kà *tábòyi* INF REF-fall ‘to fall again’
 (d) /kà ta-tága/ → kà *tátágá* INF REF-go ‘to go again’.

This demonstrates that HS is inserted after L as well, but it can be realized only if there is an available structurally toneless mora. L-toned conjunctions and interjections are never followed by toneless morphemes, since the latter cannot occur clause-initially.

In (5.106) and (5.107) I give graphic illustrations of the realization of *kənɔ* ‘but’ before L tone. As can be seen, it is realized at the same level as the following L.

- (5.106) *kənɔ kìnáá †nón wònì sáà fòò sùn*
kənɔ kina-È nɔn wònu si à fóo sún
 but parent-ART DISC that-PL SBJV 3SG UNIV fast

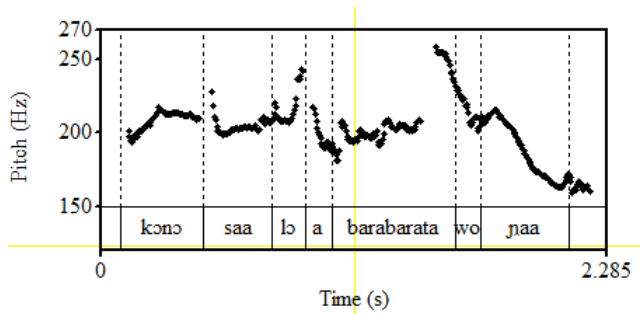
But adults fast the whole period.



Example (5.107) also illustrates the same-level realization of *kənɔ* and of the following L tones (see Section 5.8.4.4 on the merger between *sì* ‘if’ and the 3SG *à*). It is followed by an intonation phrase starting with 3SG *à* and the L-toned verb, between which HS is deleted. Besides, no HS is inserted between the two intonation phrases which is discussed just below, see Section 5.5.8.

(5.107) (*kònó sàà lò*)_{IP} (*à bàràbàràtá †wó náà*)_{IP}
 kònó sà à lò à bàrabara-ta wò náa-È
 but if 3SG prepare 3SG boil-PFV.TR that way-ART

But if it is prepared and boiled like this...



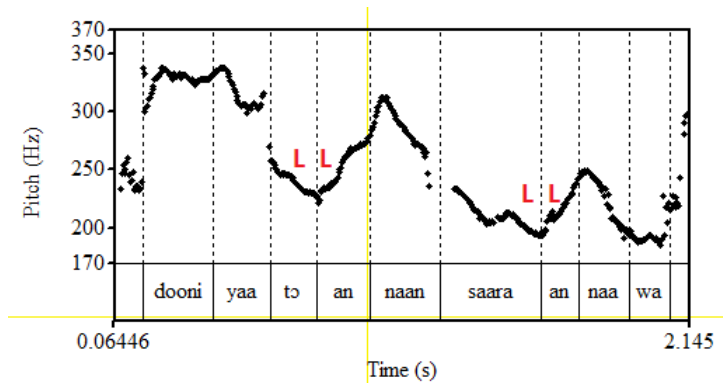
5.5.8 OCP and IP boundaries

Ls don't interact across IP boundaries. As stated in Section 5.3.4.2, IPs can be formed by independent clauses, adverbial expressions, left-dislocated topics. Other tonal manifestations of IP boundary is the total downdrift reset and the change of tonal register (the total raising of lowering of the tonal register) are both optional.

In (5.108) the two instances of the 3PL pronoun *ànu* are in the subject position and they do not interact with the preceding L belonging to the previous clause. The tone of *ànu* is realized, first, starting at the same level as L of the preceding clause and, second, it rises to H tone on the following auxiliary.

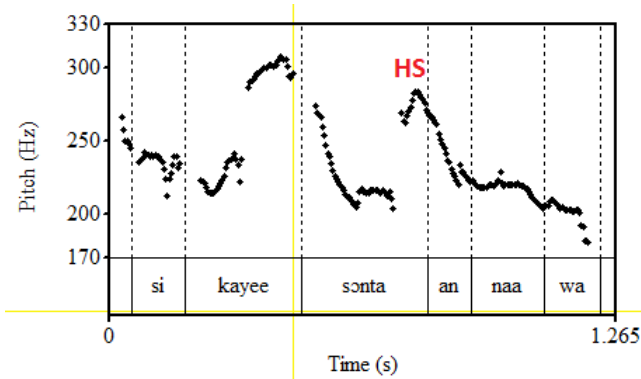
(5.108) (*dóóní yáà tò*)_{IP} (*àn ná†án sààrà*)_{IP} (*àn náà wà*)_{IP}
 dóo-nu bi à tò ànu ni ànu sàara ànu ni à wá
 one-PL be 3SG in 3PL SBJV 3PL say.goodbye 3PL SBJV 3SG go

Some of them say goodbye before going.



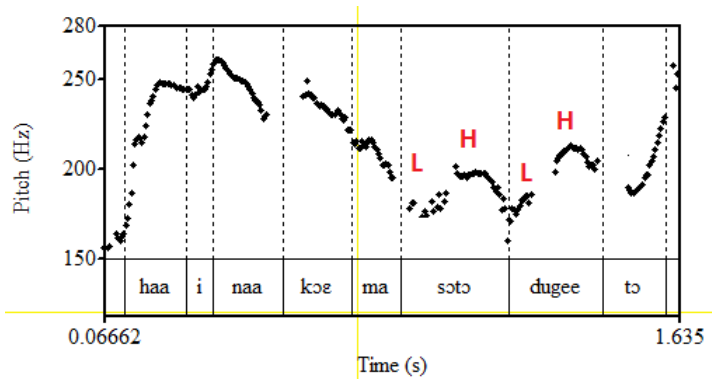
Conditional and temporal clauses usually form one intonation unit with the main clause. Thus, there is HS on the final syllable of the conditional clause in (5.109) (the tone on the 3PL pronoun at the beginning of the following clause is a downstepped ⁺H which results from the left H spread onto the underlying L, see Section 5.6, this process takes place after HS insertion).

- (5.109) (*si kàyé sòntá⁺ án náà wà*)_{IP}
 sì kàyi-È sòn-ta ànu ni à wá
 if man-ART agree-PFV.INTR 3PL SBJV 3SG go
 If their husband agrees, they would go.



Analogously, in (5.110) HS is inserted between VP and the adverbial phrase that is in the same IP but in different PhPs (hence the partial downdrift reset):

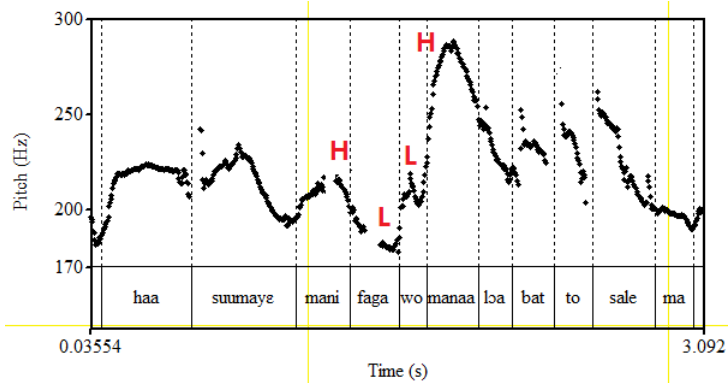
- (5.110) ((*i náà kó⁺é má-sòtò*)_{PhP} (*dùgèè tò*)_{PhP})_{IP}
 ì ni à kó-È ma-sòtò dùgu-È tò
 2SG SBJV 3SG back-ART VB.PL-get earth-ART in
 You will get its hind part from the earth.



As said above, apart from OCP blocking, IP boundary can be accompanied by the reset of the tone register. Thus in (5.108)-(5.113) all the tones after the clause boundary are raised to a higher level.

In (5.111) L on the 2PL pronoun *wò* is considerably higher than L on the verb *fàga* ‘die’, as well as the following H is much higher than H of the preceding clause.

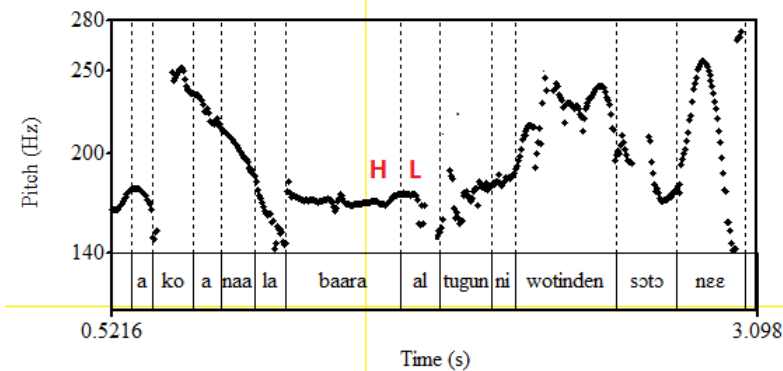
- (5.111) (*háá: súúmájè mání fàgà*)_{IP} [†](*wò máná[†]á ló à bát*
háá súumaye-È mání fàga wò mání à lón à báti
 until Ramadan-ART COND die 2PL COND 3SG know 3SG PFV.OF
tó sálè mà)_{IP}
tó sáli-È ma
 leave holiday-ART to
 and the Ramadan has finished, and when you know that when the feast is over...



In (5.112) below L of the 3SG pronoun *à* is realized at the same level as H of the verb *báara* ‘to work’ at the end of the preceding clause.

- (5.112) (*à kó à náà làbáára*)_{IP} [†](*àl tùgùn nì wótíndén*
à kó à ní à là-báara à lè tùgun ni wóti-nden
 3SG say 3SG SBJV 3SG CAUS-work 3SG LG again SBJV money-DIM
sòtò nèèè)_{IP}
sòtò nèè-HL%
 get ECHO-BT

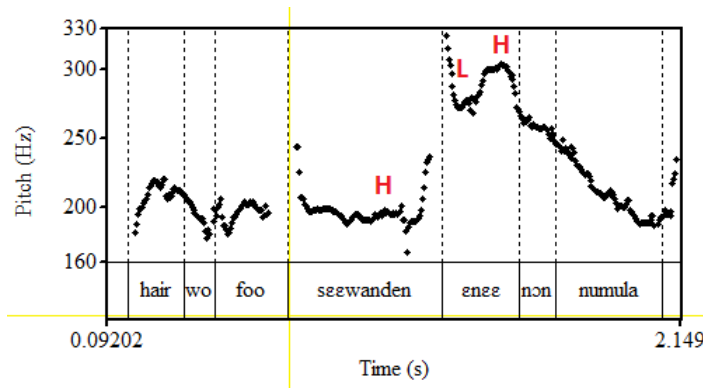
He said that he should make it work to earn some money, didn't he?



In (5.113) H on *séewanden* is realized considerably lower than L after it belonging to another clause.

- (5.113) (*hári wò fóó sééwándén*)_{IP} [†](*èné[†] é nón nùmùlà*)_{IP}
hári wò fóó séewa-nden *ènèè nòn Nùmula*
 but 2PL UNIV be.happy-PC.STAT DISC but NOM.F

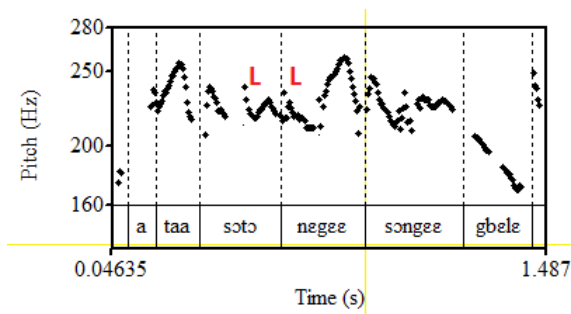
And everybody is happy. Well, Numula...



In (5.114) the second clause is preceded by downdrift reset (but no change of tone register) and no H is inserted between the verb *sòtò* ‘get’ and the L-toned subject of the following clause *nègèè* ‘the iron’.

- (5.114) (*à táà sòtò*)_{IP} (*nègèè sòngé gbèlè*)_{PHP}
à téé à sòtò nège-È sòngo-È gbéle
 3SG NEG.POT 3SG get iron-ART price-ART difficult

It's not possible [to get it for that money], the iron is expensive

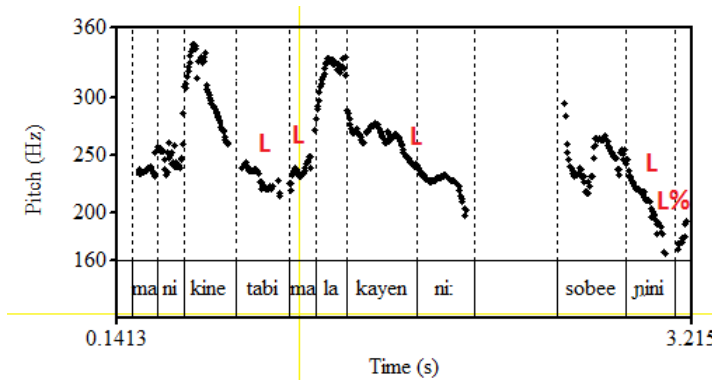


In (5.115) the underlyingly H verb *tábi* ‘prepare’ is realized with a surface L, due to the PHP-final H deletion (see Section 5.6) and no HS is inserted because it is separated from the following L by an IP boundary.

(5.115) (mà nì kìnè tàbi)_{IP} (mà lá ⁺kájèèn nì:(0.46) sòbè⁺é
 mà ni kìni-È tábi mà la kàyi-È-nù ni sòbo-È
 1PL SBJV food-ART cook 1PL POSS man-ART-PL SBJV meat-ART

níni)_{IP}
 níni
 look.for

We prepare food. Our husbands look for meat.



5.5.9 Tone merger in NK

Apart from HS insertion, Kakabe uses the merger of two Ls, but this strategy has a very limited scope of application and is marginal compared to the HS insertion. Tone merger is applied in two particular cases, both of which involve the referential article *-È*. First, the merger of two Ls happens when an L-toned bimoraic noun is preceded by a pronoun in the possessor position. Second, the merger occurs between L belonging to HL tone pattern and the article. The first case is described in the current subsection, for the description of the second case see Section 5.9.1.5.

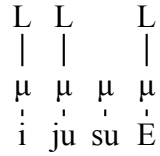
So, in NK the linking of HS to the initial mora of the noun causes the initial L to shift to the right and to optionally merge with L of the article. This can happen when an L-toned noun is preceded by an L-toned pronoun in the position of the possessor. As discussed in Section 5.7.3 HS inserted between L of the pronoun and L of the noun, and after it links to the pronoun it optionally spreads from it to the first mora of the noun. In NK, if HS links to the noun which consists of two moras only, L of the and L of the article can merge as in (5.116a), but the realization *ĩ jùséè* (5.116b) is also possible.

(5.116) *ì + jùséè* → (a) *ĩ jùsé* ~ (b) *ĩ jùséè*
 2SG + heart.ART ‘your heart’

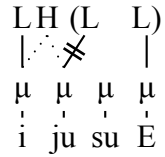
The derivations of the two variants are shown below:

(5.117) (a)

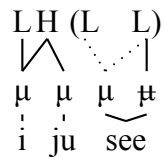
i + jùséè → i.jùsé



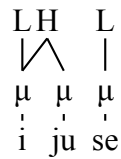
Underlying tones.



HS is inserted and links to the mora of the pronoun and spreads from there to the beginning of the nominal root (see Section 5.7.3). L of the nominal root shifts to the right and merges with L of the article.



The second syllable of the nominal root merges with the mora of the article, leading to the deletion of the mora of the article (see Section 5.9.1.1).



Surface realization.

(5.118) (a) $i + j\grave{u}s\grave{e}\grave{e} \rightarrow i\check{j}\grave{u}s\grave{e}\grave{e}$

$$\begin{array}{cccc} L & L & & L \\ | & | & & | \\ \mu & \mu & \mu & \mu \\ \vdots & \vdots & \vdots & \vdots \\ i & ju & su & \acute{E} \end{array}$$

Underlying tones.

$$\begin{array}{cccc} LHL & & L & \\ | \cdot / & & | & \\ \mu & \mu & \mu & \mu \\ \vdots & \vdots & \vdots & \vdots \\ i & ju & su & \acute{E} \end{array}$$

HS is inserted and links to the mora of the pronoun.

$$\begin{array}{cccc} LHL & H & L & \\ \vee / \vdots & | & & \\ \mu & \mu & \mu & \mu \\ \vdots & \vdots & \underbrace{\quad} & \vdots \\ i & ju & see & \end{array}$$

HS is inserted and links to the second mora of the nominal root. The second mora of the nominal root merges with the mora of the article (the mora of the article is not deleted because of the position of HS, see Section 5.9.1.1).

5.6 Tone Leveling

The process of Tone Leveling, already mentioned in the introduction and in the section on prosodic hierarchy (5.3.4), plays a central role in the Kakabe tonology. Tone Leveling has two manifestations: PhP-final Tone Leveling favoring PhP final falling pitch and PhP-medial Tone Leveling disfavoring PhP-medial valleys.

5.6.1 Definition of Tone Leveling

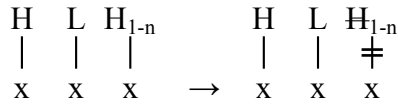
5.6.1.1 Final Tone Leveling

In the process of PhP-final Tone Leveling (FTL henceforth), the last H or the last sequence of H tones in a PhP is deleted if H or Hs is preceded by the sequence HL within the same PhP. Thus, it transforms the tonal sequences of the type HLH# into HL#, where # stands for PhP boundary. The number of H tones in the input is not restricted¹⁴.

14. By contrast, the multiplication of underlying L tones leads to the insertion of a H tone separator (see 5.5)

(5.119) PhP Final Tone Leveling (PhP-final H(s) deletion):

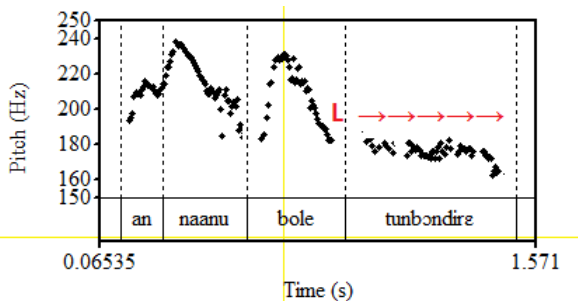
$$H_{1-n} \rightarrow \emptyset / HL_ \#_{\text{PhP}}$$



Example (5.120) illustrates the deletion of the underlying H belonging to the verb *tùnbòndirè* ‘fold’ under FTL:

(5.120) *àn náànù bóìè tùnbòndirè*
ànu ni ànu bóìo-È tùnbòndirè
 3PL SBJV 3PL arm-ART gather

They would fold their hands.



Crucially, the only obligatory part of FTL is the deletion of the last H or Hs in PhP. The L spread which is present in the case of (5.120) is not a consequence of FTL. Instead, it is a particular case of the default tone spread which applies at the final stage of tonal derivation if any toneless TBUs remain after the application of all other tonal processes (see 5.3.2). Later in the section I show that HS can be inserted after the FTL-driven deletion of the underlying H in which case no free TBUs might be available and, consequently, no tone spread would take place; see Section 5.6.3. Another type of tone which can be inserted after the application of FTL is the IP-boundary tone; see the discussion in Sections 6.4.4.5 and 6.4.5.5 in Chapter 6.

The obligatory character of FTL has two exceptions, both of which are related to intonation and are therefore described in the following chapter. First, FTL is overruled by listing intonation, which is described in Section 6.6.2. Second, it is blocked by pragmatically prominent items, see Section 6.5.2.

As has been said, the number of the PhP-final H tones that can be affected by FTL is not limited. The underlying Hs which undergo deletion can belong to morphemes of various grammatical categories: copulas, nouns, verbs, adverbs. This range of possibilities is illustrated in (5.121 a)-(5.121 e).

(5.121) (a) H on verb *dámu* is deleted

dén[↑]nén *dé* *kùlà* *wúlénè* *dàmùlà*
dénden-È-nu *lè* *kùla* *wúlen-È* *dámu-la*
 chold-ART-PL FOC monkey red-ART eat-GER
 Children eat red monkey.

(b) H on noun *kíni* is deleted

mà *tée* *dèn* *kìni* *là*
mà *tée* *dèn* *kíni* *la*
 1PL POT.NEG gather food OBL
 We don't eat together.

(c) Two Hs deleted: copula *béle* + verb *mánke*

ñ *bálòè* *bèlè* *mánkèlà*
ñ *bálu-È* *béle* *mánke-la*
 1SG food-ART be.NEG lack-GER
 We have enough food.

(d) Two Hs deleted: noun *nánden* + postposition *bólo*

ñ *káá* *dìi* *ñ* *nàndèn* *bòlò*
ñ *ka à* *dí* *ñ* *nánden* *bólo*
 1SG PFV.TR 3SG give 1SG stepmother hand
 I gave it to my stepmother.

(e) Three Hs deleted: copula *máa* + verb *ké* + adverb *ḡóó*

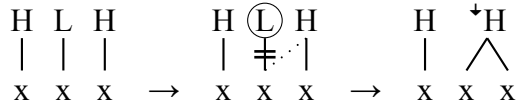
mótó *tígè* *màà* *kèè* *ḡòò*
móto *tìgi-È* *máa* *ké* *ḡóó*
 motorcycle owner-ART NEG.PFV.OF arrive
 The motorbike driver didn't arrive there.

5.6.1.2 Medial Tone Leveling

PhP Medial Tone Leveling (MTL henceforth) eliminates the L valley in HLH sequences belonging to one PhP and followed by at least one L before the end of PhP.

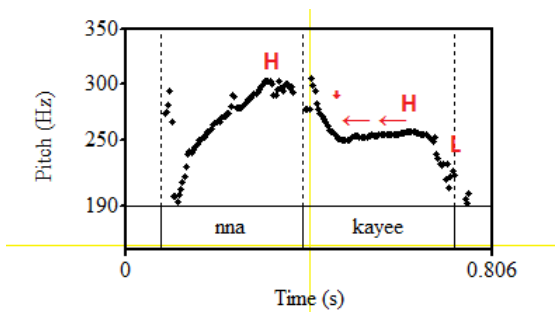
(5.122) PhP Medial Tone Leveling (H left spread):

$$HLH \rightarrow H^LH \rightarrow H^{\downarrow}H / _ (T)L(T)\#_{\text{PhP}}$$



In (5.123) below the downstepped [↓]H on [↓]káyéè ‘the husband’ results from MTL and replaces the lexical L of the noun. The latter leaves a trace in the form of the downstep.

(5.123) *n̄ ná [↓]káyéè*
n̄ la kàyi-È
 1SG POSS man-ART
 my husband



5.6.1.3 Kakabe Tone Leveling in the context of other languages

Hulst & Snider (1993a) refer a process, analogous to the Kakabe Medial Tone Leveling, where a delinked L between two Hs is realized as the downstep of the latter as the “register lowering due to displaced Low” (1993a: 9).

I chose to name these process as “leveling”, in order to distinguish it from two close but different phenomena: plateauing and terracing. In fact, “terracing” would be a very appropriate term, since the process in (5.119) transforms the HLH “valley” into the H[↓]H or HL terrace with two levels. Yet, there is a long-standing tradition of using the term “terracing” as a cover term for several processes involving the overall modification of the register level for several tones (Clements 1979); see also: “Tone terracing is a term commonly used in reference to the set of interrelated phenomena known as downdrift, downstep, upstep and upsweep” (Huang 1985: 209).

Tone plateauing is attested in many tonal languages (Hyman 2011; Cahill 2007). It simplifies HLH sequences through the delinking of L which results in one H plateau, or by

the spread of H though the toneless TBUs until the next H which equally leads to a plateau, as in Example (5.124) from Luganda (< Bantu):

(5.124) Luganda (Hyman 2011: 501)

/a-bá-tu-gul-ír-a/ → a-bá-tú-gúl-ír-à ‘the ones who buy it for us’ (no glosses are provided).

Thus, the difference between the process applied to HLH sequences in Kakabe and plateauing is that in Kakabe, the result is not one but two plateaus.

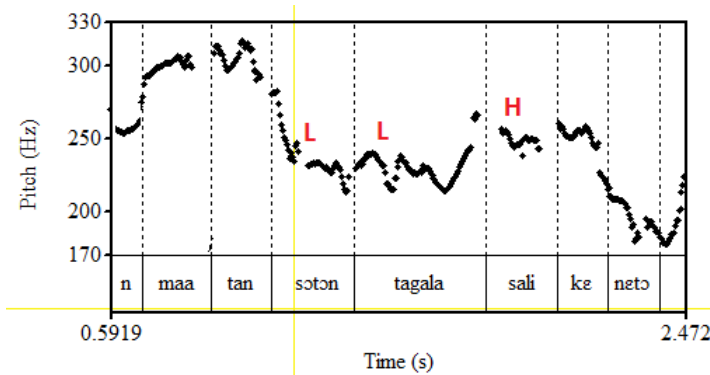
One more tonal process close to Tonal Leveling is that of “tone blending”, described by Silverman (1997) for Comaltepec Chinantec (< Oto-Mangue). In this language the underlying HLH sequence is realized as MH. It is the mirror image of Kakabe, where HLH gives a tonal realization of the second part realized lower than the first part.

5.6.1.4 Tone Leveling and PhP boundaries

As has been said, the domain Tone Leveling, both Final and Medial, is PhP.

The effect of PhP boundaries on Tone Leveling can be illustrated by (5.125). In this example, H tone is deleted from *tága-la* go-GER. By contrast, the H tone of the following NP *sálikèè* ‘the praying’ is not affected, since it is part of an adverbial phrase that projects a separate PhP.

(5.125) (*n̄ maa tán sòtɔn tàgàlà*)_{PhP} (*sálikèè nètɔ*)_{PhP}
 n̄ maa tán sòtɔn tàgà-la sáli-ké-È netɔ
 1SG PFV.NEG time get go-GER pray-do-ART in
 I don’t have time to go praying.



The association of Tone Leveling with the PhP domain is manifested through two restrictions: first, it is not possible across two PhPs (5.6.1.4.1), second, FTL has to go until the end of PhP and cannot stop earlier (5.6.1.4.2).

5.6.1.4.1 No Tone leveling across PhP boundary

Example (5.126) illustrates the impossibility of Tone Leveling across the PhP boundary. The realization in ((5.126)') with H spreading from *jii* 'water' to *bòyita* 'fell' is not possible because they are divided by PhP boundary. For the same reason, L from *bòyita*

- (5.126) (*dé⁺jé* *bòyità*)_{PhP} (*jii* *kímánnéè* *tò*)_{PhP}
 dénden-È *bòyi-ta* *jii* *kíma-nden-È* *tò*
 boy-ART fall-PFV.INTR water be.cold-PC.ST-ART OBL
 The boy fell into the cold water.

(') No FTL across PhP boundary: *(*dé⁺jé* *bòyità*)_{PhP} (*jii* *kímánnéè* *tò*)_{PhP}

('') No MTL across PhP boundary: *(*dé⁺jé* *⁺bòyità*)_{PhP} (*jii* *kímánnéè* *tò*)_{PhP}

Analogously, in (5.127) L spreads from the 3SG pronoun *à* to the verb *wá*, but cannot spread on *tólon* 'have fun' which belongs to the next PhP (L cannot spread on *dúlà* place-ART at any case, because the latter has L on the second syllable).

- (5.127) (*dénnééni* *⁺sáá* *wà*)_{PhP} (*tólon* *dúlà*)_{PhP}
 dénden-È-nù *si à* *wá* *tólon* *dula-È*
 child-ART-PL POT 3SG go have.fun place-ART
 Young people go to have fun.

(') No FTL across PhP boundary: *(*dénnééni* *⁺sáá* *wà*)_{PhP} (*tólon* *dúlà*)_{PhP}

('') No MTL across PhP boundary: *(*dénnééni* *⁺sáá* *⁺wá*)_{PhP} (*tólon* *dúlà*)_{PhP}

5.6.1.4.2 No Partial FTL

The sequence of (uninterrupted) underlying H tones at the end of a PhP behaves as one unit with respect to tone leveling. This is manifested in the principle (5.128) that formulates the impossibility to delete only part of a H tone sequence by FTL:

(5.128) No partial FTL

If in a PhP-final sequence of H tones one H is deleted, the rest of H tones must also be deleted.

Thus, in (5.129) H deletes both from *fólòta* and from the gerund form *kílanna*. The the realization (5.129') where only H on *fólòta* is deleted is not possible:

- (5.129) (*dénjènnè* *fólòtà* *kílannà*)_{PhP} (*dóndèn* *dóndèn*)_{PhP}
 dénden-È *fólò-ta* *kílan-la* *dóndèn* *dóndèn*
 child-ART start-PFV.INTR be.afraid-GER little little

The child started crying little by little.

(') *(*dénjènnè fɔ̀lɔ̀tà kílánná*)_{PhP} (*dóndèn dóndèn*)_{PhP}

5.6.2 Optionality of MTL

By contrast to FTL which applies always when there is a \HLH#\ sequence, MTL is optional. Compare the pronunciation of *mò̀nnéè* ‘the porridge’ in (5.130 a) and (5.130 b), two utterances pronounced by the same speaker one after the other. In (5.130 a) the underlying L on the first syllable of *mò̀nnéè* undergoes MTL and is consequently realized as the downstep of H, whereas in (5.130 b) L remains linked to the initial TBU of the noun¹⁵.

- (5.130) (a) *fùturé⁺é* *mán* *má⁺dón* *mà ní* *⁺mò̀nnéé* *⁺lájìgì*
 fùturó-È máni madòn mà ni mò̀nni-È la-jìgì
 twilight-ART COND approach 1PL SBJV porridge-ART CAUS-descend
 When the twilight approaches, we take the porridge.

- (b) *mà ní* *mò̀nnéé* *⁺ládù* *náámìn* *ànù fɔ̀* *fùtùrè* *báf*
 mà ni mò̀nni-È ládù náámìn ànu fɔ̀ fùturó-È báti
 1PL SBJV porridge-ART prepare when 3PL say twilight-ART PFV.OF
fà
fã
 fill

We make the porridge before (before they say) “the evening has come”.

5.6.3 Tone Leveling and HS insertion

As has been mentioned earlier, tone spread and OCP operate at different levels of prosodic hierarchy: the domain of HS insertion is IP, whereas the domain of Tone Leveling is PhP. Two L tones within the same IP, even if they are divided by a PhP boundary, are not tolerated by OCP in Kakabe. At the same time, since Tone leveling operates at PhP level, the first of such two L tones separated by PhP boundary can be created by FTL. The relation between FTL and HS insertion is defined by the following principles:

- (5.131) (a) FTL precedes HS insertion.

- (b) If PhP₁ has undergone FTL and is followed by an L-initial PhP₂, HS is inserted at the end of PhP₁.

15. For example, in a sample of 20 utterances containing the noun *wùlèè* ‘the dog’ preceded by H within the same prosodic unit, there is no spread of the H on the second syllable of the noun in 14 occurrences and H spread is attested in the remaining 6 occurrences.

(c) FTL does not apply after HS insertion.

Let us look at an example. In (5.132) below the gerund form /kó-la/ give-GER is realized as *kòlá* with LH tones.

- (5.132) (*wò bí wò là déjènu kòlá*)_{PhP} (*nìngéè tò*)_{PhP}
 wò bí wò là dén-È-nu kó-la nìngi-È tò
 2PL be 2PL POSS child-ART-PL give-GER cow-ART in

You give your children a cow to your children.

By contrast, when the PhP after the verb form starts with a H tone, /kó-la/ can be realized only all-L:

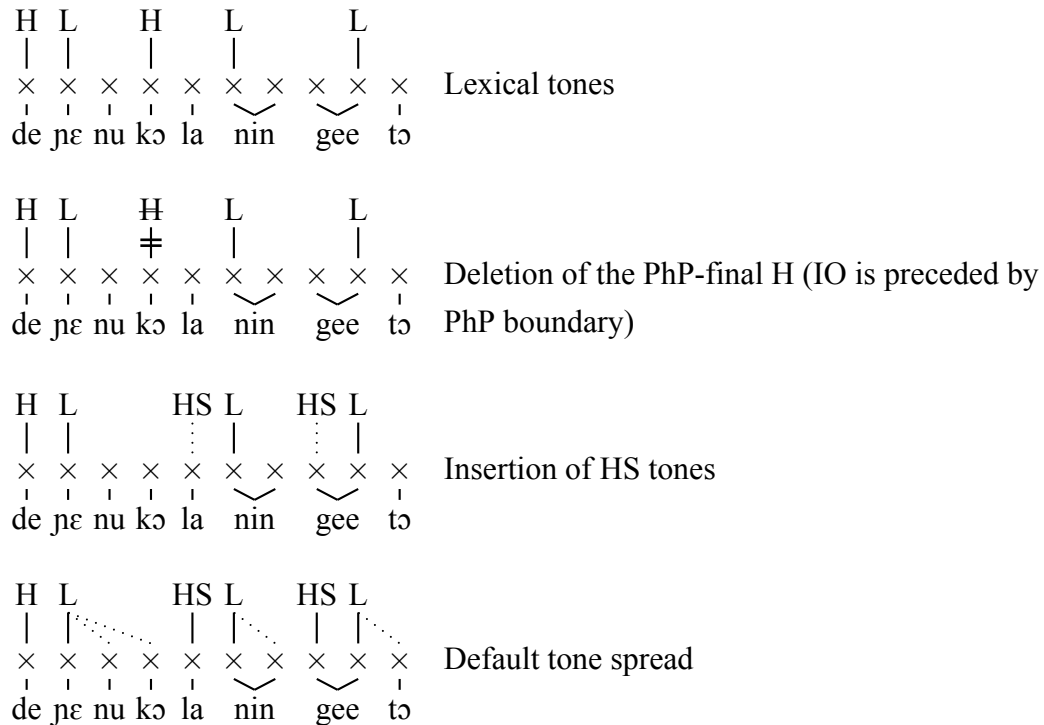
- (5.133) (*wò bí wò là déjènu kòlà*)_{PhP} (*bónè tò*)_{PhP}
 wò bí wò là dén-È-nu kó-la nìngi-È tò
 2PL be 2PL POSS child-ART-PL give-GER cow-ART in

You give your children a cow to your children.

(^o) Not possible: *(*wò bí wò là déjènu kòlá*)_{PhP} (*bónè tò*)_{PhP}

H tone associated with the second syllable of the verb form *kòlá* in (5.132) is not the lexical tone of the verb. Instead, the lexical tone of *kó* is deleted, being the last in the PhP. After that, HS is inserted to separate the L tone of the article in *déjènu* from the first L of *nìngéè*. At the end of the tonal derivation, the default tone spread applies. These stages of derivation are represented below:

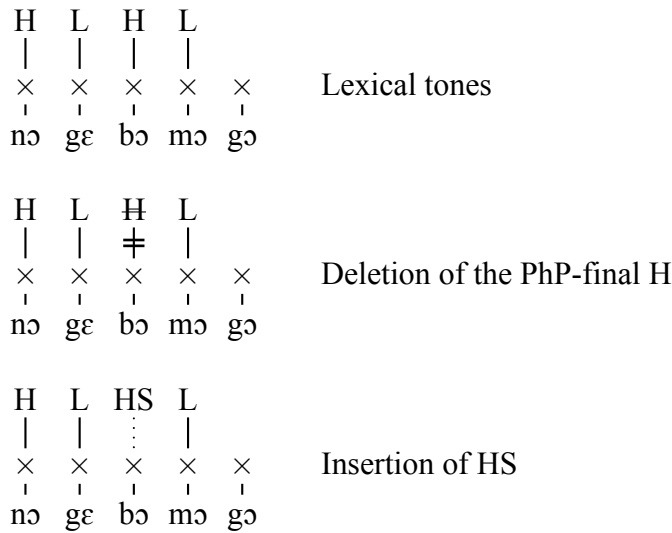
(5.134)



There are two reasons precluding the analysis of the H tone on the second syllable of *kɔ́lá* in (5.132) as the lexical tone of the verb shifting to the right. First, this analysis would make it necessary to postulate an additional tonal process, namely, the shift of the underlying H to the right for this case exclusively. Second, and more importantly, if the H tone in question were the lexical H shifting to the right, the same realization would have to be possible for the cases like (5.133) where the second PhP starts with H, yet, this realization is excluded in this context.

The alignment of HS can coincide with the initial place of association of the underlying H deleted before the insertion of this HS. Thus, the two stages of the derivation, the H deletion and the HS insertion, can go back to the same result as before their application. This happens in (5.135) below, where the H on the monosyllabic verb *bó* ‘take’ in PhP-final position is HS inserted after the deletion of the lexical H.

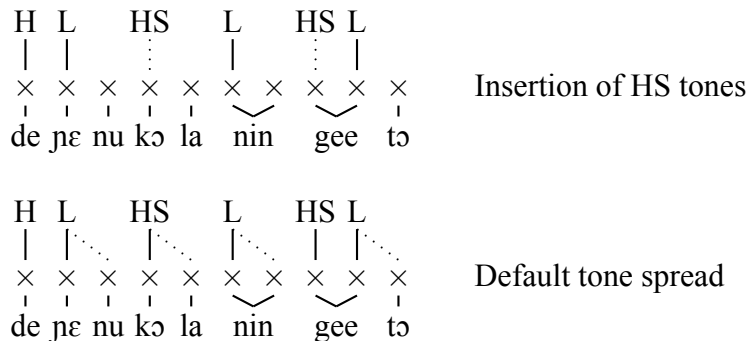
(5.135) (*màsín* [↓]*mín* *sì* *nógè* *bó*)_{PhP} (*mògò* *kónòè* *tò*)_{PhP}
màsín-È *mín^L* *sì* *nógò-È* *bó* *mògò* *kónò-È* *tò*
machine-ART REL POT dirt-ART take person inside-ART in
A machine which can remove dirt from a person’s stomach.



5.6.3.1 Variability in HS alignment

The alignment of HS applied after Tone Leveling may vary. Thus, the underlying tones from the utterance in (5.132) can also be realized with the verb from *kólá* all-H, as shown in (5.136):

(5.136) Realization alternative to (5.132): (*wò bí wò là dépènù kólá*)_{PhP} (*nìngèè tò*)_{PhP}



Compare also the alignment of HS on *bólá* take-GER in (5.137 a) and *kèlá* do-GER in (5.137 b) below. In the first case, HS links to the both syllables of the verb form and in the second case only to the second syllable.

(5.137) (a) disyllabic verb form

<i>màsín</i>	<i>mín</i>	<i>tùgún</i>	<i>í</i>	<i>jèlì</i>	<i>nógòè</i>	<i>bólá</i>	<i>mòò</i>	<i>fàtì</i>	<i>tò</i>
màsín	mín ^L	tùgún	bi	jèlì	nógò-È	bó-la	mòò	fàtì	tò
machine	REL	again	be	blood	dirt-ART	take-GER	man	body	in

A machine which takes out the dirty blood from a person's body.

- (b) *à tótá wízítà kèlá sàlón †búútò*
à tó-ta wízít-È ké-la sàlon-È búútò
 3SG leave-PFV.INTR consultation-ART do-GER hall-ART in
 he kept doing the consultations in the hall

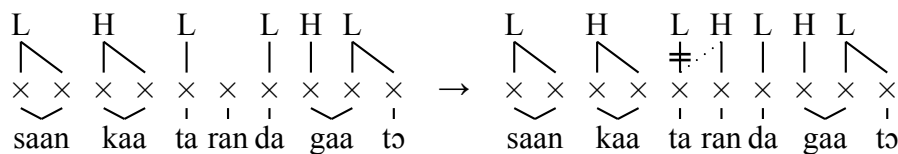
This variability in the alignment of HS is not surprising, considering the complexity of the realization of HS in general, see Section 5.5. To remind the reader some of the factors affecting HS alignment, the latter can depend on morphological constituency, foot structure, semantic grouping of the segments within the domain of the first L tone.

5.6.3.2 HS insertion and MTL

According to the principle formulated above, HS cannot be deleted through Tone Leveling, because FTL applies only before and never after HS insertion. By contrast, MTL can follow HS insertion, and consequently, HS can spread to the left.

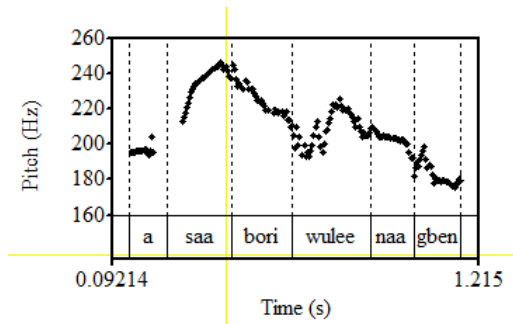
Thus, in (5.138) HS inserted on the second syllable of *tàran* ‘find’ spreads to the left resulting in the realization *†táran*.

- (5.138) *sààn káá †táran dàgáà tò*
si ànu ka à tàran dàga-È tò
 if 3PL PFV.TR 3SG pot-ART in
 If they find it in the pot...



See also (5.139), where L of *bòri* ‘run’ is separated from L on *wùlèè* ‘the dog’ by HS which spreads to the left giving *†bóri*.

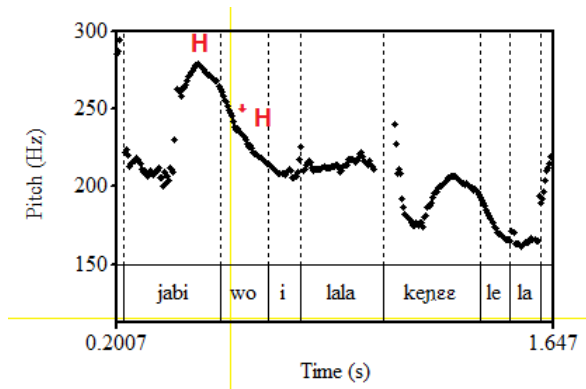
- (5.139) *à sáá †bóri wùlè†é náá gbèn*
à si à bòri wùlu-È ni à gbèn
 3SG POT 3SG run dog-ART SBJV 3SG chase
 It [the monkey] will run and the dog will chase it.



The tonal derivation resulting in the tonal curve in (5.140) includes the following three stages: first, the deletion of H of *lá* ‘put’ under FTL, second, the insertion of HS and, third, MTL with the delinking of L of the determiner *wò* ‘that’.

(5.140) (*jàbí* ⁺*wó* *i* *lálá*)_{PHP} (*kèṅéé* *lè* *là*)_{PHP}
jàbí *wò* *bi* *lá-la* *kèn-È* *lè* *la*
 henna that be lie-GER leg-ART FOC OBL

This henna is put onto the feet.



L	H	L	H	L	H	L	Lexical tones.
x	x	x	x	x	x	x	
ja	bi	wo	i	la	la	ke jɛ le la	

L	H	L	H	L	H	L	PhP Final Tone Leveling causes the deletion of last H in PhP.
			≠				
x	x	x	x	x	x	x	
ja	bi	wo	i	la	la	ke jɛ le la	

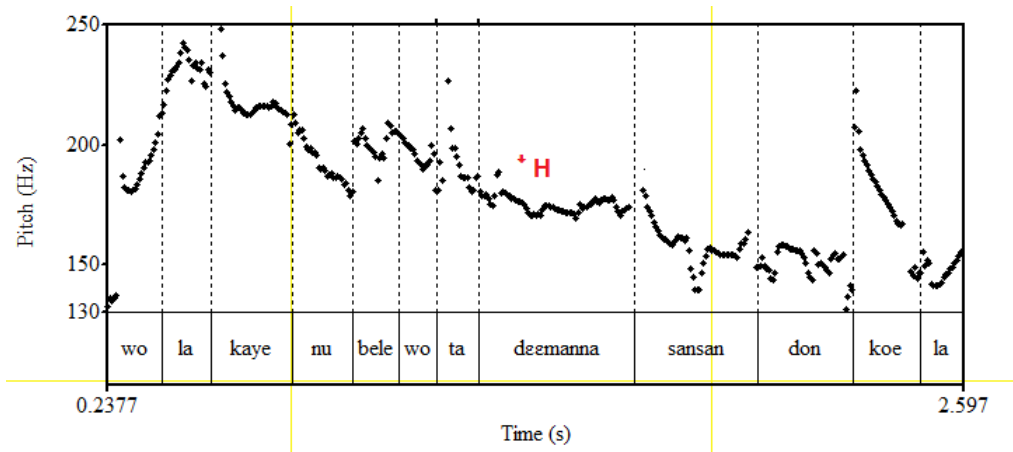
L	H	L	HS	L	H	L	HS is inserted between two L tones.
x	x	x	x	x	x	x	
ja	bi	wo	i	la	la	ke jɛ le la	

L	H	Ⓛ	HS	L	H	L	Floating L is realized as the downstep of the following H.
		≠					
x	x	x	x	x	x	x	
ja	bi	wo	i	la	la	ke jɛ le la	

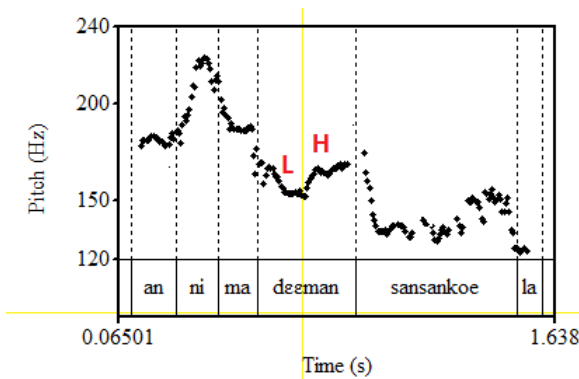
L	H	↑H	L	H	L	Surface realization.	
x	x	x	x	x	x		
ja	bi	wo	i	la	la	ke jɛ le la	

Thus, the same verb *dɛɛman* ‘help’ is realized in two almost identical contexts with MTL and without it, compare (5.141) and (5.142) respectively.

- (5.141) (*wò lá* *↑káyéénù* *bélé* | *↑wó tá↑dɛémánná*)_{PhP}
 wò *la* *kàyi-È-nu* *bélé* *wò* *tadɛeman-la*
 2PL POSS man-ART-PL be.NEG 2PL help-GER
 (*sànsàndònkòè* *là*)_{PhP}
 sànsan-dòn-kó-È *là*
 fence-build-NMLZ-ART OBL
 Your husbands don’t help you with the fence building.



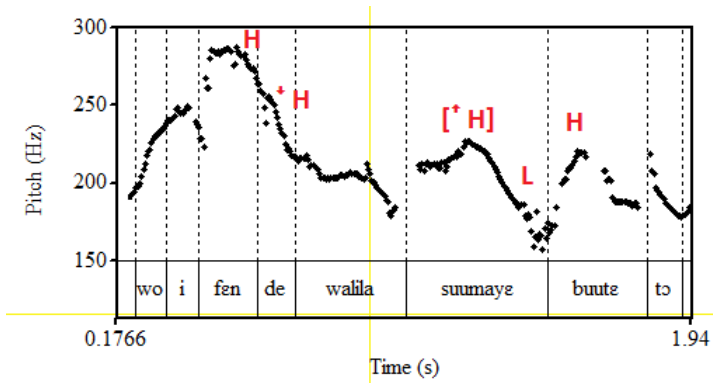
(5.142) *ànu ni mà dèman sànsankòe là*
ànu ni mà dèman sànsan-kòo-È là
 3PL SBJV 1PL help fence-matter-ART OBL
 They should help us with installing the fences.



5.6.4 Medial Tone Leveling and H-raising

The same way as plain H, the downstepped ⁺H resulting from MTL and associated with multiple TBUs is subject to the phonetic raising before L. To remind what was said in Section 5.2.2, in a surface tone sequence HHL (underlyingly it can be one H which spreads over several TBUs as well as several underlying Hs), the last H is raised with respect to the preceding Hs, HHL → [H[↑]HL]. See (5.143) where within the sequence hosting downstepped ⁺H [⁺dé wálilá súú[↑]má] the tone rises on the last syllable which is immediately followed by L.

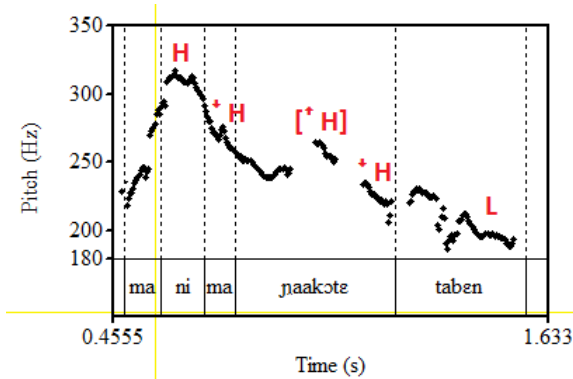
(5.143) *wò ì fén ùdè wálilá súúmáyè búútè tò*
wò bi fén lè wáli-la súumaye-È búuto-È tò
 2PL be thing FOC work-GER Ramadan-ART inside-ART in
 What do you do during the fast?



The raising of H can also take place before a floating L realized as downstep. Thus, in (5.144) H rises on the syllable [kó] before the floating L realized as the downstep of the following syllable [⁺té] in the sequence [⁺má nǎá⁺kó⁺té]. The L in question is the tone of the article which has become floating due to MTL.

- (5.144) *mà ní ⁺má nǎákó⁺té tábèn*
mà ni mà nǎakoto-È tabèn
 1PL SBJV 1PL face-ART embellish

We make our faces look beautiful.



5.6.5 Tone leveling in other Mande languages

So far I have found two descriptions that mention tonal processes similar to the Kakabe Tone Leveling: Grégoire (1986) for Kankan Maninka and Creissels (2009a) for Kita Maninka.

Grégoire (1986)'s description of the tonal system of Kankan Maninka contains formulations to which correspond Tone Leveling in Kakabe, even though it is phrased in rather different terms. She elaborates an extensive list of rules out of which I will only reproduce several examples, and a general representation of the relevant rules.

Simplifying, Rules 55-57 can be reformulated as in (5.145) below, see (Grégoire 1986: 84-87; 116). They correspond to the Kakabe FTL leading to the deletion of PhP-final H.

(5.145) At the end of a PhP boundary, H becomes L if it is preceded by at least one HL sequence within the same IP:

$$H \rightarrow L / (HL _)_{IP}^{16}$$

This is illustrated by (5.146), the lexically H-toned verb *kín* is realized with a L tone:

(5.146) Kankan Maninka: $H \rightarrow L$ (Grégoire 1986: 84) [glosses and the surface transcription are mine]

<i>wùlú</i>	<i>kàà</i>	<i>kìn</i>
wùlú ^L	kà à	kín
dog-ART	PFV.TR 3SG	bite

The dog bit him.

Rules 59-64 refer to the derivation of the type $LH \rightarrow \uparrow HH$ in various conditions and modalities, see (Grégoire 1986: 91-98; 117). In my analysis this corresponds to MTL, or H left spread in Kakabe. In (5.147) from Kankan Maninka *yěn* followed by L gives $\uparrow yén$ with down-stepped $\uparrow H$.

(5.147) Kankan Maninka: $LH \rightarrow \uparrow H / H_L$ (Grégoire 1986: 84) [glosses and surface transcription are mine]

<i>kàà</i>	<i>fàá</i>	$\uparrow yén$	<i>bì</i>
kà à	fàá	yěn	bì
INF 3SG	kill	there	today

to kill him there today

Whereas Grégoire (1986) describes the tonal processes of Kankan Maninka exclusively in terms of replacement of one tone by another, Creissels (2009a) analyses the analogous tonal processes as tonal spread. Thus, he formulates the rules as in (5.148). It should be kept in mind that in Creissels (2009a)'s analysis L is opposed to zero.

16. The full formulation is as follows: “ Règle 55 : Après une pause ou une limite ## et une série tonale comprenant au moins un ton haut isolé ou non, un ton haut unique situé entre un ton bas et une limite ## devient bas ” (Grégoire 1986: 116). Grégoire (1986) uses the double grid symbol ## to represent the boundary of what she calls “phrase” (“limite de phrase”). She doesn't discuss the exact prosodic or syntactic correlates for the seven types of limits that distinguished, but ##, judging by the given examples, most likely, it correspond to intonation phrase in the terminology of the prosodic hierarchy.

(5.148) L spread in Kita Maninka (Creissels 2009a: 35):

Low not separated from the following pause by any other low tone, spreads until the pause in question, whatever the distance separating the two¹⁷.

In (5.149a) L from the second syllable of the proper name *Sékù* spreads until the end of the phrase, since there is no other L tone before the pause. By contrast, it does not spread in (5.149b) because of L-toned adverb *bì* ‘today’.

(5.149) Kita Maninka (Creissels 2009a: 35)

(a) *Sékù man bara ke* → [Sékù màn bàrà kè]
 Sekou PFV.NEG work do
 Sekou has not worked.

(b) *Sékù man bara ke bì* → [Sékù màn bára ké bì]
 Sekou PFV.NEG work do today
 Sekou has not worked today.

The limit of the spread is a syntactic boundary which is not necessarily followed by a pause “certaines frontières syntaxiques demandent l’application de cette loi même si elles ne se concrétisent par aucune pause” (Creissels 2009a: 36). Thus in (5.150) from Kita Maninka L tone spread applies at the end of the first clause which is not followed by any pause. At the same time, it remains unclear what kind of syntactic boundary is meant: “Des observations complémentaires seraient toutefois indispensable pour déterminer l’étendue exacte de ce phénomène”.

(5.150) Kita Maninka (Creissels 2009a: 36)

/Sékù ko musa ye# ko hantà be nà#/ → Sékù kò mùsà yè kó Hántà bé nà
Sékù ko musa ye ko hantà be nà
 Sekou FOC Musa come say Fanta IPFV come
 Sekou told Moussa that Fanta would come.

Contrary to Kakabe, in Kita Maninka L can also spread until the end of the prosodic unit, even if this L is not preceded by any H. Yet, whereas L spread is obligatory if H is present before L, in the opposite case it is optional, see (5.151) below.

17. Un ton bas qui n’est pas séparé de la pause qui lui succède par un autre ton bas se propage jusqu’à la pause en question, quelle que soit la distance qui l’en sépare.

(5.151) Kita Maninka (Creissels 2009a: 36)

/#à man bara ke#/ → à màn bàrà kè ~ à mán bárá ké

à man bara ke

3SG PFV.NEG work do

He has not done any work.

MTL in Kakabe is mirrored by the retraction of L in Kita Maninka. As shown in 5.152, if two adjacent syllables associated to underlying L, the first L retracts and becomes floating:

(5.152) L retraction in Kita Maninka:

$\sigma\sigma^{\grave{}} \rightarrow \sigma^L\sigma^{\grave{}} \rightarrow [\sigma^{\acute{}} \sigma^{\grave{}}]$

$\sigma^{\grave{}}\sigma^L \rightarrow \sigma^L\sigma^L \rightarrow [\sigma^{\acute{}} \sigma^{\acute{}}]$

The application of the retraction rule is illustrated by (5.153):

(5.153) Kita Maninka (Creissels 2009a: 37)

Sekù lè be nà bì → *Sé⁺kù lè bé⁺ná bì*

Sekou FOC IPFV come today

It is Sekou who has arrived.

I haven't found any other description where this kind of tonal process would be discussed for Central Mande. In general, the topics of the contextual tonal processes, the tonal realization of prosodic hierarchy and the syntax-prosody interface have received little attention in Mande studies so far. It might be the case that Tone Leveling is more common in tonal systems of Central Mande languages and in Mande in general than one can judge by the existing descriptions. The comparative study of tonal processes in Mande languages might be a promising topic of research.

5.7 Realization of monomoraic L morphemes

This section mostly deals with the realization of monomoraic L-toned morphemes when they are immediately followed by other L-toned morphemes. In this configuration the insertion of HS in most cases causes the displacement of adjacent tones. Otherwise it would come into conflict with the principle, according to which one TBU hosts maximum one tone. Three main types of contexts relevant for this case can be singled out:

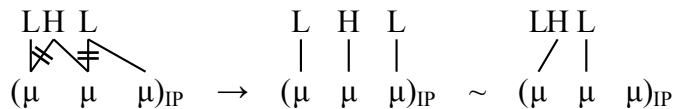
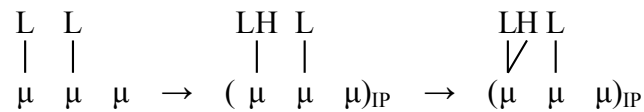
- If L-toned monomoraic morpheme is in IP-initial position, HS links either to the monomoraic morpheme or shifts to the following morpheme (causing the following L to shift also). L tone is either deleted or remains on the same mora, (5.154a).

- If L-toned monomoraic morpheme is preceded by H within the same IP, HS links to the monomoraic morpheme, L becomes floating and is realized as the downstep of HS (5.154b)
- If L-toned monomoraic morpheme is preceded by L, it becomes floating and deletes (5.154c).

(5.154) (a) in IP-initial position: HS shifts to the following TBU or both L and HS remain linked to the monomoraic L morpheme:

/mà jìgi-ta/ → **mà** jígìtá ~ **mǎ** jìgìtá

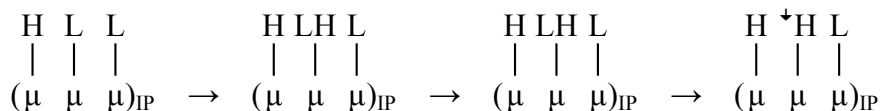
1PL go.down-PFV.INTR ‘We went down.’



(b) Preceded by H within the same IO:

/dépè jìgi-ta/ → dé⁺**pé** jígìtá

child.ART go.down-PFV.INTR ‘The child went down.’



(c) preceded by L: L is deleted

/à lè nà-ta/ → à **lé** nàtá

3SG LG come-PFV.INTR ‘He came.’



5.7.1 Realization of the marker *lè*

5.7.1.1 Preceded by *H*

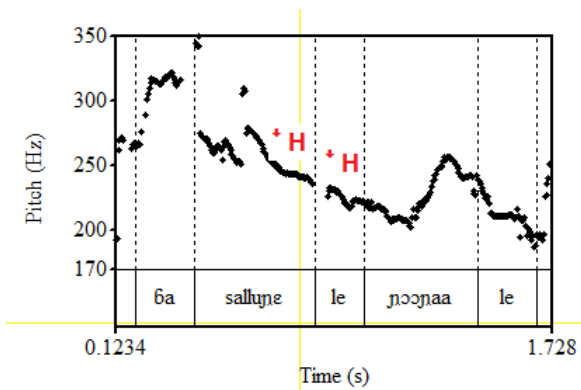
The focus marker *lè* is in most cases pronounced with L or as ⁺H (before L), see the three utterances in (5.155) below:

- (5.155) *à bùyítà lè jéè tò*
à bùyi-ta lè jíi-È tò
 3SG fall-PFV.INTR FOC water-ART on
 ‘He fell on the earth’.

dé⁺né ⁺lé bùyítà
dén-È lè bùyi-tà
 child-ART FOC fall-PFV.INTR

The child fell down.

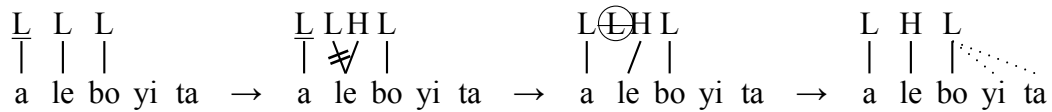
bá ⁺sállú⁺né ⁺lé jòòjánaá lè
bâ sállun-È lè jòòjá-È lè
 as holiday-ART FOC hubbub-ART FOC
 Since it is the holiday [today] ...



5.7.1.2 Preceded by *L*

The only context when it is pronounced with H (and not an L or ⁺H) is between the 3SG pronoun *à* and another L-toned morpheme, as in (5.156) below.

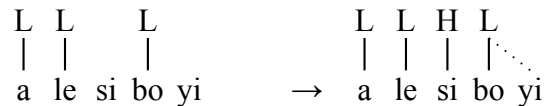
- (5.156) *à lé bùyítà*
à lé bùyi-ta
 3SG LG fall.ill-PFV.INTR
 He fell down.



This is the only case when *lè* is not preceded by H tone. The focus marker cannot occur in the initial position, and when it follows an L-toned morpheme, HS is always inserted (unless this is the 3SG *à*, the only morpheme with an underlying \underline{L} and which can immediately precede the focus marker).

When /à *lè*/ is followed by a toneless morpheme and an L-toned morpheme, the latter hosts HS; cf. (5.157 a) with HS on the marker *si* in the surface realization and (5.157 b) without any HS on *si*.

- (5.157) (a) /à *lè* *si* *bòyi*/ → *à* *lè* *sí* *bòyi*
 3SG FOC POT fall He will fall.



- (b) /à *lè* *si* *wúli*/ → *à* *lè* *sì* *wúli*
 3SG FOC POT get.up He will get up.



5.7.1.3 Floating realization of *L* of *lè*

L of the focus marker can float to the right of its host morpheme: it can cause the downstep of the following H (5.158), delink it (5.160), or be deleted in the presence of L to the right (5.159). L obligatorily floats to the right if the focus marker *lè* is pronounced in reduced form without the vowel, since its original TBU is deleted, e.g. (5.158).

- (5.158) *wól* ⁺*lá* *kìnààni*
 wò *lè* la kina-È-nu
 2PL LG POSS parent-ART-PL
 your parents

Besides, there are a few occurrences in the corpus, where L of *lè* behaves as a floating tone, even though the vowel is not deleted, see (5.159) and (5.160).

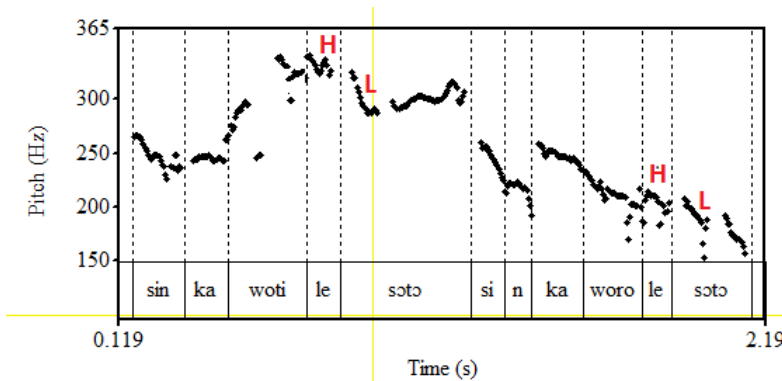
- (5.159) *sì ò kà wótí lé †sòtò sì ò ká †wóró lé*
sì ò ka wóti-È lè sòtò si ò ka wòro-È lè
 if 1SG PFV.TR money-ART FOC get if 1SG PFV.TR cola-ART FOC

sòtò

sòtò

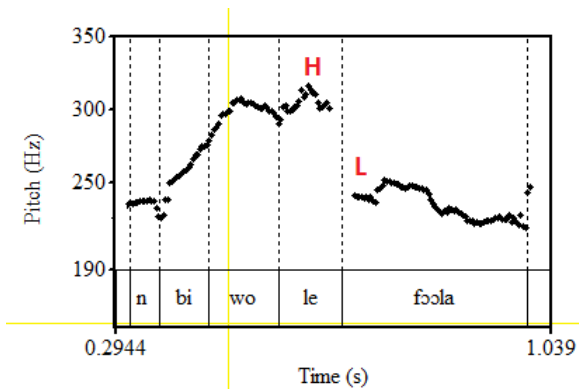
get

If I have some money, if I have some cola nuts.



- (5.160) *ò bì wó lé fòlà*
ò bi wò lè fò-la
 1SG be that FOC say-GER

That's what I am saying.



5.7.2 Referential article and L-spread

Whereas the focus marker *lè* can be realized with H tone in at least one morphological context, in the case of the referential article *-È* there is no such context at all. It is always either

preceded by an underlying H tone or, if the preceding underlying tone is L, HS is inserted between the two.

- (5.161) *bó⁺ɲé* *bòyità*
 bón-È **bòyi-ta**
 house-ART fall-PFV.INTR
 The house fell down.

(a) H L L
 | | |
 (a) bo ɲɛ bo yi ta Underlying tones

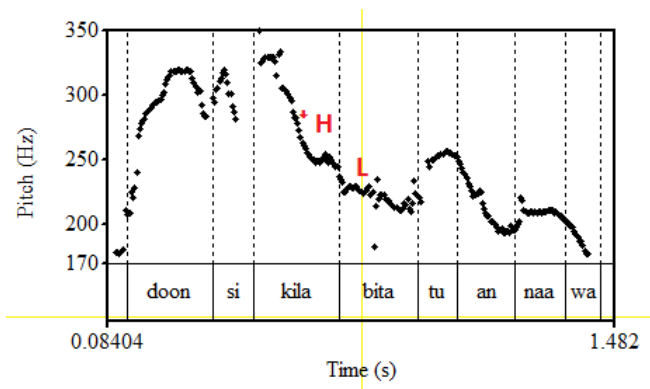
(b) H L H L
 | | | |
 (b) bo ɲɛ bo yi ta Insertion of HS

(c) H ⊙ H L
 | / |
 (c) bo ɲɛ bo yi ta HS links to the last syllable of NP, L of the article becomes floating.

(d) H ⁺H L
 | | |
 (d) bo ɲɛ bo yi ta Floating L of the article is realized as downstep of HS; L spreads on toneless TBUs.

Example (5.162) illustrates the downstepped ⁺H realization of the syllable with the article before another L:

- (5.162) *dóón* *sí* *kí⁺lá* *bità* *tú* *àn* *náà* *wà*
 dóo-nu si kílá-È bita tún ànu ni à wá
 one-PL POT road-ART take only 3PL SBJV 3SG go
 Some of them just go like that [without saying goodbye].



Compare it with (5.163) below where the article is followed by the underlyingly toneless plural marker *-nu*, and where two realizations are possible. First, L and HS can be distributed over the two TBU (a). Second, the realization with ⁺H as in (b) is also possible, since H can spread to the left.

(5.163)

/bóɲè-nu bòyi-ta/ → (a) bóɲènú bòyità ~ (b) bó⁺ɲénú bòyità
 house.ART-PL fall-PFV.INTR ‘The houses fell.’

H	L	L	
			/
bo	ɲe	nu	bo yi ta

H	L	H	L	
				/
bo	ɲe	nu	bo	yi ta

H	Ⓛ	H	L	
				/
bo	ɲe	nu	bo	yi ta

5.7.3 Tonal realization of L-toned pronouns

The description of the tonal realization of pronouns is divided into the following parts:

- realization of pronouns IP-initially or after L, Section 5.7.3.1
- realization of pronouns following H: optional H spread, Section 5.7.3.2
- realization of onsetless pronouns when they merge with the preceding syllable, Section 5.8.4
- realization of long form pronouns, Section 5.7.3.3.

Table 5.8 gives a panorama of the variation in the tonal realization of personal pronouns on the example of the 1PL pronoun *mà* and illustrates cases listed above, excluding the merger of onsetless pronouns. The first column (after the letters) represents the tonal environment.

The second column represent the tonal sequence resulting from the insertion of the pronoun, with the tone of the pronoun is bold.

(a)	#_L	→	RL ~ HL ~ LH	<i>mǎ jìgìtǎ ~ má jìgìtǎ</i> ~ <i>mà jìgìtǎ</i>	‘we went down’
(c)	#_H	→	LH	<i>mà wúlítǎ</i>	‘we woke up’
(e)	#_ØL	→	LHL	<i>mà sí jìgì</i>	‘we will go down’
(d)	#_ØH	→	LLH	<i>mà sì wúlí</i>	‘we will wake up’
(h)	<u>L</u> _L	→	LHL	<i>sì má jìgìtǎ</i>	‘if we go down’
	<u>L</u> _H	→	LLH	<i>sì mà wúlítǎ</i>	‘if we wake up’
(f)	H_L	→	HHL ~ H⁺HL	<i>háá má jìgìtǎ ~ háá ⁺má jìgìtǎ</i>	‘and we went down’
(g)	H_H	→	HLH ~ HHH ~ H⁺HH	<i>háá mà wúlítǎ ~ háá má wúlítǎ ~ háá ⁺má wúlítǎ</i>	‘and we woke up’
(j)	H_ØL	→	HLHL ~ HHHL	<i>háá mà sí jìgì ~ háá má sí jìgì</i>	‘and or we will go down’
(i)	H_ØH	→	HHLH ~ HLLH ~ HHHH	<i>háá má sì wúlí ~ háá mà sì wúlí ~ háá má sí wúlí</i>	‘and we will wake up’
	#_léL		R⁺HL ~ LHL ~ HHL ~ H⁺HL	<i>mǎ ⁺lé jìgìtǎ ~ mà lé jìgìtǎ ~ má lé jìgìtǎ ~ má ⁺lé jìgìtǎ</i>	‘WE went down’
	#_léH	→	RLH ~ LH⁺H ~ HLH ~ HH⁺H	<i>mǎ lè wúlítǎ ~ mà lé ⁺wúlítǎ ~ má lè wúlítǎ ~ má lé ⁺wúlítǎ</i>	‘WE woke up’

Table 5.8: Realization of the tone of the pronouns with the floating L

One more context of realization of the pronoun is when it is followed by the focus particle *lè*. This is described in Section 5.7.3.3.

5.7.3.1 *Realization of pronouns IP-initially or after L*

The following generalization can be formulated about the tonal realization of the personal pronouns in IP-initial position:

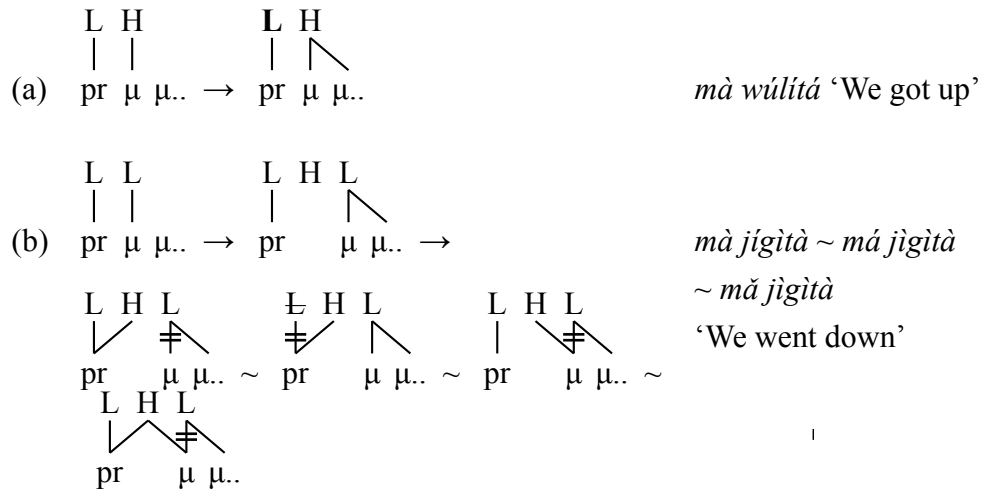
- Before H-toned morpheme, the personal pronoun is always realized with L tone.
- Before L tone two options are available:
 - the pronoun is realized with L, and H shifts on the syllable with a lexical L;
 - the pronoun is realized with H and the next syllable with L;
 - the pronoun hosts both L and H.
- When the next syllable is underlyingly toneless, the pronoun forms with it one L-tone domain.

The pairs of examples in (5.164) and (5.165) represent the realization of pronouns (noted as “pr” at the segmental level) in three types of context: 1) after pause and before L or H; 3) between a pause and a toneless morpheme; 2) between an L-toned morpheme and L or H. I postulate that the underlying tone of the pronoun is L, “pr” standing for the mora of the pronoun.

In (5.164b) the unstable association between LH and the mora of the pronoun gives three possible realizations at the end of the derivation. The pronoun can be pronounced with a rising tone, with L tone or with H tone. Thus, the instability is translated into variability in the realization. Most often H peak is realized at the junction between the pronoun and the verb, so that the pronoun is realized with the rising tone and the following syllable is realized with a falling tone.

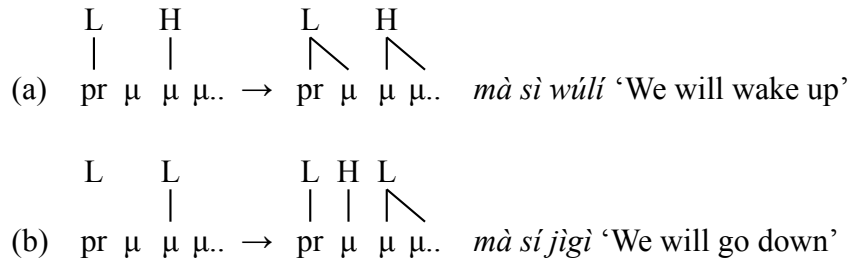
IP-initially:

(5.164)



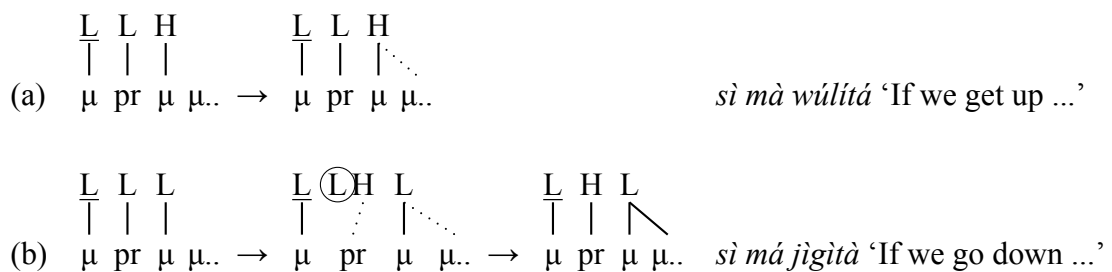
Before a toneless morpheme:

(5.165)



When the pronoun is separated from the pause by an L-toned morpheme (5.166), HS is realized on the pronoun and L is deleted.

(5.166)



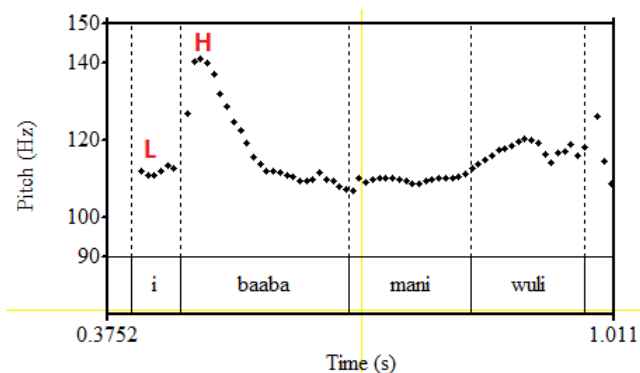
To sum up, there can be multiple solutions to the problem of linking between the tonal and the segmental tier when the number of tones exceed the number of available TBUs. Thus, in (5.164b) both L of the pronoun and L on the following mora can yield place for the attachment of H. In (5.166b) L of the pronoun is destabilized and, consequently, it is deleted due the presence of L right before (in compliance with Simplification rule). Finally, in (5.165) the pronoun is followed by a toneless morpheme which is an appropriate site of attachment for HS.

5.7.3.1.1 *L vs. H realization of pronouns in IP-initial position*

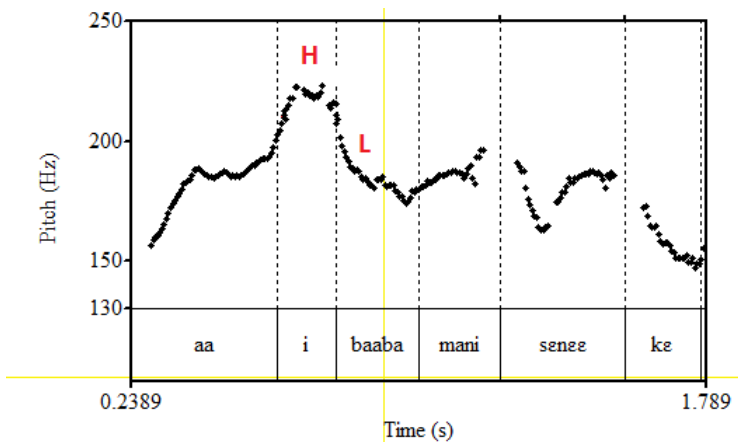
Examples (5.167) and (5.168) illustrate the variability of the realization of the 2SG pronoun *i* before an L-toned morpheme. When the pronoun is pronounced immediately after pause (5.167), it is realized with L tone, and H tone appears at the beginning of the noun. In contrast to that, in (5.168) where a vocalization precedes the pronoun, it is realized with H tone, and the noun is \uparrow H (due to the backwards spread of the following H).

(5.167)

i báàbà mànì wúlí
ì bàaba mání wúlí
 2SG father COND get.up
 When your father gets up...



(5.168) *àà í \uparrow báábá mání sènée kè*
aa ì bàaba mání sènɛ-È ké
 DISC 2SG father COND field-ART do
 When your father works in the field...



The two utterances in (5.169) below illustrate the configuration where the pronoun is realized with L tone, whereas HS between the pronoun and the focus marker links to the focus marker, and the L of the latter is realized as downstep of the following H.

(5.169) *ì lé †bás sìgì fùtú là*
ì lè báti sìgì fùtu là
 2SG LG PFV.OF sit marriage OBL
 You are married.

ṅ dé dòntà lárṁè tò
ṅ lè dòn-ta lárṁε-È tò
 1SG LG enter-PFV.INTR army-ART in
 I went to the army.

In terms of the frequency of realization of different tonal variants in discourse, first, pronouns followed by L-toned morpheme are most often realized with H tone. Second, L realization is more frequent for the pronouns with deficient syllable structure: the onsetless 2SG *ì* and 1SG *ṅ* which is often non-syllabic, as in (5.169) and (5.169). Table 5.9 shows the tonal realization (H, L or LH) of the pronoun before the focus marker *lè* in a sample of 160 occurrences of locutor pronoun before L-toned morphemes¹⁸. It shows that H realization is predominant: 108 tokens out of 160, followed by 39 tokens of L realization and 13 tokens of LH realization. Importantly, the most part of L realizations belongs to the 1SG *ṅ* and the 2SG *ì*: 37 tokens out of 58.

18. L-toned verbs or the focus marker *lè* in the sample

	H	L	LH	Total
All 1st and 2nd person	145(68%)	58 (24%)	17 (8%)	220 (100%)
out of it: 1SG <i>̀̀</i>	42	23	2	67
out of it: 2SG <i>̀</i>	14	14	4	32
<i>̀</i> and <i>̀̀</i>	56 (51%)	37 (44%)	6 (5%)	99 (100%)
<i>wò</i> and <i>mà</i>	89 (82%)	21 (8%)	11 (10%)	121(100%)

Table 5.9: Tone of first and second person pronouns before L tone

5.7.3.1.2 Realization of the 3SG pronoun *à* in IP-initial position

When L is followed by a toneless morpheme and then by L, in this case HS is realized on the toneless morpheme:

(5.170) (a) /à si bòyi/ → à *sí* bòyì
 3SG POT fall He will fall.

(b) /à si tága/ → à *sì* tágá
 3SG POT go He will go.

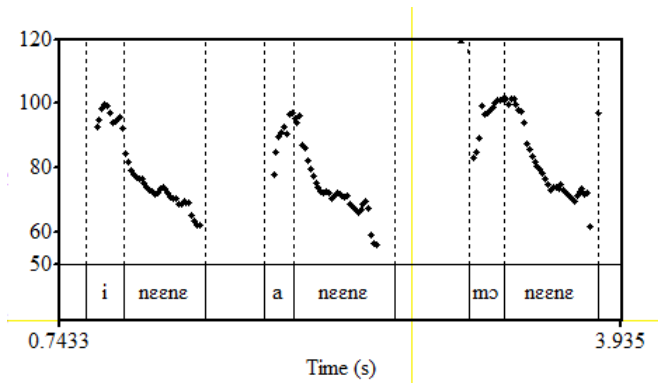
(5.171) (a) /à-nu bòyi-ta/ → ànú bòyità
 3SG-PL fall-PFV.INTR They fell.

(b) /à-nu tága-ta/ → ànù tágátá
 3SG-PL go-PFV.INTR They went.

If there is no TBU after *à*, no HS is inserted:

(5.172) /à bòyi-ta/ → à bòyità
 3SG fall-PFV.INTR He fell.

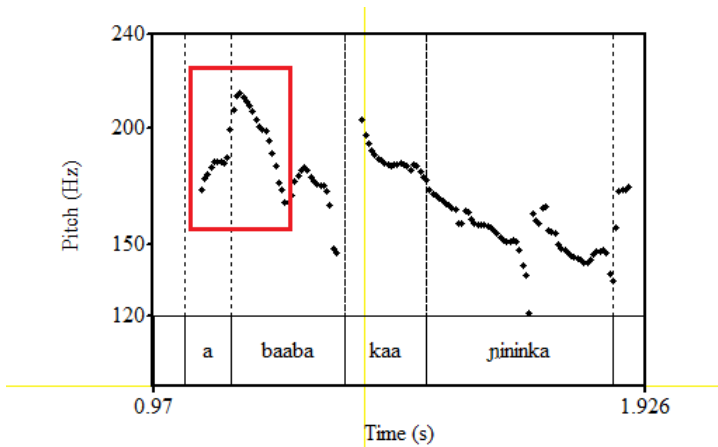
In Northern Kakabe (NK) the 3SG pronoun *à* has converged with the other personal pronouns in its tonal behavior. Below I reproduce the example with the noun *nèene* ‘mother’ in combination with three different pronouns, *í nèene* ‘your mother’, *á nèene* ‘his mother’, *mó nèene* ‘our mother’. As can be seen, each of the three combinations displays the same high-falling contour at the transition from the pronoun to the noun:



The 3SG pronoun *à* in NK also follows the pattern of the tonal behavior of the 1st and 2nd person pronouns in that HS tone can altogether shift to the beginning of the following L-toned morpheme. See Example 5.173 where HS is realized on the first syllable of *bàaba* ‘father’:

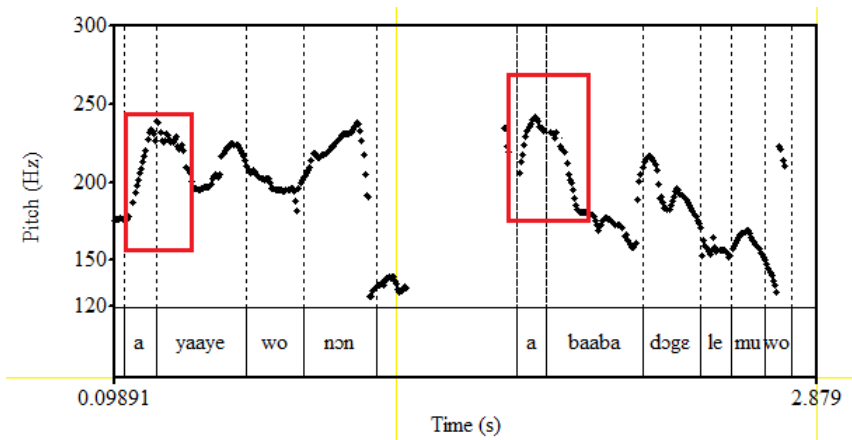
- (5.173) *à* *bààbà* *káá* *jinìnkà*
à *bàaba* *ka* *à* *jininka*
 3SG father PFV.TR 3SG ask

His father asked him: ...



In (5.174) NP *à yàaye* ‘his aunt’ is pronounced with a peak at the junction between the pronoun and the noun, NP *à bàaba* ‘his father’ has a high peak on the pronoun and on the beginning of the noun.

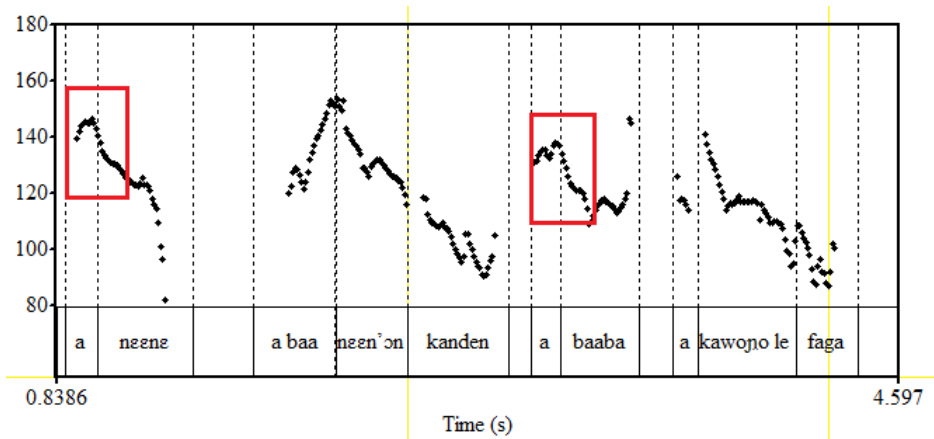
- (5.174) *à* *yààyé* *wò* *nón(0.52)* *á* *bààbà* *dógè* *lè*
à *yàaye* *wò* *nɔn-H%* *à* *bàaba* *dóɔ-È* *lè*
 3SG aunt that DISC-H.BT 3SG father younger.sibling-ART FOC
mú *wò*
 mu *wò*
 IDENT that
 His aunt, its his father’s younger sister.



The same pattern can be seen on *à nènɛ* ‘his mother’ and *à bàaba* ‘his father’ on the figure in (5.175) below:

- (5.175) *á nènɛ à bàá nèn †ón kàndèn á bààbà à*
à nènɛ à bi à nènɛ ɔn kàn-nden à bàaba à
 3SG mother 3SG be 3SG mother DISC love-PC.ST 3SG father 3SG
ká †wó nó †lé fàgà
ka wò nóò lè fàga
 PFV.TR that there FOC die

His mother, he loved his mother, and his father he has killed him.



5.7.3.2 Deletion of L of personal pronouns

When a personal pronoun in its simple form (i.e. without *lè*) is preceded within one PhP by H, the L of the pronoun optionally delinks. This can happen with pronouns in different syntactic positions: subject pronoun preceded by H-toned conjunctions, pronoun in gerund phrase preceded by a H-toned main verb, DO pronoun preceded by a H-toned auxiliary. Finally,

floating L which results from the merger of an onsetless pronoun with the preceding syllable can also be deleted.

5.7.3.2.1 Deletion of the L of the pronoun after verbs and conjunctions

When a pronoun is preceded by H-toned conjunction or verb, their H optionally spreads on the pronoun resulting in the deletion of its L tone.

(5.176) /háa mà wúlita/ → *háá má wúlítá* ~ *háá mà wúlítá*
 until 1PL get.up-PFV.INTR ‘And we woke up.’

$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & & \\ \mu & \mu & \text{pr} \mu \mu.. \end{array}$	→	$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & \text{L} & \\ \mu & \mu & \text{pr} \mu \mu.. \end{array}$	~	$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & & \\ \mu & \mu & \text{pr} \mu \mu.. \end{array}$
---	---	--	---	---

The delinking of L of the pronoun is also possible when the pronoun is followed by a toneless morpheme:

(5.177) /háa mà si wúli/ → *háá má sí wúlí* ~ *háá mà sì wúli*
 until 1PL POT get.up → ‘... and we will wake up’

$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & & \\ \mu & \mu & \text{pr} \mu \mu \mu.. \end{array}$	→	$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & \text{L} & \\ \mu & \mu & \text{pr} \mu \mu \mu.. \end{array}$	~	$\begin{array}{ccc} \text{H} & \text{L} & \text{H} \\ & & \\ \mu & \mu & \text{pr} \mu \mu \mu.. \end{array}$
---	---	--	---	---

The same happens if the pronoun is followed by L, see (5.178a) where H spreads onto the pronoun *mà* and (5.178b), where it spreads onto the pronoun and the following underlyingly toneless auxiliary. As in other cases, it alternates with variants, where H does not delink the L of the pronoun.

(5.178) (a) /háa mà jìgita/ → [háá má jìgità] ~ [háá mà jígità] ~ [háá [†]má jìgità] ‘... and we went down’.

(b) /háa mà si jìgi/ → [háá má sí jìgì] ~ [háá mà sí jìgì] ~ [háá mà [†]sí jìgì] ‘... and we will go down’.

The 3SG pronoun *à* is subject to the optional H spread as well, see (5.179 a) where L remains linked to the pronoun, and 5.179 b where L tone of the pronoun is deleted.

(5.179) (a)

háá àn nì bá à nàáfólá
háa ànu nì bán à nàafò-la
 until 3PL SBJV stop 3SG explain-GER
 Until they stop explaining it.

(b)

mà téé súúsé á úddítélá
mà téé súuse à úddite-la
 1PL NEG.POT dare 3SG open-GER
 We were afraid to open it.

Example (5.180) below illustrates the case when H spread from the verb causes the delinking of the L of the pronoun *à* which is followed by L.

(5.180) *à tótá á dònna nò⁺ò lè*
à tó-ta à dòn-la nòò lè
 3SG stay-PFV.TR 3SG dance-GER there FOC
 She kept dancing there.

Example (5.181) illustrates the deletion of L of the 2SG *ì* which is the subject pronoun of a dependent purpose clause:

(5.181) *ì lè bó í ní métiyè kàrà*
ì lè bó ì ní métiye-È kàran
 2SG LG leave 2SG SBJV profession study
 You should go and learn a profession

5.7.3.2.2 Deletion of the L of the pronoun in DO position

When a pronoun in DO position is preceded by H-toned heavy auxiliary, the H of the latter optionally spreads and causes the L of the pronoun to delink, Examples (5.182 a)-(5.182 d) show that H spread from the heavy auxiliary to the pronoun can not be predicted by tonal context. Thus, in (5.182 a) H spreads from the auxiliary *máa* to the pronoun *mà* but not in (5.182 b), where the context is almost the same.

(5.182) (a) H spread

àn máá má dèèman
ànu máa mà dèeman
 3PL PFV.NEG 1PL help
 They didn't help us.

(b) No H spread

kàyéènù máá †má dèèmàn
kàyi-È-nu máá mà dèeman
 man-ART-PL PFV.NET 1PL help
 Men didn't help us.

(c) H spread

mà máá wó lè fɔ̃
mà máa wò lè fɔ̃
 1PL PFV.NEG 2PL LG say
 We didn't say this.

(d) No H spread

mà mání †wó kà
mà mání wò kà
 1PL COND that sickle
 When we've reaped it...

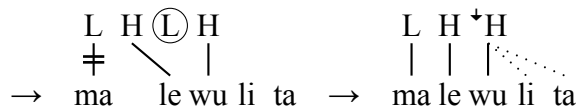
5.7.3.2.3 Deletion of the floating L of the pronoun in DO position

As shown in Section 5.8.4.1, onsetless pronouns merge with the preceding auxiliary, and their L becomes floating. The floating L of the auxiliary+pronoun combination can be deleted the same way as L of the non-merged pronoun. It mostly happens when the verb is followed by L-toned IO, as (5.183 a)-(5.183 c) below. This process can be seen as tone plateauing. The H of the verb cannot be deleted due to the fact that it is followed by the L of IO, and the H^LH sequence, instead of the H[†]H realization give the H plateau.

(5.183) (a) *̀̀n b́n láálá ò̀géè lè mà*
̀̀n bí ̀̀n lá-la ò̀gu-È̀ lè ma
 1SG be 1SG put-GER earth-ART FOC on
 I sleep on the earth.

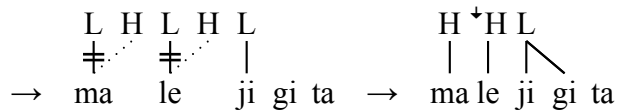
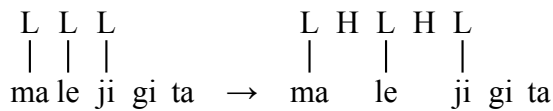
(b) *mà b́tíí kó nìngéè tɔ̃*
mà b́tí í kó nìngi-È̀ tɔ̃
 1PL PFV.OF 2SG give cow-ART in
 We give you a cow.

(c) *ì náá láfílí kùlára mà*
ì ní à la-fíli kùla-È̀ ma
 2SG SBJV 3SG CAUS-throw monkey-ART to
 You throw it to the monkey.



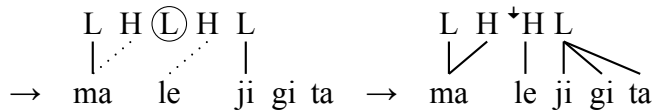
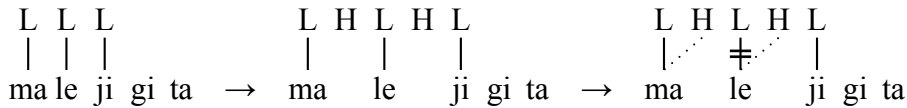
When the combination of the pronoun with *lè* is pronounced before L-toned morpheme, HS is inserted both after the pronoun and after the focus marker. As in the previous case, HS after the pronoun is linked either to the pronoun or to the focus marker.

(5.188) /mà lè jìgi-ta/ → má [↑]lé jìgità ‘We went down.’



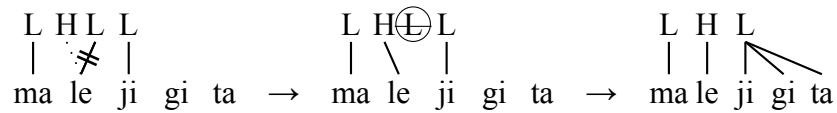
Finally, both L and H can link to the pronoun:

(5.189) /mà lè jìgi-ta/ → mǎ [↑]lé jìgità ‘We went down.’



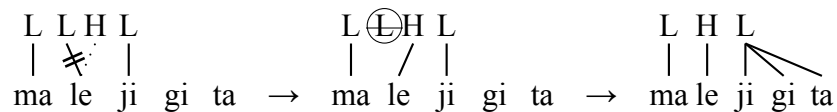
The realization [mà lé jìgità] where the pronoun and the focus marker are realized with L and H respectively and are followed by L-toned verb can result from two different derivations. First, H on the focus marker can be HS separating L of the pronoun and L of the focus marker, and in this case L of the focus marker becomes floating and consequently deletes due to L of the verb to its right:

(5.190) /mà lè jìgi-ta/ → [mà lé jìgità] ‘We went down.’



Second, H on the focus marker can be HS between L of the focus marker and L of the verb. L of the focus marker delinks and becomes floating as well, but it floats to the left, and deletes due to the presence of L of the pronoun to the left.

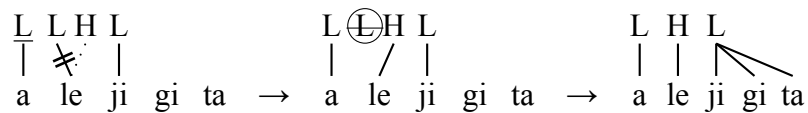
(5.191) /mà lè jìgi-ta/ → *mà lé jìgità* ‘We went down.’



So, L of the focus marker floats either to the left or to the right. Importantly, in both cases HS is inserted only once: between L of the pronoun and the focus marker in (5.190), and between the focus marker and the verb in (5.191).

The realization in (5.191) coincides with the case when the focus marker follows the 3SG pronoun *à*, as in (5.192) which reproduces an example from the preceding subsection. And this realization is the only available option in the case of the pronoun *à*.

(5.192) /à lè jìgi-ta/ → *à lé jìgità* ‘He went down.’



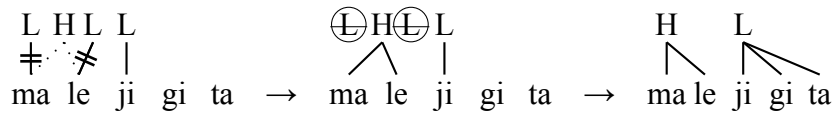
It should be kept in mind that there is a contrast between the 3SG *à* and the other pronouns, see (5.193). The fact that H surfaces in *à lé jìgità* but no H is possible in *à jìgità*, proves that this H is HS of separating the focus marker and the verb. By contrast, when a 1st or 2nd person pronoun is involved, H would surface in both cases because HS is inserted after the pronoun as well.

(5.193) (a) pron + \hat{V} *à jìgità* *mà jígità ~ má jìgità*
 (b) pron + *lè* + \hat{V} *à lé jìgità* *mà lé jìgità ~ má lè jìgità ~ má ⁺lé jìgità.*

- (a) (b)
- pron + \acute{V} *à wúlítá* *mà wúlítá*
- pron + *lè* + \acute{V} *à lè wúlítá* *má lè wúlítá* ~ *má lé⁺ wúlítá*.

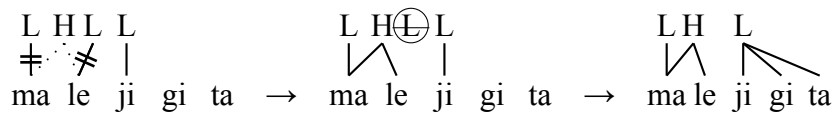
Finally, a configuration is possible where the pronoun is realized with H spreading to the focus marker and causing L of the focus marker to become floating.

(5.194) \mà lè jìgi-ta\ → *má lé jìgità* ‘We went down.’



Finally, both L and H can remain linked to the pronoun

(5.195) \mà lè jìgi-ta\ → *mǎ lé jìgità* ‘We went down.’



Below are some illustration from the corpus. As can be seen, the realization with H realization of the pronoun and the following focus marker is possible both when the following morpheme is L-toned, in which case L of the focus marker is deleted (5.196 a), and if the following morpheme is H-toned, and the latter is realized with a downstep (5.196 b) and (5.196 c). In (5.196 d) the pronoun is realized with H, the focus marker with L and is followed by H. Finally, in (5.196 e) the focus marker is bears \acute{H} , resulting from HS insertion and the floating realization of L of the focus marker.

(5.196) (a) *má lé nùmù dé⁺nén* *dè*
 mà lè nùmu dén-È-nu *lè*
 1PL LG smith child.ART-PL FOC
 We are smith’s children.

(b)

má lé ⁺tée *sòn*
má lè téé *sòn*
 1PL LG NEG.POT agree
 We didn’t agree.

(c)

má lé †máá kàrán
mà lè máa kàran
 1PL LG NEG.PFV.OF study
 We haven't studied.

(d) *má lè fòó tó*

mà lè fòo tó
 1PL LG UNIV in
 Among all of us ...

(e) *má †lé filá †lé wálilá yàn*

má lè fila lè wáli-la yàn
 1PL LG two FOC work-GER here
 It's the two of us who works here.

Table 5.10 below shows the statistics of the spread of H from the pronoun to the focus marker. As can be seen, the spread of H from the pronoun to *lé* causing L of the latter to shift to the right is the minor option: 13% of spread against 87% when H does not spread on the focus marker.

pron H, no spread	111	87%
pron H spreads on <i>lè</i>	17	13%
Total	128	100%

Table 5.10: Spread of H from a locutor pronoun to the focus marker

5.8 Realization of floating L

In Section 5.3.3 I have already outlined the general principles of the realization of floating tones. In this section I will analyze how floating L is realized depending on the left context, 5.8.1, the realization of floating L resulting from the merger of L-toned pronouns with the preceding syllable, 5.8.4, and the realization of heavy auxiliaries in NK, 5.8.3.

5.8.1 Realization of floating L and the left context

Table 5.11 describes the realization of floating L depending on the right context.

By definition, the floating tone is not linked to any TBU. At the same time, if the floating tone comes from the lexicon, it is links to a morpheme, for example, the relativizer *min^L* is

associated with the tone sequence H^L . And if the floating tone is the result of some derivation, as in the combination /báti à-nu/ PFV.OF 3SG-PL \rightarrow /bátaa^Lnu/, the L is floating to the right of the syllable /taa/ which is the result of the merger of the original.

The realization of the floating tone is defined by its position with respect to the hosting morpheme or with respect to the syllable which results from the merge. Thus, though floating L does not have any TBU as a segmental host, there is a TBU which can be described as its “gravitation center”: I will be referring to it as gravitation TBU (in order not to call in the hosting TBU). The gravitation TBU is the final TBU of the morpheme associated with the floating L or the final mora of the syllable resulting from the merge. Floating L is referred to by circled \textcircled{L} .

Table 5.11 reads as follows top-down and left-right. If the \textcircled{L} 's gravitation TBU is immediately followed by L (closest T to the right is the next TBU and it is L), the floating L is obligatorily deleted. If the next tone is L and it is one TBU away from the gravitation TBU, the floating L is either deleted or links to the preceding (toneless TBU). If the next tone is L and is two TBUs away, floating L cannot delink, but has to link to the preceding TBU.

In case when the next tone to the right is H, the realization proceeds as follows. If H appears immediately after the gravitation TBU, floating L remains unlinked and causes the downstep of H (or causes H to delink under certain circumstances). If H is one or two TBU away, floating L has to link before it¹⁹.

19. At the end of IP, floating L apparently links to the final mora of the morpheme it is associated with. At the same time, it is hard to find the evidence which would directly confirm it. First, the elements with final floating L almost never occur in the utterance-final position, and I could not find any such examples in corpus. Second, as shown in Chapter 6, IP in most cases terminates with a boundary tone. Thus, the elicitation of isolated words or phrases ending with a floating tone mora would not give any answer either, since elicited examples are, as a rule, realized with boundary L% tone.

	T = L	T = H
closest T to the right is linked to the next TBU (number of toneless TBU before the next T = 0)	Ⓛ deletes	Ⓛ is realized as downstep of H, or replaces H
closest T to the right is one TBU away (number of toneless TBU before the next T = 1)	Ⓛ deletes or links before L	Ⓛ links before H
closest T to the right is two TBUs away (number of toneless TBU before the next T = 2)	Ⓛ links before L	Ⓛ links before H

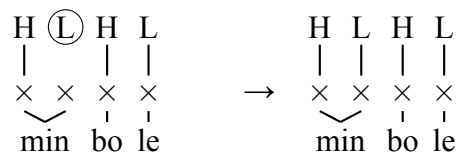
Table 5.11: Realization of floating L depending on the right contact

In the examples below in 5.8.1.1 and 5.8.1.2, I don't give the realization resulting from Tone Leveling (described in Sections 5.6), e.g. in (5.198) the realization [mín ná dépè] can yield to [mín⁺ ná dépè] if H spread is applied, in (5.199 a) [mínnù là dépè] can be transformed to [mín⁺ nú lá dépè] etc.

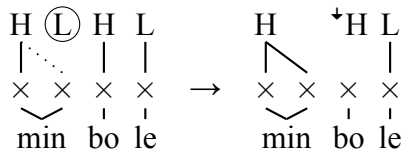
5.8.1.1 Floating L followed by H

When floating L is immediately followed by TBU with H, floating L is either linked to the gravitation TBU, as in (5.197 a), or is realized as the downstep of H, as in (5.197 b).

(5.197) (a) mín^L bólè mîn bólè
REL hand.ART → 'whose hand'

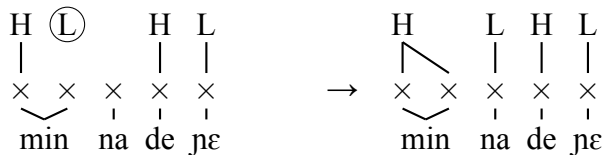


(b) $\text{mín}^{\text{L}}\text{bólè} \rightarrow \text{mín}^{\text{H}}\text{bólè}$



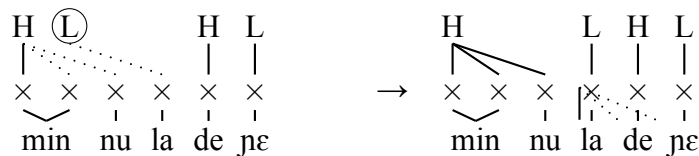
When TBU after mín^{L} is underlyingly toneless, floating L is always linked to it, and the relativizer is realized all-high:

(5.198) $/\text{mín}^{\text{L}} \text{la} \text{dépè}/ \rightarrow \text{mín} \text{nà} \text{dépè}$
 REL POSS child.ART 'whose child'

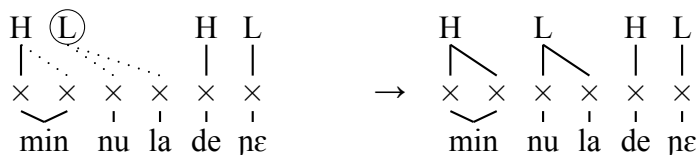


When two TBUs after mín^{L} are underlyingly toneless, floating L can link either to the second toneless TBU as in (5.199 a), or both to the first and the second TBU following mín^{L} as in (5.199 b).

(5.199) (a) $/\text{mín}^{\text{L}}\text{-nu} \text{la} \text{dépè}/ \rightarrow \text{mínnú} \text{là} \text{dépè}$
 REL-PL POSS child.ART



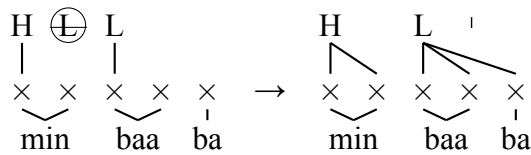
(b) $/\text{mín}^{\text{L}}\text{-nu} \text{la} \text{dépè}/ \rightarrow \text{mínnù} \text{là} \text{dépè}$
 REL-PL POSS child.ART



5.8.1.2 Floating L followed by L

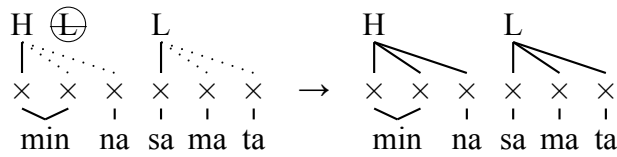
If floating L is immediately followed by L, floating L is always deleted:

- (5.200) /mín^L bàaba/ → mín bààbà
 REL father 'whose father'



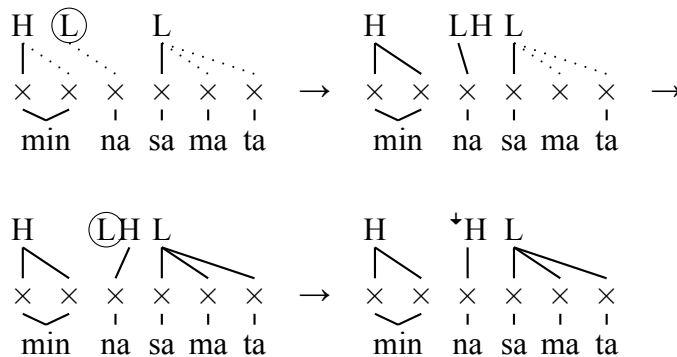
If floating L is followed by a toneless TBU and L, floating L can also be deleted:

- (5.201) /mín^L la sàmata/ → mín ná sàmàtà
 REL POSS shoes 'whose shoes'



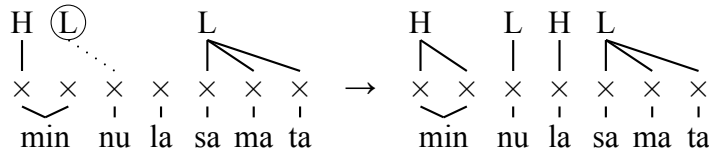
Alternatively, floating L links to the toneless TBU. As a result, two linked Ls are adjacent, and, following OCP, HS is inserted (HS is inserted between two Ls only if neither of them is floating). Next, following the principle according to which HS has to be linked within the domain of L₁(see (5.71) in Section 5.5) HS links to this mora to which the floating L had linked before and L becomes floating again. Finally, floating L is realized as the downstep of HS.

- (5.202) \mín^L la sàmata\ → mín ⁺ ná sàmàtà



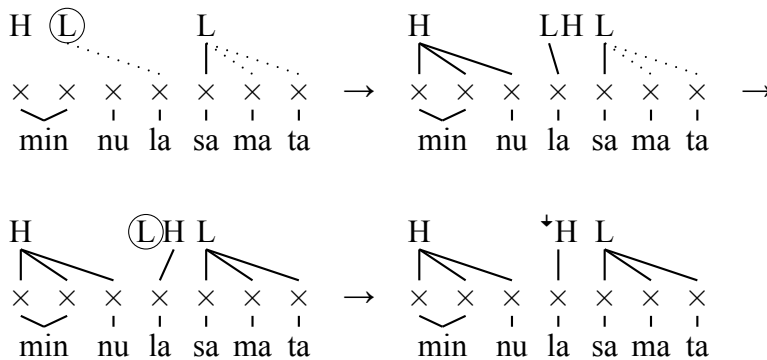
When floating L is followed by two toneless TBU and then by L, two different realizations are possible. First, L links to the first toneless TBU, and after that HS is inserted and links to the second toneless TBU, as in (5.203).

(5.203) /mín^L-nu la sàmata/ → *mín nù lá sàmàtà*
 REL-PL POSS shoes 'whose(pl.) shoes'



Second, L links to the second toneless TBU, HS is inserted after it, and, since there is no free TBU, HS links to the same TBU, causing L to delink and to become floating again. This floating L is realized as the downstep of the following H (5.204).

(5.204) /mín^L-nu la sàmata/ → *mín nú[↓] lá sàmàtà*



Finally, in this configuration floating L cannot be deleted, as shown in (5.205):

(5.205) NOT possible: /mín^L -nu la sàmata/ → **mín nú lá sàmàtà*

5.8.2 Floating L of numerals

The numerals *kélen^L* ‘one’; *wóɔɔɔ^L* ‘six’; *kənɔntɔ^L* ‘nine’; *tán^L* ‘ten’ and *mùgan^L* ‘twenty’ end with a floating L. Compare (5.206 a) where L is aligned on the verb *yén* ‘see’, deleting its H and (5.206 b) where it is deleted before the L of *sòtɔ* ‘get’.

(5.206) (a) *à ká dén kélén yèn*
 à ka dén kélén^L yèn
 3SG PFV.TR one see
 He saw one child.

(b) *à kà dén kélén sòtò*
 à ka dén kélén^L sòtò
 3SG PFV.TR one get
 He had one child.

The floating L of a numeral is deleted if the latter is followed by a determiner, see (5.207) where *kélén^L* is followed by the H-toned determiner *dórón* ‘only’ and the tone of the latter is not downstepped:

(5.207) *à ká dén kélén dórón yèn*
 à ka dén kélén^Ldórón yèn
 3SG PFV.TR one only see
 He saw one child.

5.8.3 Tonal realization of the heavy auxiliaries in Northern Kakabe

Whereas in CK and WK the heavy auxiliaries have lexical H tone, in NK all heavy auxiliaries are also associated with a floating L. The following auxiliaries have H^L pattern in NK: *báti^L* PFV.OF, *tée^L* POT.NEG, *káni^L* SBJV.NEG, *máa^L* PFV.NEG, *máni^L* COND.

Table 5.12 represents the realization of heavy and light auxiliaries in NK compared to CK and WK. The contrast is manifest in the realization of the heavy auxiliary followed by H tone: in NK H-toned verb *bó* ‘go out’ is realized L after *tée^L* (because the floating L links to it) and in CK and WK *bó* preserves its H tone. After the light auxiliary the realization is the same in the three dialects.

	NK	CK and WK	
Heavy auxiliary	<i>à tée bò jòò</i>	<i>à tée bó jòò</i>	3SG POT.NEG go.out there ‘He won’t go out there.’
Light auxiliary	<i>à sì bó jòò</i>	<i>à sì bó jòò</i>	3SG POT go.out there ‘He will go out there.’

Table 5.12: Heavy and light auxiliaries in NK vs. CK and WK

Below I give some examples illustrating the realization of the heavy auxiliaries in NK. In

(5.208) the floating L of the auxiliary *báti*^L links to the verb *bó* ‘go out’, and H of the verb deleted.

- (5.208) ànù *báti* *fɔ̀lò* *bójènù* *sòlà* *ɲóò*
 ànu *báti*^L *fɔ̀lò* *bón-È-nu* *sò-la* *ɲóò*
 3PL PFV.OF start house-ART-PL build-GER there
 They started building houses there.

In (5.209 a) and (5.209 b) the floating L of the auxiliary is realized as the downstep of the following H:

- (5.209) (a) *ì* *kání* *†fúlá* *kúlè* *fɔ̀*
ì *kání*^L *fúla* *kúlu-È* *fɔ̀*
 2SG SBJV.NEG Fulbe voice-ART say
 You shouldn’t speak Pular.
- (b) *̀n* *tée* *†súúsé* *kúma* *†sólá* *à* *mà*
̀n *tée*^L *súuse* *kúma* *sò-la* *à* *ma*
 1SG POT.NEG dare speech put-GER 3SG on
 I don’t dare to speak about it.

The floating L can align on the second syllable of the auxiliary, if H follows, see the realization of the perfective auxiliary *báti* and the following verb *júkke* ‘suffer’ in (5.210 a) and by the verb *ké* ‘arrive’ in (5.210 b):

- (5.210) (a) *ì* *báti* *júkké* *†ì* *máá* *†fèn* *dó* *sòtò*
ì *báti*^L *júkke* *ì* *máa* *fèn* *dóo* *sòtò-H%*
 2SG PFV.OF suffer 2SG NEG.PFV.OF thing one get-HBT
 You have suffered and you didn’t get anything.
- (b) *tèlèè* *báti* *ké* *kùn* *tò*
tèle-È *báti* *ké* *kùn* *tò*
 sun-ART PFV.OF arrive head in
 The sun is right above the head.

5.8.4 Merger of the pronoun with the preceding syllable

Onsetless pronouns are the main source of hiatus in Kakabe. The main strategy of hiatus resolution is the fusion of the onsetless syllable with the syllable before it. As the result of the fusion, L of the pronoun becomes floating. Chapter 2 discusses in detail the fusion of onsetless pronouns with the preceding element, see Sections 5.4.7 and 5.4.1. To briefly

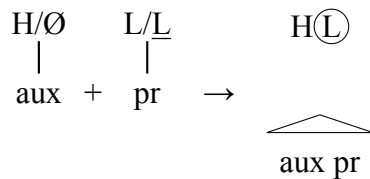
remind the conclusions, the onsetless pronoun is fused with the preceding auxiliary in almost all cases. When the onsetless pronoun is preceded by other morphemes (within the same IP), the fusion is less regular, but it is nevertheless very frequent. The result of the fusion is a syllable with long vowel. When the two merging syllables have an underlying L, one of Ls is deleted and the resulting heavy syllable bears a simple L, see line (c) in (5.211). When the syllable preceding L-toned pronoun is toneless or bears H lexical tone, the result is always a heavy syllable with H^L tonal pattern, lines (a) and (b) below.

- (5.211) (a) *si* POT + *à* 3SG → /sáa^L/
 (b) *nín* ‘and’ + *à* 3SG → /náa^L/
 (c) *sì* ‘if’ + *à* 3SG → /sàa/

5.8.4.1 Merger of the auxiliary with the pronoun

In general, auxiliaries can be divided into two tonal and prosodic groups: heavy auxiliaries with H tone and two moras, and light auxiliaries with one mora and no underlying tone, see Sections 5.4.7 and 5.4.1. The contrast in tonal behavior disappears when the auxiliary occurs before an onsetless pronoun. Both light and heavy auxiliaries form with the pronoun a compound which is assigned H^L tone. I will further refer to the “auxiliary + pronoun” combination as AP. The tonal realization of AP is schematized in (5.212) below:

(5.212) Auxiliary + pronoun tonal compounding:



As has been shown in detail in Section 4.6.2, the combination of an auxiliary with the following pronoun has different outcome depending on the segmental characteristics of both the auxiliary and the pronoun. I will shortly remind the conclusions relevant for the current discussion. First, the merger into one syllable can happen only if the pronoun is onsetless or if it is the 1SG pronoun *n̩* represented by the syllabic nasal. Second, syllables can merge only if full assimilation takes place. And since in Kakabe certain vowels do not assimilate in quality with the preceding vowel, this can prevent the syllable fusion, e.g. *ka* PFV.TR never merges with the 2SG *i*. Essentially, though the vowel sameness (original, e.g. *ka* + *à*, or resulting

from assimilation, e.g. $béle + i \rightarrow bélee^L$) is necessary for syllable merger, the contrary is not true. The vowel of the pronoun i can assimilated by the preceding syllable but remain in a separate syllable, e.g. $béle + i \rightarrow [bélee]$ or $[béle \grave{e}]$. The 1SG pronoun n becomes the coda of the previous syllable (no assimilation is required since it is a consonant).

Let's now look at what happens with the tones. The syllable merger causes L of the pronoun to float to the right. Table 5.13 below represents the paradigm of the AP combinations. As can be seen, the tone of 1SG n and the 3SG \grave{a} always becomes floating when the pronoun merges with the auxiliary. It should be kept in mind that the variants represented in Table 5.13 can alternate with variants resulting from the deletion of L of the pronoun and which are described in Section 5.7.3.2.

The difference in the lexical tone of heavy auxiliaries in NK compared to CK and WK has no effect on the realization of the AP combination. To remind what was said in Section 5.8.3, whereas in CK and WK heavy auxiliaries bear lexical H, in NK heavy auxiliaries are assigned H^L at the lexical level this presence of L limited to one dialect is reflected by the bracketed superscript L in Table 5.13. But since the pronoun bears L, the floating L of the NK heavy auxiliaries is always deleted. Thus, the tonal realization of AP including a heavy auxiliary is the same for the three dialects.

		1SG n	2SG i	3SG \grave{a}
ni	SBJV	$nín^L$	$níi^L$	$náa^L$
$ká$	PFV.TR	$kán^L$	$ka \grave{i}$	$káa^L$
$máa^{(L)}$	PFV.NEG	$máan^L$	$máa \grave{i} \sim máa \grave{i}$	$máa^L$
$béle^{(L)}$	be.NEG	$bélen^L$	$bélee^L \sim béle \grave{e}$	$béláa^L$
$káni^{(L)}$	SBJV.NEG	$kánin^L$	$kánii^L$	$kánaa^L$
$tée^{(L)}$	POT.NEG	$téen^L$	$tée^L \sim tée \grave{e}$	$táa^L$

		1PL $m\grave{a}$	2PL $w\grave{o}$	3PL $\grave{a}nu$
ni	SBJV	$ni \grave{m}\grave{a}$	$ni \grave{w}\grave{o}$	$náan\grave{u}$
$ká$	PFV.TR	$ka \grave{m}\grave{a}$	$ka \grave{w}\grave{o}$	$káan\grave{u}$
$máa^{(L)}$	PFV.NEG	$máa \grave{m}\grave{a}$	$máa \grave{w}\grave{o}$	$máan\grave{u}$
$béle^{(L)}$	be.NEG	$béle \grave{m}\grave{a}$	$béle \grave{w}\grave{o}$	$bélaan\grave{u}$
$káni^{(L)}$	SBJV.NEG	$káni \grave{m}\grave{a}$	$káni \grave{w}\grave{o}$	$kánaan\grave{u}$
$tée$	POT.NEG	$tée \grave{m}\grave{a}$	$tée \grave{w}\grave{o}$	$táan\grave{u}$

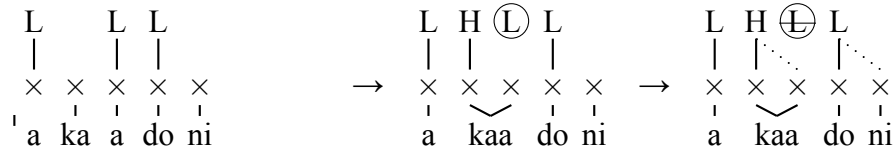
Table 5.13: Combinations of auxiliaries with the pronoun

Compare (5.213) and (5.215) below. In the first case the pronoun merges with the auxiliary, and the result of the merger is attributed H^L -pattern, and the floating L is deleted, due to the adjacent L on $d\grave{o}ni$ ‘send’. In (5.215) HS is inserted between the pronoun and the verb,

and links to the pronoun. Since L precedes the pronoun, L of the pronoun becomes floating and is deleted.

When the pronoun merges with the auxiliary, and the result of the merger is attributed H^L pattern, and the floating L is deleted, due to the adjacent L on *dòni* ‘send’, as shown in (5.213).

(5.213) /à ka à dòni/ → à káá dòni
 3SG PFV.TR 3SG send He sent him



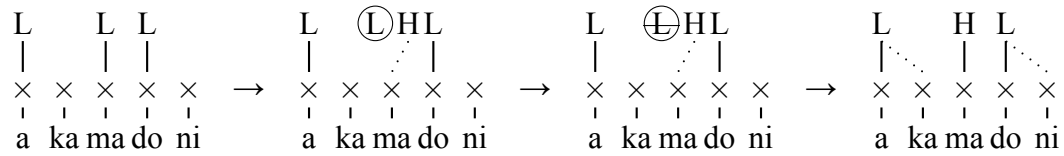
When a pronoun not merging with the auxiliary occupies the DO position in the same tonal context, two HS tones are inserted: first, between the L of the subject pronoun and the L of the object; second, between the L of the object pronoun and the L of the verb. The second HS links to the mora of the object pronoun and the delinked L of the latter is realized as downstep.

(5.214) /à ka mà dòni/ → à ká⁺ má⁺ dòni
 3SG PFV.TR 1PL send He sent us.



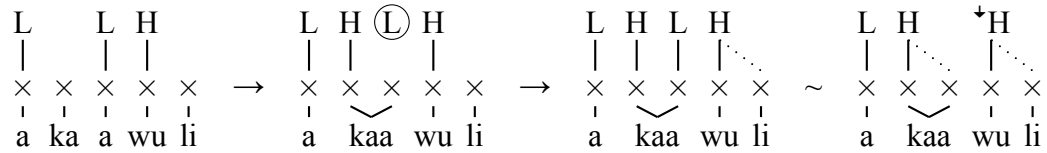
An alternative realization is possible where the HS is inserted only between the L and of the pronoun and the L of the verb, as shown in (5.215). It remains unclear why no HS is inserted between the subject and the DO pronouns. This realization also seems less frequent compared to the realization of the type (5.214) where, as it is expected, HS tones are inserted in the both positions. Further research is needed to establish the distribution of the two types of realization.

(5.215) /à ka mà dòni/ → à kà má dòni
 3SG PFV.TR 1PL send He sent us.

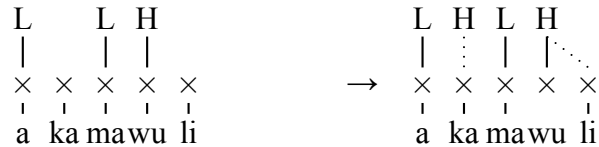


In the case when the floating L is followed by H-toned verb, following the pattern represented in Table 5.11 (see Section 5.8.1), the floating L of the fused AP form either links to its last mora or is realized as the downstep of the following H, see (5.216). When the auxiliary does not merge with the pronoun, L remains linked to the pronoun (5.216).

(5.216) /à ka à wúli/ → à káà wúlí ~ à káá⁺ wúlí
 3SG PFV.TR 3SG wake He woke him up.



/à ka mà wúli/ → à ká mà wúlí
 3SG PFV.TR 1PL wake He woke him up.

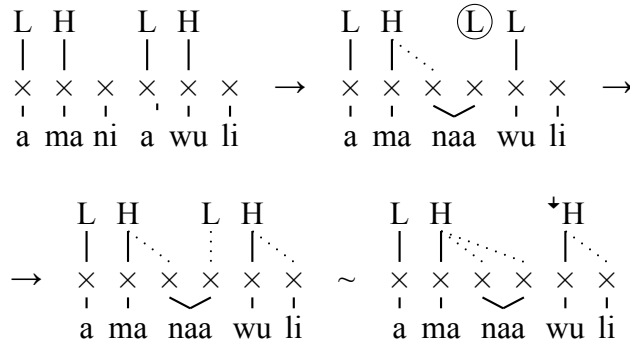


Examples (5.217)-(5.220) illustrate the realization of 3SG *à* and 1PL *mà* preceded by a H-toned heavy auxiliary. When a H-toned morpheme follows, AP combination is realized as HL or as H followed by a downstep, see (5.217) and (5.218).

(5.217) /à máni mà wúli/ | → à mání mà wúlí ~ à mání má wúlí
 3SG COND 1PL wake ‘when he wakes us up’

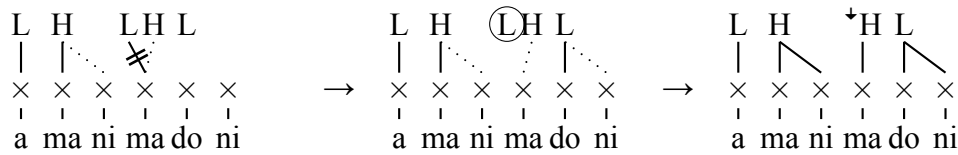


(5.218) /à máni à wúli/ → à *mánà* wúli ~ à *mánáá* ⁺wúli
 3SG COND 3SG wake ‘when he wakes him up’

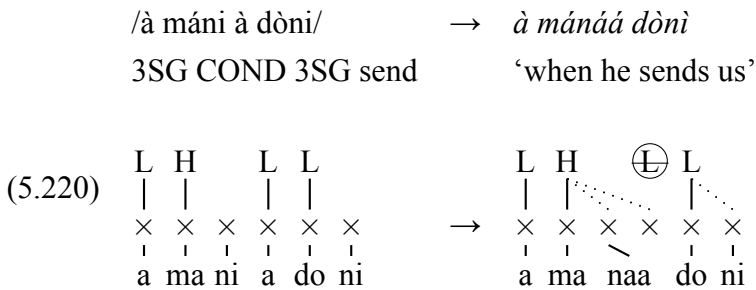


When the pronoun is followed by a L-toned morpheme, the realization depends on whether the pronoun merges with the preceding heavy auxiliary or not, cf. (5.219) vs. (5.220). When no merger takes place (5.219), HS is inserted between the L of the pronoun and the following L. This HS links to the pronoun causing the L of the latter to delink (two tones should not link to one mora) and to become floating. Finally, this floating L is realized as the downstep of HS.

(5.219) /à máni mà dònì/ → à *máni* ⁺*má* dònì
 3SG COND 1PL send ‘when he sends us’



By contrast, if the pronoun merges with a heavy auxiliary, the L of the pronoun becomes floating and is deleted, due to the presence of an adjacent L:



Let's now look at the realization of the 3PL pronoun *ànu* preceded by an auxiliary. Tonally, it behaves as a combination of the 3SG pronoun *à* followed by the underlyingly toneless plural suffix *-nu*: thus, *à* merges with the preceding syllable, its L becomes floating. In accordance with the rules of floating tone realization, before H, floating L links to *-nu* (5.221a) and (5.222a). If L follows, as in (5.221b) and (5.222b), the floating L either deletes or links to the pronoun, and *-nu* hosts HS.

Preceded by a light pronoun:

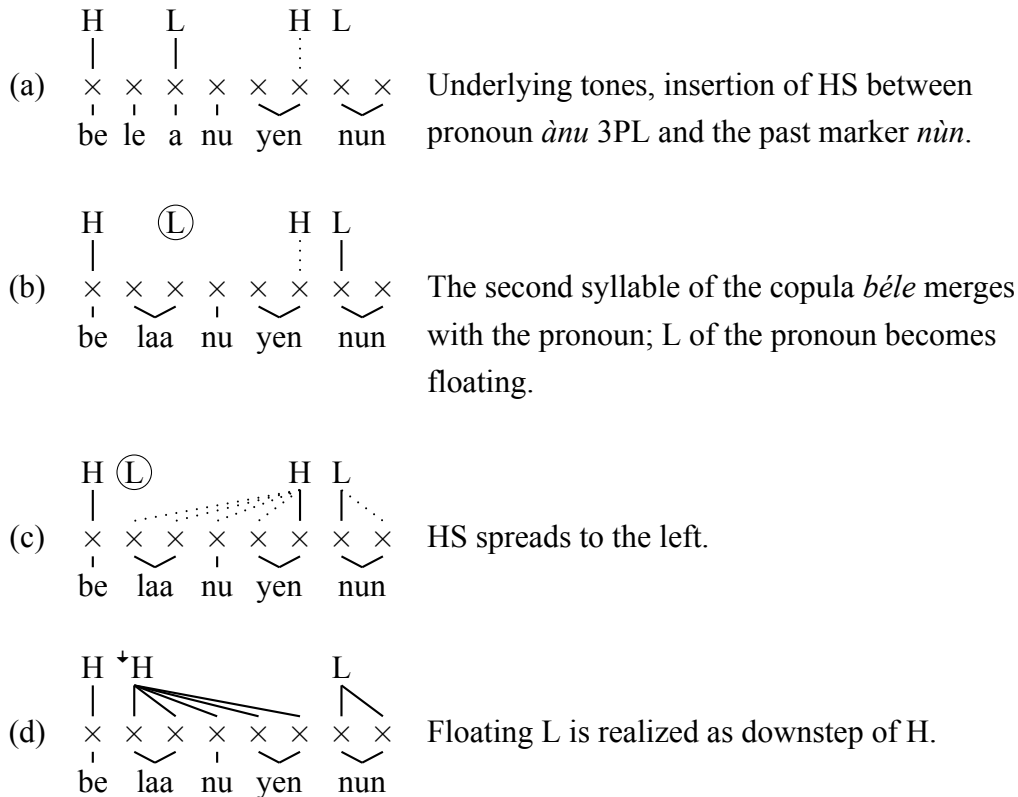
- (5.221) (a) /à ka ànu wúli/ → à *káánù* wúli
 3SG PFV.TR 3PL wake ‘He woke them up.’
- (b) /à ka ànu dònì/ → à *káánú* dònì ~ à *káànú* dònì
 3SG PFV.TR 3PL send ‘He sent them.’

Preceded by a heavy pronoun:

- (5.222) (a) /à máni ànu wúli/ → à *mánaánù* wúli
 3SG COND 3PL wake ‘when he woke them up’
- (b) /à máni ànu dònì/ → à *mánaànú* dònì ~ à *mánaánú* dònì
 3SG COND 3PL send ‘when he sent them’

In (5.223) below the combination of the negative copula *béle* and the 3PL pronoun *ànu* is followed by the toneless postposition *yén* and further by L-toned retrospective particle *nùn*. A HS is inserted before *nùn* and spreads to the left, see the autosegmental scheme below.

- (5.223) *màyén* ⁺*dé* *bé⁺láánú* *yén* *nùn*
màyén *lè* *béle* *ànu* *yén* *nùn*
 means FOC COP.NEG 3PL for PST
 He had no money.



See also Examples (5.224 a) and (5.224 b) which illustrate the realization of *ànu* fused with the auxiliary *káni* and the copula *bi*, respectively:

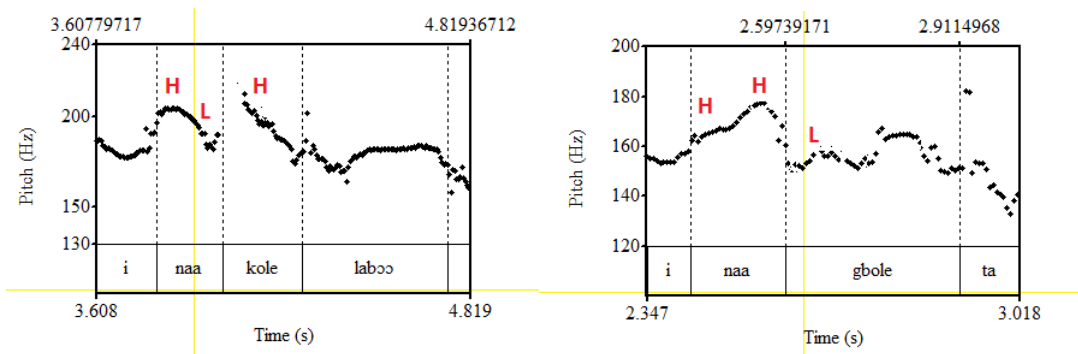
- (5.224) (a) *yólènù* *kánáànú* *jèléé* *mìn*
 yólò-È-nu *káni ànu* *jèli-È* *mìn*
 tsetse.fly-ART-PL IMP.NEG 3PL blood-ART drink
 ... so that the tse-tse flies don't drink their blood.

- (b) *wò yáá⁺nú bintànnà*
 wò bì ànu bintan-la
 2PL be 3PL burn-GER
 You burn them.

Examples (5.225 a) and (5.225 b) illustrate the merger of the auxiliary *ni* with the pronoun *à* which occupies the position of the possessor within the direct object of the utterance. As can be seen, before H-toned noun the combination is realized with HL tone, whereas before L-toned noun it is realized with all-high tone (with a higher realization of the second H before the following L, see Section 5.2.2 on automatic upstep).

(5.225) (a) *ì náà kólè làbó*
ì ni à kólo-È la-bó-H%
 2SG SBJV 3SG grain-ART CAUS-go.out-H%
 You take out its grains.

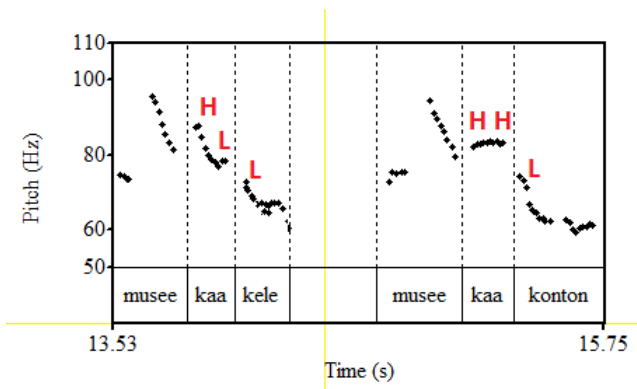
(b) *ì náá gbòlèè tà*
ì ni à gbòlo-È tà
 2SG SBJV 3SG skin-ART take
 You take its skin.



In Examples (5.226 a) and (5.226 b) H-toned verb *kéle* ‘call’ and L-toned verb *kònton* ‘greet’ are realized with the same tone. At the same time, the combination of the pronoun with the auxiliary has HL realization in (5.226 a), where the floating L is linked to the second mora of the combination, and in (5.226 b) it is realized with all-H, since L is deleted before another L.

(5.226) (a) *mùséè káà kèlè*
mùsu-È ka à kéle
 woman-ART PFV.TR 3SG call
 The woman called him.

(b) *mùsé⁺é káá kònton*
mùsu-È ka à kònton
 woman-ART PFV.TR 3SG greet
 The woman greeted him.

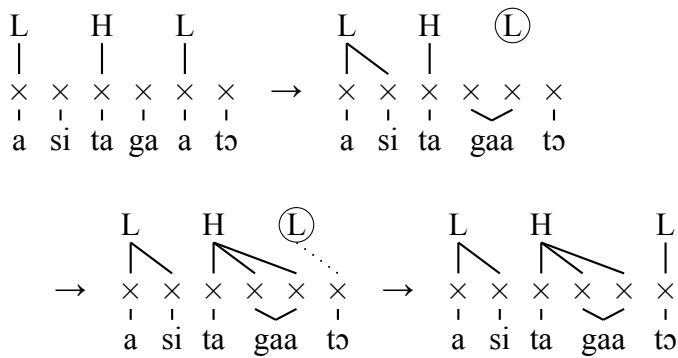


5.8.4.2 Merger of the pronoun with the preceding verb

The final syllable of a verb can merge with the following pronoun, occupying the subject position of the following clause or the position at the beginning of an adverbial phrase. L of the pronoun becomes floating, as in the case of AP merger.

Examples (5.227)-(5.229) illustrate the merger of a verb form with a pronoun followed by a toneless postposition which results in the linking of the pronoun with H-toned verb before a toneless postposition, H-tone postposition and L-tone postposition respectively. In (5.227) the floating L links to the toneless postposition.

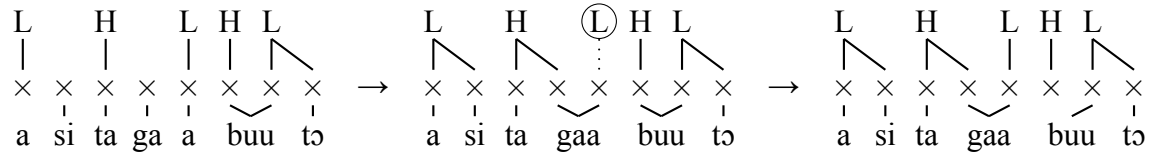
(5.227) *à si tágáá tò*
à si tága à tò
 3SG POT go 3SG to
 He will go there.



In (5.228) floating L links to the final mora of the syllable resulting from the merge, because the following syllable is H-toned.

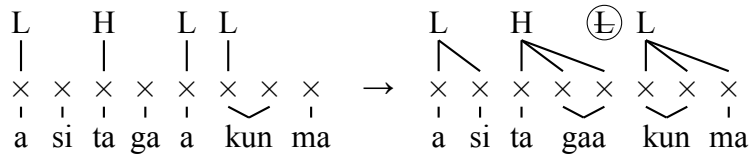
(5.228)

/à si tága à búùtə/ → à si tágáà búùtə
 3SG POT go 3SG inside He will go inside it.



In (5.229) the floating L is deleted because it is followed by another L.

(5.229) /à si tága à kùnma/ → à si tágáà kùnma
 3SG POT go 3SG on.top He will go on the top of it.



The dependence between the linking of the floating L and the tone of the following element is summarized in (5.230) below:

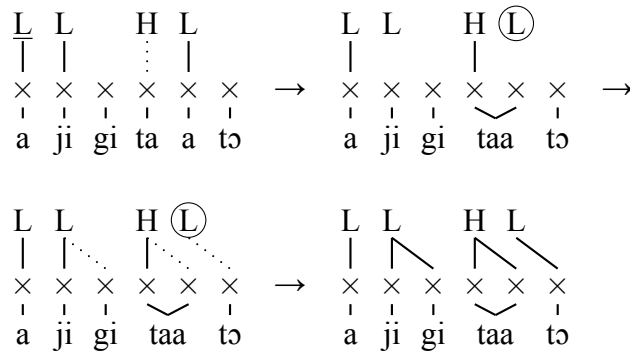
(5.230) H búùtə ‘inside’ → à si tágáà búùtə

∅ tə ‘on’ → à si tágáá tə

L kùnma ‘on the top’ → à bi tágáá kùnma

If the verb is L-toned, HS insertion takes place before the syllables merge.

(5.231) \à jìgi-ta à tə\ → à jìgitàá tə
 3SG go.down-PFV.INTR 3SG in He went inside it.



In (5.232 a)-(5.232 d) the pronoun merging with the preceding verb form occurs in the position of the possessor within an adverbial phrase.

(5.232) (a) $HS + L \rightarrow H^L$

jinnà káá gbàsáá kùnjéè tò
jínna-È ka à gbàsi à kùn-È tò
 devil-ART PFV.TR 3SG hit 3SG head-ART on
 The devil hit him on the head.

(b) $H + L \rightarrow H^L$

àn náá †dáàn bòlò
ànu ni à dí ànu bólo
 3PL SBJV 3SG give 3PL hand
 They give it to them.

(c) $HS + L \rightarrow H^*H / _L$

kàà bitá†á bólòè tò
kà à bita à bólo-È tò
 INF 3SG catch 3SG hand-ART in
 to catch it in his hands.

(d) $HS + L \rightarrow H^L$

kàla ni sún †tégegé dàn mà
kàla ni sún tègè ì dàn ma
 every SBJV fast cut REFL side on
 Everyone breaks the fast on his own.

Examples (5.233 a) and (5.233 b) illustrate the merger of the subject pronoun with the verb of the preceding clause:

- (5.233) (a) *sì kàyé sòntá[↑]án náà wà*
sì kàyi-È sòn-ta ànu ni à wá
 if man-ART agree-PFV.INTR 3PL SBJV 3SG go
 If the husband agrees, they go.

- (b) *sì tàràntàà bát tíjá kílà là*
sì tàran-ta à báti tíja kíla-È la
 if find-PFV.INTR 3SG PFV.OF go.bad road-ART OBL
 If it turns out that it went bad during the journey...

Examples (5.234 a) and (5.234 b) illustrate the merger of the final syllable of a verb form with a pronoun within a gerund clause.

- (5.234) (a) HS + L → HH^L

ì bás sàjàá fɔ̀là
ì báti sàagi à fɔ̀-la
 2SG PFV.OF return 3SG say-GER
 You have returned to say it.

- (b) H + L → HH^L

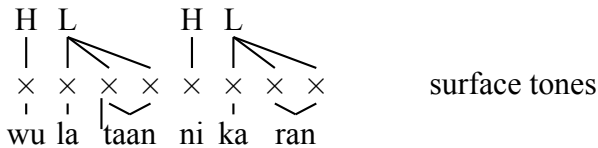
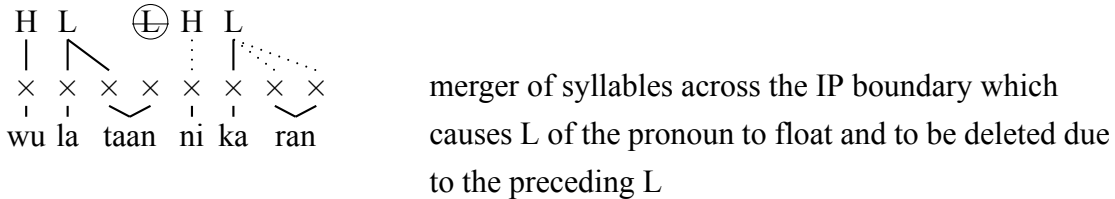
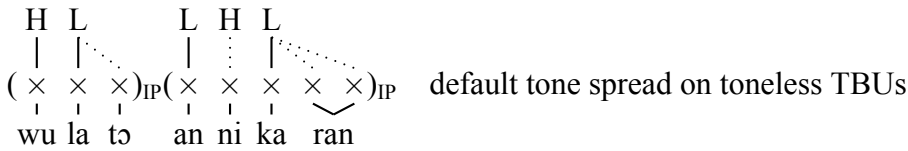
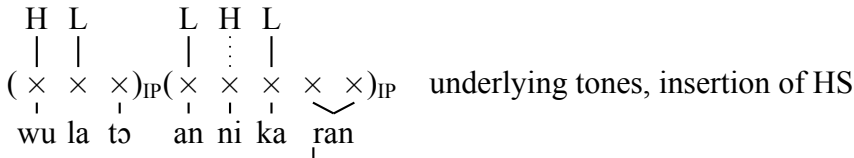
mà nì wúlí jìnìnkàlà
mà ni wúli ì jìninka-la
 1PL SBJV get.up 2SG ask-GER
 We are going to ask you.

5.8.4.3 Syllable merger across IP boundary

Syllable merger can happen across IP boundary. Since, as shown in Section 5.5.8, there is no contact between Ls belonging to different IPs, no HS insertion takes place in this case.

In (5.235) the 3PL pronoun *ànu* merges with the underlyingly toneless postposition *tɔ* belonging to the preceding IP. The syllable merger across IPs is a process which takes place late in the derivation of the surface form. As argued in Section 5.3.2, the default spread of H and L tone on toneless TBU happens at the end of the tonal derivation. Syllable merger takes place after the default tone spread.

(5.235) *àn náá wà wúlà tààn ní kàrààn jǒò là*
 (ànu ni à wà wúla-È tǎ)IP (ànu ni kàrààn jǒò là)IP
 3PL SBJV 3SG go bush-ART in 3PL SBJV study there OBL
 They would go to the bush and study there.

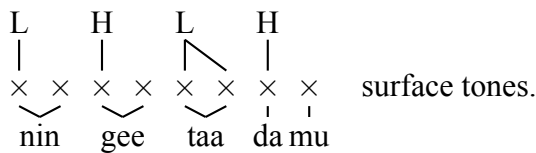
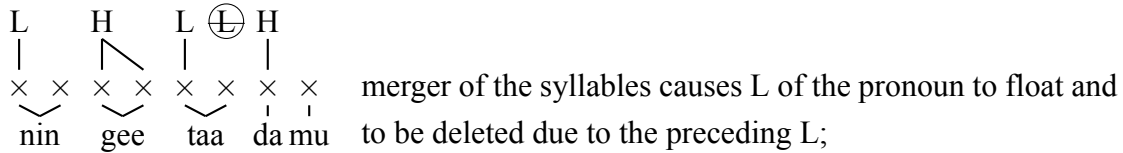
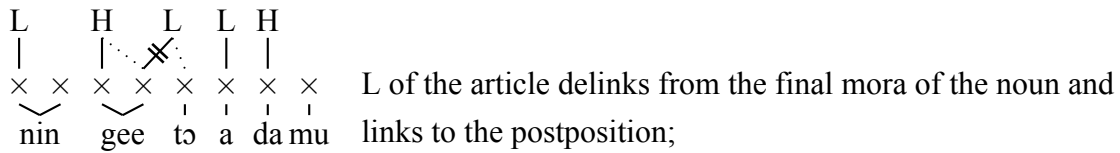


An analogous process happens in (5.236) below:

(5.236) *dóndé lúúmè tààn bì fén *nín fén *máýìtàlà jǒò là*
 Dóndé lúúmè tǎ ànu bì fén nin fén máýìta-la jǒò là
 TOPON market.ART in 3PL be what and what sell-GER there
 At the market of Donde, what do they sell there?

See also (5.237) below, where L of the article shifts from the noun *nìngéè* ‘the cow’ and links to the postposition which after that merges with the pronoun of the following clause:

(5.237) *mà bátíí kó nìngéé tàà dámú*
 mà bátí í kó nìngi-È tǎ à dámú
 1PL PFV.OF 2SG give cow-ART in 3SG eat
 We give you a cow, eat it.



In Example (5.238) the pronoun *à* merges with the verb *gbàsi* belonging to the preceding IP:

- (5.238) *à káá gbàsàà kó:*
à ka à gbàsi à kó
 3SG PFV.TR 3SG beat
 He hit him and said: ...

5.8.4.4 Merger between the conjunction *sì* and the infinitive marker with the pronoun

When the conjunction *sì* ‘if’ combines with the pronoun, one of L tones is deleted and the resulting combination sponsors one L: this happens in the same way for 2SG *ì* merging with the conjunction and for 2Pl *mà* which does not merge with the conjunction, see (5.239) below. The result of the merger between *sì* and the 3SG *à* gives two free variants, LH and all-L.

- (5.239) 2SG /*sì ì wúlita*/ → *sì wúlítá* ‘if you wake up’
 /*sì ì jìgità*/ → *sì jìgítà* ‘if you go down’
 3SG /*sì à wúlita*/ → *sàà wúlítá* ‘if he wakes up’
 /*sì à jìgità*/ → *sàá jìgítà ~ sàà jìgítà* ‘if he goes down’
 1PL /*sì mà wúlita*/ → *sì mà wúlítá* ‘if we wake up’
 /*sì mà jìgità*/ → *sì mà jìgítà* ‘if we go down’

sì tágátá sàà ká í tèrèn jòò là
sì ì tága-ta sì à ka ì tèrèn jòò là
 if 2SG go-PFV.INTR if 3SG PFV.TR 2SG find that OBL

If you go and if he finds you there...

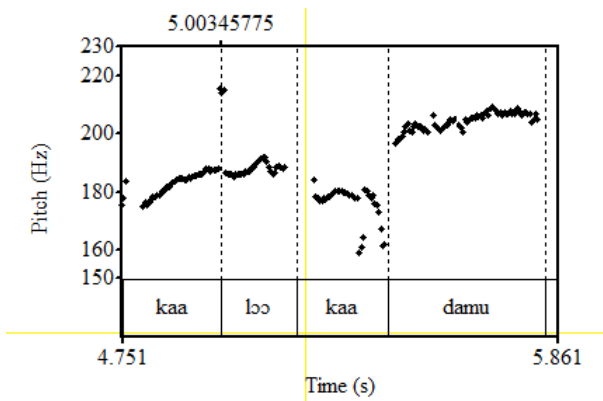
The infinitive marker *kà* merges with the 3SG pronoun *à* in the same way, giving either [kàà] or [kàá] before L. Thus, in (5.240 a) and (5.240 b), where *kà* INF + *à* 3SG is realized with LH before the following L-toned verbs *bèn* ‘tell’ and *tùgu* ‘pound’. And in (5.240 c) and (5.240 d) it is realized all-L before the L-toned verb *dòni* ‘send’.

(5.240) (a) *kàá* [†]*bé* *èkòl* *kóè* *mà*
 kà à *bèn* *èkòl* *kó-È* *ma*
 INF 3SG tell school matter-ART in
 to tell about the school affair.

(b) *kàá* *tùgú* *kòlònkálè* *là*
 kà à *tùgu* *kòlonkáli-È* *la*
 INF 3SG pound pestle-ART OBL
 ...to pound it with the pestle.

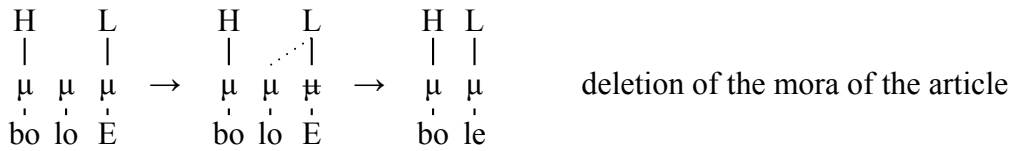
(c) *kàà* *dòní* *làbùtáání*
 kà à *dòni* *làbutaani*
 INF 3SG send hospital
 ...and sent her to the hospital.

(d) *kàà* *lòò* *kàà* *dámú*
 kà à *lò* *kà à* *dámu*
 INF 3SG put INF 3SGeat
 To prepare it and to eat it.

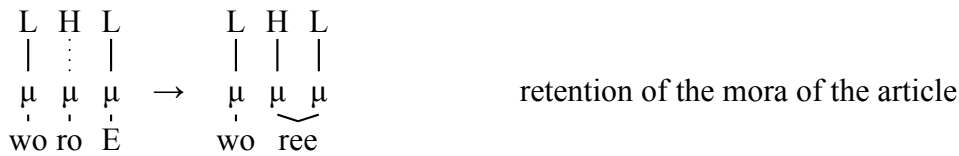


5.9 Tone in NP

In this section I discuss two tonal processes: the realization of the article in NP and the tone deletion in complex NPs.



(5.244) *wòro-É* → *wòréè* ‘cola nut’



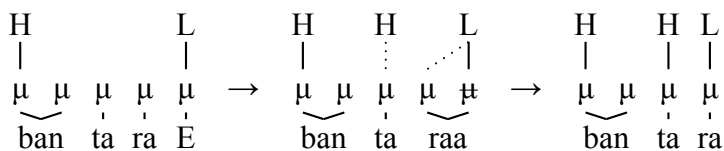
The deletion or retention of the mora of the article depends on various characteristics of the nominal root, both segmental and tonal. Table 5.14 represents various oppositions defining whether the mora of the article is deleted or retained.

mora deleted		mora retained	
(a) <i>gbása</i> → <i>gbásà</i>	‘lizard’	<i>dàga</i> → <i>dàgàà</i>	‘pot’
(b) <i>bàntara</i> → <i>bàntàrà</i>	‘manioc’	<i>bàlama</i> → <i>bàlàamáà</i>	‘porcupine’
(c) <i>bólo</i> → <i>bólè</i>	‘hand’	<i>mángo</i> → <i>mángòè</i>	‘mango’
(d) <i>sún</i> → <i>súnè</i>	‘nose’	<i>kèn</i> → <i>kènéè</i>	‘foot’
(e) <i>kóɔ</i> → <i>kòè</i>	‘back’	<i>kòɔ</i> → <i>kòèè</i>	‘stream’

Table 5.14: Cases of retention and deletion of the mora of the article

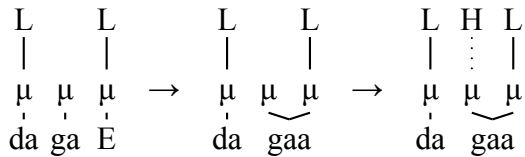
Let’s look more closely at each of the oppositions. If the final vowel of the noun is not specified for tone and does not host HS, the mora of the article is deleted, as in lines (a) and (b) above. Thus, the mora is deleted in (5.243), where the article is added to H-toned noun and in (5.245), where the article combines with L-toned noun with HS linking to the penultimate syllable of the root.

(5.245) /*bàntara -É*/ → *bàntàrà* ‘manioc’



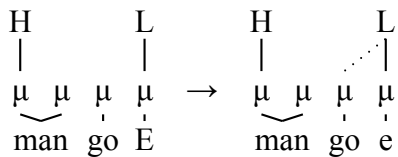
By contrast, if the final mora of the root host HS (inserted before the article), the mora is retained (HS linking is described in Section 5.5):

(5.246) *dàga-È* pot-ART → [dàgàà]



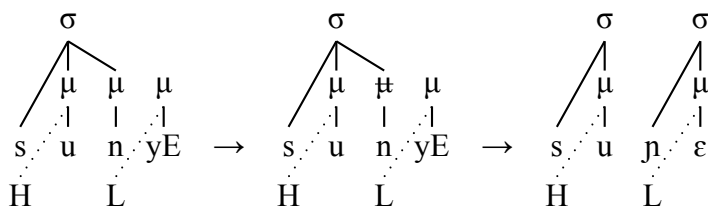
Next, if the final vowel of the nominal root and the article vowel cannot fully assimilate²⁰, the mora of the article is also preserved, even if the final vowel of the root is not specified for tone and does not host HS, see (5.247). Note also that L of the article spreads on the penultimate mora in this case (the tone in the case of rounded vowel retention is discussed in Section 5.9.1.4).

(5.247) *mángo-È* → *mángòè* ‘manioc’



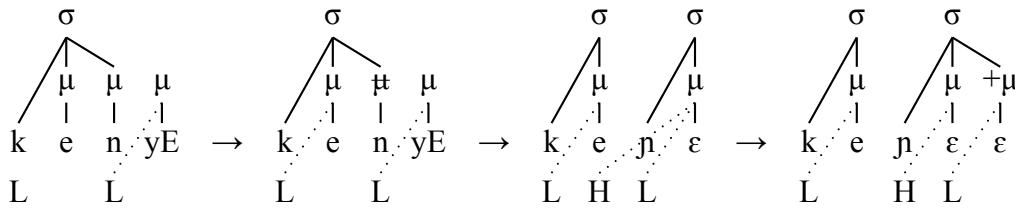
If the nominal root ends with a nasal, the article adds a new syllable, with the nasal resyllabified as the onset of this syllable, see (5.248). At the same time, the number of moras can be reduced. Thus, in (5.248) the bimoraic syllable CVN plus the mora of the article result in the CVCV sequence of two moras.

(5.248) *sún-È* → *súnè*



If HS has to link with this last syllable, one mora is added to the new syllable, so that HS and L of the article can have a landing site each:

20. This happens in certain cases when the nominal root ends with a rounded vowel (*u*, *o* or *ɔ*), see Section 4.6.4 in Chapter 2.

(5.249) *kèn-È* → *kènéè*

Thus, the difference between *dàgáà* in (5.246) and *kènéè* (5.249) is that in the case of *dàgáà* the number of syllables remains the same when the article is added, whereas in the case of *kènéè* a new syllable is created. But in both cases the article TBU is retained.

In Section 5.9.1.2 I show that L of the article can behave as a floating tone and, consequently, be deleted in the presence of an L in the right context. In this case the length of the final vowel is unstable.

5.9.1.2 *L of the referential article as floating tone*

L of the referential article can become floating. In certain cases, instead of being realized on the last mora of NP, it can link to the following segment, or be deleted if the following segment is already associated with L. The floating realization of L of the article is optional, see the referential noun forms followed by the underlyingly toneless postposition *ma* ‘in’ in (5.250), where L links either to the last mora of the noun and spreads therefrom to *ma*, or it links to the postposition directly.

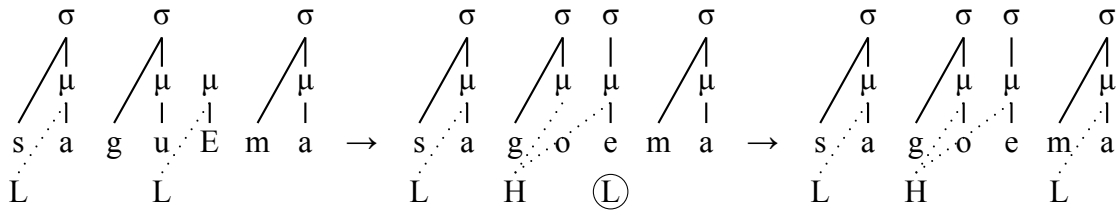
- (5.250) (a) *lúu + È + ma* → *lòè mà ~ lòé mà* ‘in the yard’
 (b) *dáa + È + ma* → *dàà mà ~ dáa mà* ‘at the door’
 (c) *dùgu + È + ma* → *dùgèè mà ~ dùgée mà* ‘on the earth’
 (d) *sàgu + È + ma* → *sàgóè mà ~ sàgóé mà* ‘in the morning’

The linking of L of the article depends on the tonal pattern of the noun:

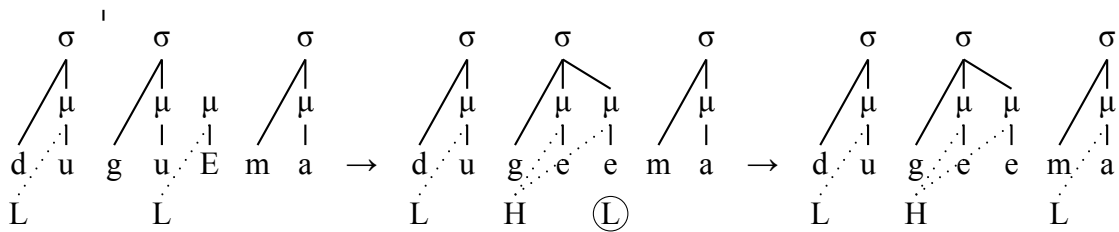
- (5.251) If in the form with the article the host mora of H or HS and the host mora of L of the article are not separated by syllable onset, L of the article tends to be realized as floating.

First, L of the article can be floating if the nominal root is monosyllabic, as in (5.250a). Second, it can happen when, HS has to be associated to the final mora in an L-toned noun (for the reasons described in Section 5.5), as in (5.250c). L is almost never floating when H is linked earlier than the last syllable, see (5.254).

(5.252) *sàgu* + \dot{E} + *ma* ‘morning-ART on’ → *sàgóé mà* ‘in the morning’.



(5.253) *dùgu* + \dot{E} + *ma* ‘earth-ART on’ → *dùgèè mà* ~ *dùgéé mà* ‘on the earth’.



(5.254) *bàtara* + \dot{E} + *ma* ‘manioc-ART on’ → *bàntàrà mà* ?? *bàntàrá mà* ‘on the manioc’
bólo + \dot{E} + *la* ‘hand-ART on’ → *bólè là* ?? *bólé mà* ‘on the hand’.

Apart from this, as has been shown in Section 5.9.1.6, L of the article can be floating independently from the phonotactic structure of the noun if the latter is a borrowing, as *wídiyɔ* in (5.255) (reproducing Example (5.269 a) from the Section 5.9.1.6).

(5.255) *wò nì wídiyɔ fêlè*
wò ni wídiyɔ-È fêlè
 2PL SBJV video-ART watch
 You should watch the movies.

The possibility of the floating realization of L tone is schematized in Table 5.15 below.

	original Kakabe	loanwords
monosyllabic nouns, NPs with HS on last syllable	+	+
NP with H linked on non-final syllable	-	+

Table 5.15: The possibility of floating realization of L of the article

Examples (5.256 a)-(5.256 c) illustrate three different ways in which L of the article can fail to link to the last mora of NP in the surface realization. In (5.256 a) L of the article becomes floating and is deleted before the following L (this is also accompanied by vowel reduction discussed in Subsection 5.9.1.3). In (5.256 b) it is linked to the following toneless auxiliary *ni*, in (5.256 c) L of the article replaces the underlying H tone of the verb *ké* ‘do’.

(5.256) (a) *mà ní wùlé tà*
 mà ni wùlu-È tà
 1PL SBJV dog-ART take

We would take a dog.

(b) *wùléé nì tágá à náá bità*
 wùlu-È ni tága à ni à bita
 dog-ART SBJV go 3SG SBJV 3SG seize

The dog would go and catch it.

(c) *à sí sènéé kè*
 à si sènɛ-È ké
 3SG POT field-ART do

He works in the field.

Example (5.257) is a good illustration of the fact that there is a link between the floating realization of L of the article and the prosodic properties of the noun: it moves away from *gbèngbe-È* ‘bed’, from *kòrɔ-È* ‘rice’, since HS links to the first mora of the last syllable, but remains on the last mora of *wánaare-È* ‘bedsheet’ in the same syntactic context.

(5.257) *gbèngbé lè káá wánaá⁺ré lè káá wò í kòré ⁺lé*
 gbèngbe-È lè káa wánaare-È lè káa wò bi kòrɔ-È lè
 bed-ART FOC or bedsheet-ART FOC or 2PL be rice.ART FOC

sànnà

sàn-la

buy-GER

Would you buy a bed or a bedcover or some rice?

Yet, as has been said at the beginning, the conditions formulated in (5.251) are necessary, but not sufficient for L of the article to become floating. Thus, in (5.258) L of the article is linked to the final mora in *nìgèè* ‘the cow’, even though it could shift to the right.

(5.258) *àn bí nìgèè kàntànnà*
 ànu bi nìngi-È kántan-la
 3PL be cow-ART guard-GER

They are looking after the cow.

The all-H realization of the final syllable of NP with the referential article occurs more often when a morpheme with underlying L follows. Since the tones of the surface realization are not marked systematically in the corpus, a statistical investigation would be very time-consuming, so, for the moment, I have to leave open the question concerning the statistics of the floating realization of the article.

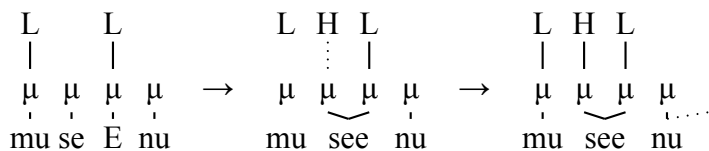
5.9.1.3 *Delinking L of the article and vowel length*

As shown in Section 5.9.1.1, if HS inserted before the L of the article links to the last syllable of the noun form, the final vowel of the resulting form is long which allows it to accommodate the two tones. Considering that in this context L optionally float, the question arises as to whether the final vowel is still long when L of the article is floating and is not linked to the last syllable of the noun.

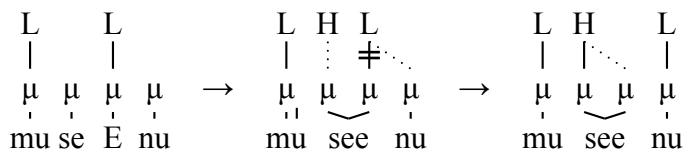
The answer is that both a short and a long-vowel realization is possible when L ends up to be linked outside of NP. Thus, if the article links within the last syllable, the vowel of this syllable is long, as in (5.259). But if the L of the article aligns later, then the vowel of this syllable is either long or short, cf. (5.260) and (5.261)

This difference can be interpreted in the following way. When the final vowel is long and all-H (5.260), first, an extra mora is added so that both HS and L can be hosted by the last syllable of the noun. Even if in the resulting realization the final vowel of NP with the article is short, the article triggers changes in the final vowel of the nominal root (5.261). This implies that the mora deletion takes place after the article merges with the final TBU of the nominal root, as shown on the schema in (5.261).

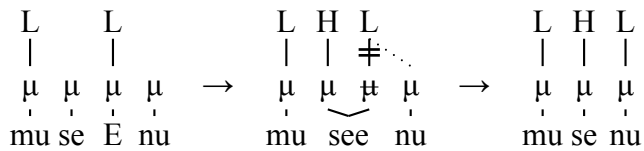
(5.259) $mùsu + -\acute{E} + -nu \rightarrow mùséènu$ ‘women’



(5.260) $mùsu + -\acute{E} + -nu \rightarrow mùséènu$ ‘women’



(5.261) *mùsu* + $-È$ + $-nu$ → *mùsénu* ‘women’



Finally, the mora of the article cannot be deleted when the noun is monosyllabic (5.262b), or when the form with the article preserves the final rounded vowel of the root (5.262c), cf. the three examples below:

- (5.262) (a) *mùsu* + $-È$ + $-nu$ → *mùséènu* ~ *mùséènu* ~ *mùsénu*
 ‘women’
- (b) *dáa* + $-È$ + $-nu$ → *dáànù* ~ *dáánù* **dánù*
 ‘mouths’
- (c) *sàgu* + $-È$ + $-nu$ → *sàgòènu* ~ *sàgòènu*
 ‘mornings’

5.9.1.4 Nominal roots ending with a rounded vowel

If the nominal root ends with a rounded vowel (*ɔ*, *o* or *u*), the latter is either preserved in the form with the article or is deleted depending on conditions described in Section 4.6.4 in Chapter 2. If the rounded vowel is preserved, it is realized with H tone in two cases: 1) in L-toned noun if HS is linked to the last syllable, as in (5.263a); 2) in monosyllabic morphemes, as in (5.263b).

- (5.263) (a) HS on the last syllable
- | | | | |
|---------------|--------------|---|----------------|
| <i>sànakú</i> | ‘joking kin’ | → | <i>sànakóè</i> |
| <i>kènbu</i> | ‘coal’ | → | <i>kènbóè</i> |
| <i>bèdu</i> | ‘purse’ | → | <i>bèdóè</i> |
| <i>bàngu</i> | ‘earth’ | → | <i>bàngóè</i> |
| <i>kìibo</i> | ‘dream’ | → | <i>kìibóè</i> |
| <i>màrto</i> | ‘hammer’ | → | <i>màrtóè</i> |
| <i>sàapɔ</i> | ‘maize bran’ | → | <i>sààpɔè</i> |

(b) Monosyllabic morphemes

<i>kɔɔ</i>	‘back’		→	<i>kɔ̀è</i>
<i>búú</i>	‘belly’		→	<i>bóè</i>
<i>lɔ̀gɔ-juu</i>	‘tree trunk’	tree-trunk	→	<i>lɔ̀gɔ́jóè</i>
<i>mángo-juu</i>	‘mango tree’	mango-trunk	→	<i>mángójóè</i>
<i>wínde-koo</i>	‘writing matter’	write-NMLZ	→	<i>wíndékoè</i>
<i>líumɔ-koo</i>	‘market matter’	market-NMLZ	→	<i>líúmókòè</i>
<i>jínna-tɔɔ</i>	‘obsessed with devil’	devil-ATTR	→	<i>jínnátɔ̀è</i>
<i>dánka-tɔɔ</i>	‘damned’	damnation-ATTR	→	<i>dánkátɔ̀è</i>

In other cases L tone of the article is linked to both the rounded vowel and the front vowel of the article. See (5.264a) with H-toned non-monosyllabic nominal roots, and (5.264b) with L-toned nouns where HS is aligned earlier than the final syllable:

(5.264) (a) Nouns with structural H tone

<i>wáajo</i>	‘advice’	→	<i>wáájòè</i>
<i>wáttu</i>	‘time’	→	<i>wáttòè</i>
<i>bálu</i>	‘life’	→	<i>bálòè</i>
<i>dámu</i>	‘food’	→	<i>dámòè</i>
<i>tárawo</i>	‘road’	→	<i>táráwòè</i>
<i>mángo</i>	‘mango’	→	<i>mángòè</i>
<i>héndu</i>	‘wind’	→	<i>héndòè</i>
<i>jágo</i>	‘enemy’	→	<i>jágòè</i>
<i>jámaku</i>	‘ginger’	→	<i>jámákòè</i>
<i>kíurukaado</i>	‘slave’ (< Pul.)	→	<i>kíúrukáádòè</i>
<i>káccu</i>	‘lime’	→	<i>káccòè</i>
<i>náakɔ</i>	‘garden’	→	<i>náákòè</i>
<i>séttu</i>	‘rainy season’	→	<i>séttòè</i>
<i>háaju</i>	‘ceremony’	→	<i>háájòè</i>

(b) Nouns with underlying L and HS aligned on non-final syllable

<i>mùraado</i>	business	→	<i>mùráádòè</i>
<i>jùbaado</i>	‘hairstyle (sp.)’	→	<i>jùbáádòè</i>
<i>dìnjɔ̄gɔ̄</i>	‘friend’	→	<i>dìnjó̄gòè</i>
<i>jàmaanu</i>	country	→	<i>jámáánòè</i>
<i>ìmaamu</i>	‘imam’	→	<i>ìmáámòè</i>
<i>tìbaabu</i>	‘white man’	→	<i>tìbáábòè</i>
<i>kèemɔ̄gɔ̄</i>	‘old man’	→	<i>kèémó̄gòè ~ kèémó̄gè</i>

5.9.1.5 Nouns with HL lexical tone pattern

When the article is added to a noun belonging to HL class where L is associated with the penultimate syllable or any other non-initial syllable, HS is inserted on the last syllable:

(5.265)	<i>jíwòlo</i>	‘fish (sp.)’	→	<i>jíwòlèè</i>
	<i>állàlaso</i>	‘praying mantis’	→	<i>állàlàsòè</i>
	<i>jónkònkò</i>	‘scorpion’	→	<i>jónkònkéè</i>
	<i>gbásakèrengbe</i>	‘monitor lizard’	→	<i>gbásákèrèngbéè</i>

A special case is represented by borrowings from Pular ending with *-al* or *-ol* which in the Pular form is part of the marker of the noun class NGAL or NGOL, see also Section 5.4.9. Instead of HS insertion, in this case L associated with the last syllable of the root merges with L of the article (for the second case of the tone merger as an alternative to HS insertion, see Section 5.5.9).

(5.266)	‘shorts’	<i>fártawàl</i>	→	<i>fártawàlè</i>
	‘centipede’	<i>káatatali</i>	→	<i>káátátàlè</i>
	‘shovel (sp.)’	<i>sáaragàl</i>	→	<i>sáárágàlè</i>
	‘honor’	<i>téddungàl</i>	→	<i>téddúngàlè</i>

5.9.1.6 Non-segmental marking of the referential status

5.9.1.6.1 Non-segmental marking of the referential status in borrowings

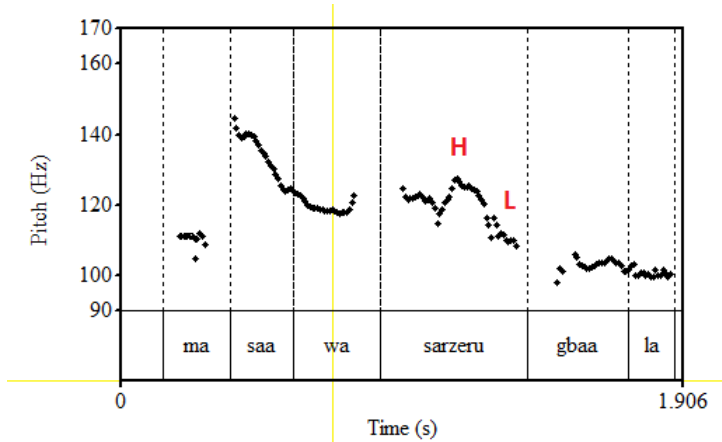
The referential article can have tonal manifestation only in the surface realization. As is shown in Section 4.6.4, the article does not trigger any change in the segmental form of the root if the latter ends with *a*, *e* or *ɛ*. Apart from this, the lack of the segmental marking of definiteness

is common for non fully integrated loanwords, no matter the final segment of the borrowed noun²¹. Thus, L tone is always associated with the right boundary of a full NP.

In (5.267) L of the article links to the epenthetic vowel in the noun *sàrzer(u)*.

- (5.267) *mà sàà wà sàrzé[†] rú gbàà là*
mà si à wá sàrzeru-È gbàa la
 1PI POT 3SG go charger-ART place-ART OBL

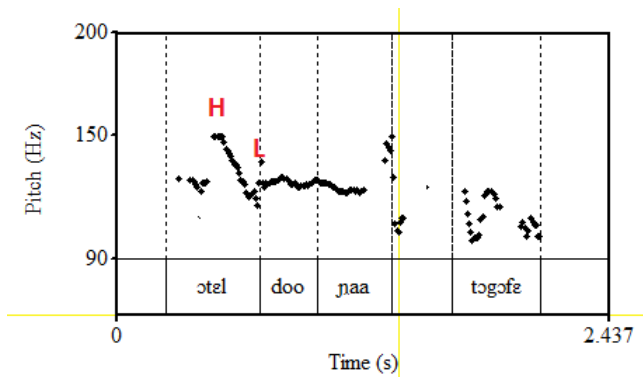
We will go to take the charger.



In (5.268) HL is aligned with the second syllable of the noun *òtél* ‘hotel’:

- (5.268) *òtél dóo náa tógófè*
òtél-È dóo náa tógofe-L%
 hotel-ART one side near-L%

‘close to a hotel’



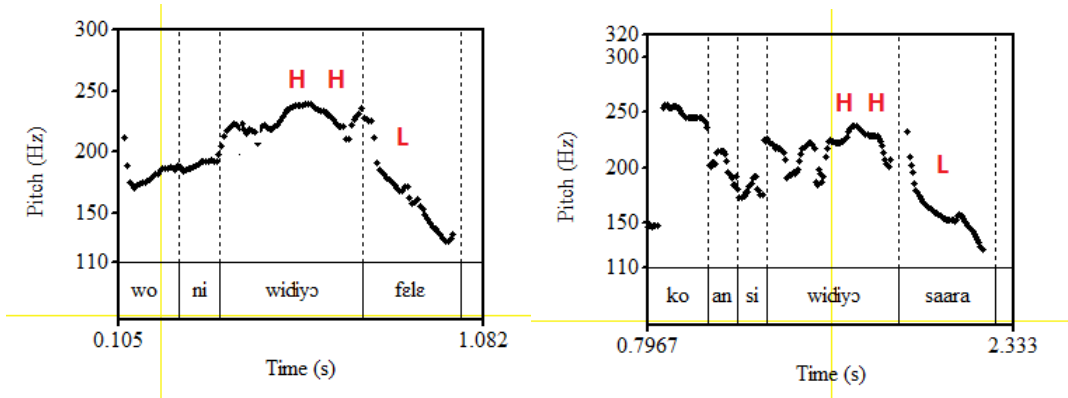
Finally, L of the article can link to the following element, whereby it behaves as a floating tone. Thus, in (5.269 a) the verb *fèle* ‘watch’ is realized all-L, though its underlying tone is H. As shown in Section 5.8, the contrast between underlying H and L tones disappears in surface

21. This is reminiscent of the zero-marked default noun class O for borrowing which is used in Pular.

realization when they are preceded by floating L. Accordingly, in (5.269 a) and (5.269 b), the H-tone verb *fě̀le* ‘watch’ and the L-toned verb *sà̀ara* ‘pay’ have the same tonal realization, since they are preceded by the floating L of the referential article.

(5.269) (a) *wò ni wídiyó fě̀le*
wò ni wídiyɔ-È fě̀le
 2PL SBJV video-ART watch
 You would watch the movies.

(b) *kó àn si wídiyó sà̀ara*
kó ànu si wídiyɔ-È sà̀ara
 QUOT 3PL POT video-ART pay
 ... that they can pay for the movies.



It should be noted that the distribution of the purely tonal vs. segmental allomorphs of the article is unstable even within the realization of one lexeme. Compare (5.270 a) and (5.270 a) below, coming from the same narrative. In (5.270 a) the form with the article of the noun *àksidan* ‘accident’ a French loanword, combines with the segmental article. In (5.270 a), in an almost identical context, the referential article is non-segmental (L of the article links to the following verb *ké* ‘do’, replacing its lexical H):

(5.270) (a) *ànù b́atí àksidánè kè*
anu b́atí àksidán-È kè
 3PL PFV.OF accident-ART do
 They had an accident.

kàmíyónè d́óó t́ugún ká àksidán kè
kàmíyɔn-È d́óo t́ugun ka àksidan-L kè
 truck-ART one again PFV.TR accident-ART do
 There also was a truck that had an accident.

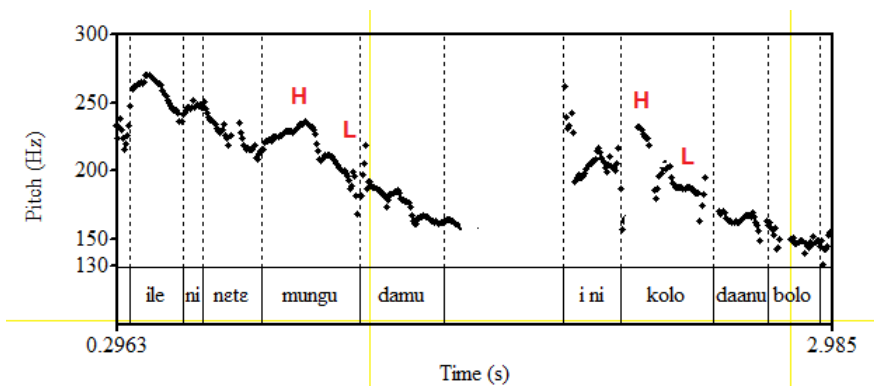
5.9.1.6.2 Loss of the segment of the referential article in native NPs

Apart from non-integrated borrowing, the non-segmental realization of the article also marginally occurs with native Kakabe nouns. Such realizations occur mostly in the narratives told by An-soumane Kamara, and in the conversations recorded in the Djinkoya village. Importantly, in the both speech of Ansoumane Kamara and in the speech of Djinkoya speaker, the segmental realization of the article is predominant.

When the segmental manifestation of the article is absent, the L tone of the non-segmental article does not differ from the L of the segmentally realized article in how it links to segments. This point is important, since, as it discusses in the following subsection (see 5.9.1.7), in Manding language Bamana, Maninka, Koro the L of the article which has become purely tonal, links to the NP step only when followed by pause, otherwise, L it is realized as downstep of the following H, or deleted if L follows, e.g. Bamana *kà dén* ⁺*yén* ‘to see the child’ < *dén*^L child.ART + *yé* ‘see’. By contrast, the L of the non-segmentally realized article in Kakabe links to the stem when an underlying H follows, the same way as the segmentally realized article.

This is illustrated in (5.271). As can be seen on the tone contour below (5.271), the L of the article links to the last mora of the noun, and is not realized as downstep of the following H.

- (5.271) *í lè ní ⁺nétémúngù dàmù(0.48) ì nì kó⁺ló*
ì lè ni nètɛ-múngu dámu-È ì ni kólo-È
 2SG LG SBJV nete-powder-ART eat 2SG SBJV grain-È
dáánù bòlò
dí ànu bólo
 give 3PL arm
 You would eat the nete powder and give the grains to them.



In (5.272 a) below the L of the article links to the last syllable of *séeran* ‘broom’, and is, finally, realized as downstepped H, due to the following L. In (5.272 b) L also results in a

downstepped H on the last syllable of the noun stem, *nègesoo* ‘bicycle’, at the same level as the following H.

(5.272) (a) *à kà náse làbǔ(0.35) kà séé⁺rán biláà tǔ*
 à ka náse la-bó kà séeran-L bila à tǔ
 3SG PFV.TR exorcism CAUS-leave INF broom-ART plunge 3SG in
 He took out a magic water, put a broom inside.

(b) *kà tǔrèn nègèsó⁺ó báà bǔlò*
 kà tǔrèn nègesoo-L bi à bólo
 INF find bicycle-ART be 3SG hand
 since he had a bicycle

Finally, in (5.273) below, L is not linked to the noun *bǔbǔ* ‘baby’, but is instead realized as the downstep of the following H, the same way as L of the article with segmental manifestation with the stems of this phonotactic and tonal profile (see 5.9.1.2).

(5.273) *bǔbǔ ⁺mán kási(0.53) à í nààlá lè*
 bǔbǔ-L máni kási à bi nà-la lè
 baby-ART COND cry 3SG be come-GER FOC
 When the baby cries, she comes.

5.9.1.7 Tonal realization of the article in other Western Mande languages

The marking of the referential status through a segmental L-toned suffix which alternates with purely tonal realization is attested in other Western Mande languages apart from Kakabe. Below I discuss the data from five Western Mande languages, where the referential status is marked by L tone associated with some segmental feature or by a floating L only. In all these cases the NP suffix, in question is a marker far advanced in Greenberg (1978)’s definiteness cycle: it corresponds to the stage 3 (general article) with some traits of stage 4 (noun marker). I will be referring to it as referential article for all the discussed languages.

As can be seen in Table 5.16 below, the diachronic sources of the referential marker are different in the discussed languages. In Manding it originates from the demonstrative *ò*, in Soninke it goes back to the demonstrative *nìn*, and in Mokole group from neither of these two, see also the discussion of the reconstruction of the referential article in (Vydrin 2006: 209-210). Nevertheless, the phonological pattern of marking the referential status is structurally very similar in these languages. As I will show in what follows, the alignment of H correlates in the same way with the lengthening of the final vowel, as I described for Kakabe in this Section.

	origin	discussed languages	realization
Manding	< dm. *ò	Mandinka (Creissels & Sambou 2013); Kita Maninka (Creissels 2009a), Kankan Maninka (Grégoire 1986); Bamana, Koro (Creissels 1988)	floating L/ -ò floating L
Mokole	?	Kakabe; Koranko (Kastenholz 1987b), Lele (Vydrin 2009a)	floating L/ -È
Samogo -Soninke	< dm. *nìn	Soninke (Creissels 2016)	floating L/ -Ñ

Table 5.16: Floating L ~ V realization of the referential article in six Western Mande languages

Let's now look at the data. In Soninke the realization of the article $-N$ depends on the position with respect to the PhP boundary: its segmental manifestation disappears before a PhP boundary, see (5.274) below. The same ways as in Kakabe, L is floating when the last syllable of the noun hosts it, cf. *yúgòn* 'the man' vs. *sèré-n^L* 'the person'.

(5.274) Realization of the referential article $-n$ in Soninke (Creissels 2016)

			PhP-internal	PhP-final	
(a)	yúgó	+ -Ñ	→ yúgòn	yúgò #	'man'
(b)	yàxàré	+ -Ñ	→ yàxàré-n ^L	yàxàrê #	'woman'
(c)	sèré	+ -Ñ	→ sèré-n ^L	sèrê #	'person'
(d)	kitáabè	+ -Ñ	→ kitáabèn	kitáabè #	'book'

Examples (5.275a) and (5.275b) show that, again, the same way as in Kakabe, the floating L of the article causes the downstep of the following L and is deleted when followed by L:

(5.275) Soninke (Creissels 2016: 33, 34)

- (a) *Yàxàré-n* ⁺*má* *rì*
 woman-D PFV.NEG come^L
 'The woman didn't come.'
- (b) *ń* *dà* *yàxàré-n* *ɲàrí*
 1SG TR woman-D see
 'I saw the woman.'

In Mandinka, a West Manding language, the referential status is marked by $-ò$. As in Kakabe, it can fuse with the last vowel of the root or surface as a separate vowel. In Mandinka L of

the article is realized as floating when the last syllable of the NP hosts H, cf. *sùŋ-ó^L* ‘thief’ vs. *búŋ-ò* ‘room’, and *bǎa^L* ‘goat’ vs. *nǐyò* ‘part’. This, again is analogous to the mechanism attested for Kakabe. But differently from Kakabe, in Mandinka the floating realization of the article is also triggered by the segmental fusion of the marker *-ò* with the final vowel of the root, therefore *bása + -ò* → *básóo^L* ‘lizard’ is realized with floating L. Contrary to Kakabe, the mora of the article is not deleted in Mandinka, see line (g) with *bása* ‘lizard’ yielding *básóo^L* in form with the article. Interestingly, before pause *básóo^L* is realized as *básò:* with all-L last syllable, bringing it closer to the Kakabe case, *gbása + È* → *gbásà* ‘the lizard’.

(5.276) Realization of the referential article in Mandinka (Creissels 2013: 51)

(a)	<i>nàŋkátáŋ</i>	+ -ò	→	<i>nàŋkátáŋ-ò</i>	‘white rice’	
(b)	<i>bùntúŋ</i>	+ -ò	→	<i>bùntúŋ-ò</i>	‘loft’	
(d)	<i>búŋ</i>	+ -ò	→	<i>búŋ-ò</i>	‘room’	
(c)	<i>jíi</i>	+ -ò	→	<i>jíy-ò</i>	‘water’	
(e)	<i>nǐi</i>	+ -ò	→	<i>nǐy-ò</i>	‘part’	
(f)	<i>sùŋ</i>	+ -ò	→	<i>sùŋ-ó^L</i>	‘thief’	<i>sùŋó#</i>
(g)	<i>básá</i>	+ -ò	→	<i>básóo^L</i>	‘lizard’	<i>básòò#</i>
(h)	<i>bàsá</i>	+ -ò	→	<i>bàsóo^L</i>	‘mat’	<i>bàsòò#</i>
(i)	<i>bǎa</i>	+ -ò	→	<i>bǎa^L</i>	‘goat’	

In Kita Maninka, another West Manding language, the realization of the article is purely tonal in most cases. Again, it links to the last syllable of NP if the preceding H aligns on the penultimate syllable or earlier (f-i), and is floating if the preceding H links to the last syllable (a-e). In Kita Maninka L is opposed to the absence of tone, so, in (5.277) below the absence of diacritic on the vowel means H in the surface realization.

(5.277) Realization of the referential article in Kita Maninka (Creissels 2009a: 32)

- (a) *su* + ART → *sú^L* ‘house’
 (b) *sù* + ART → *sǔ^L* ‘horse’
 (d) *mùsù* + ART → *mùsu^L* ‘woman’
 (c) *bàmba* + ART → *bàmba^L* ‘crocodile’
 (e) *bunkun* + ART → *bunkun^L* ‘kapok tree’
 (f) *basa* + ART → *basà* ‘lizard’
 (g) *hukula* + ART → *hukulà* ‘cap’
 (h) *jànkuma* + ART → *jànkumà* ‘cat’
 (i) *tùbàbu* + ART → *tùbabù* ‘white person’

Interestingly, the segmental realization -ò is retained as a stylistically marked variant which occurs mostly in traditional narratives, see the discussion in (Creissels 2009a: 90).

In Bamana and standard Maninka the referential article (also originating from the same demonstrative ò) is, first, always non-segmental and, second, is always realized as floating, see (Dumestre 2003; Vydrin 2011) for Bamana; (Grégoire 1986) for Kankan Maninka), e.g. Bamana *bàrika^L* ‘force’, *mùso^L* ‘the woman’. L links to the last syllable of the root only before pause. Finally, in Koro not only the referential article is always floating, but also the HS before it can be realized as floating, see (5.278) below.

(5.278) Koro (Creissels 1988: 89)

<i>é</i>	<i>tá</i>	<i>mrù</i>	<i>jê</i>
é	tá	mrù ^{HL}	jé
2SG.EMPH	property	knife	cop

This is your knife.

In Koranko the referential article is marked by the suffixed -E, as in Kakabe. Kastenholtz (1987b) claims that -E bears H tone²². Yet, the examples that he gives show the tonal realization of -E is identical to the realization of the article in Kakabe. The author uses graphic representation of pitch levels which I reproduce in (5.279)-(5.280) and give transcription in brackets based on this level representation.

In (5.279) below are given the citation forms of nouns. In all related languages the noun appears in citation in the form with the article which is expected for Koranko as well, thus,

22. Kastenholtz (1986) reconstructs *-(Y)É* as the common Central-Mande specification morpheme. Yet, the same way as in the analysis of the Koranko data in (Kastenholtz 1987b), this proposition is based on the same erroneous analysis of H tone which is inserted before L of the morpheme as the part of the phonological representation of the morpheme itself.

In Lele, another Mokole language, the referential article is $-\epsilon$, and most probably, bears L tone: “au niveau de la réalisation, l’article porte le plus souvent un ton bas” (Vydrin 2009a: 38). In view of the claim of Kastenholz (1986), Vydrin hesitates with attributing L tone to the article in Lele, but considering what has been said just above about Koranko and the analysis of Kastenholz, and the actual L-toned realization of the article in Lele which follows from the cited statement, one can conclude with a high degree of certainty that in the group of Mokole the referential article is L-toned.

Table 5.17 below summarizes the discussion above.

	Kankan M, Bmn, Koro	Koranko	Kita Maninka	Kakabe	Soninke	Mandinka
I. dependency between H alignment in NP and the linking of L	-	-	+	+	+	+
II. article is manifested both tonally and segmentally	-	+	(+)	+	+	+
III. L always floating (never links to the last TBU of NP, unless before pause)	+	+	-	-	-	-

Table 5.17: Variation in the (semi)floating realization of the referential article

To sum up, in the discussed languages the marking of the referential status reflects various stages of the phonetic erosion, where starting point is syllable of the demonstratives²³ and the most advance stage is the floating L without any segmental manifestation. As has been already said, the referential article is advanced in the cycle of grammaticalization, corresponding to the stage 2 in (5.281).

(5.281) Definiteness cycle, based on (Greenberg 1978)

Stage 0 Stage 1 Stage 2 Stage 3
demonstrative → definite article → general article → noun marker

23. The origin of the referential article in Mokole is yet to be established.

This grammaticalization process is accompanied by the phonetic erosion manifested in the segmental loss (for the notion of erosion as part of grammaticalization process, see Bybee 1985; Heine & Kuteva 2007). There are two processes which accompany the grammaticalization of the article in the analyses Western Mande languages:

1. The erosion of the segmental features of the marker. In Soninke the loss of the nasal happens at the end of PhP. In Mandinka, Kakabe, Kita Maninka the segmental loss happens through the assimilation of the vowel of the article with the final vowel of the NP stem.
2. The disassociation of the L of the article from NP. The trigger of this process is, probably, the accumulation of two tones on the last syllable of NP stem. The avoidance of complex tones on one syllable causes the L of the article to move to the right. Due to this process the L of the article becomes floating.

As shown in Section 5.9.1.6, in Kakabe the non-segmental realization of the referential article is possible in recent borrowing. Apart from that, it occurs along with the segmental realization in the speech of part of the Kakabe speakers (see 5.9.1.6.2). Importantly, when the article is non-segmental in Kakabe, the tone reproduces the pattern of realization applied to L when the segmental part is present. Thus, contrary to the languages where article is always non-segmental, L of the Kakabe article continues to link to the stem. The conclusion which can be made from this is that Kakabe shows the tendency to develop purely tonal realization of the article for all phonological contexts, but, so far, its linking strategy is different from the floating L of Manding referential article which almost always links to the right from the noun stem.

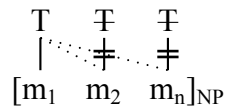
5.9.2 Tone in complex NPs and Numeral phrases

Tonal neutralization in compounding is common in Mande languages, for an overview and references see (Green et al. 2013). There are two types of tonal neutralization in complex NPs in Kakabe: the deletion of the tone of non-initial elements in complex NPs and the neutralization of minor tone patterns on noun roots followed by a numeral.

5.9.2.1 Tonally compact group

All lexical roots (except for numerals, see 2.5.5) and derivative morphemes within one NP not separated from each other by the referential article, form a tonally compact group, defined in (5.282) below (“m” stands for ‘morpheme’):

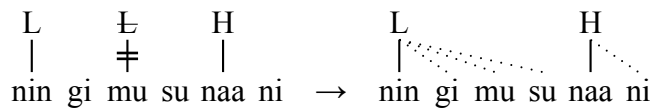
(5.282) In a tonally compact group the tones of the non-initial elements are deleted.



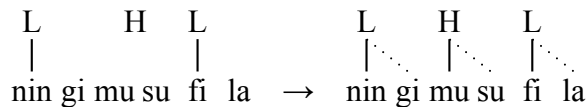
Thus, the domain of the tone of the initial element is co-extensive with the whole group, since tones of the non-initial elements are deleted.

If the initial tone is L, the insertion of HS is linked following the general rule of HS alignment (5.73) (see Section 5.5). In (5.283) the tone of the resulting compound is shown in the context before the numeral *fila* ‘two’ where HS is manifested and before *kélen* ‘one’ where no HS appears.

(5.283) (a) *nìngi mùsu náani* ‘four female cow’ → *nìngìmùsù náani*



(b) *nìngi mùsu fila* ‘two female cows’ → *nìngimúsú fila*



Some more examples of compounds are given in (5.284) below:

- (5.284) (a) *dònso* + *kàyi* → *dònsò káyí fila* *dònsòkàyì kélén*
 ‘hunter’ ‘man’ ‘two hunters’ ‘one hunter’
- (b) *nìngi* + *báa* → *nìngibáá fila* *nìngibàà kélén*
 ‘cow’ ‘big’ ‘two big cows’ ‘one big cow’
- (c) *fóndo* + *kólo* → *fóndókóló fila* *fóndókóló kélén*
 ‘fonio’ ‘grain’ ‘two fonio grains’ ‘one fonio grain’
- (d) *kàrc* + *kólo* → *kàrcàkóló fila* *kàrcàkòlò kélén*
 ‘rice’ ‘grain’ ‘two grains of rice’ ‘one grain of rice’

There is a number of idiomatic combinations or morphemes that form one lexeme but don't undergo the deletion of non-initial tones:

(5.285)	<i>állà-la-sòò</i>	God-POSS-horse	'praying mantis'
	<i>tòti-kùngbìlin</i>	frog-warthog	'porcupine'
	<i>gbása-kèren-gbéé</i>	lizard-squirrel-white	'monitor lizard'
	<i>jíi-wòlo</i>	water-francolin	'fish (sp.)'

There is no clear-cut distinction between idiomatic combinations of morphemes that disobey the rule of tonal compactness on the one hand, and morphologically simple nouns with minor tonal pattern on the other hand, since the latter may be a combination of morphemes etymologically. Thus, there is no essential difference between cases like (5.285) and the nouns with minor tone patterns discussed in Section 5.4.8.

5.9.2.2 *Tonal compactness and the neutralization of minor tonal patterns*

Importantly, when a non-tonally compact NP described just above or a noun with a minor tonal pattern is followed by numeral or an adjective, the resulting constituent is tonally compact. This process is formulated in (5.286) below:

(5.286) Non-initial L within a root or a tonally non-compact NP is deleted when the root is part of a numeral phrase or a compound.

T	L	L
	≠	≠
[[μ _{n1}	μ _{n2}	μ _{n3}] _N] _{NumP/Compound}

Example (5.287) shows that the tone of a noun with a minor tonal pattern or the tonal pattern of an non-tonally compact NP is neutralized to H or L through the deletion of the non-initial L tones. Thus, the nouns are pronounced with one HS before L-tones numeral *fila* 'two' and as all-H or all-L before the adjective *báa* 'big'.

	not before numeral	before numeral	
(a)	LHH	LLH	51
(b)	LHH	LHH	6
(c)	LLH	LLH	52
(d)	LHH	HHH ~ LHH	18
		Total	114

Table 5.18: Shift of HS alignment in trisyllabic L-toned nouns

(5.289) (a)	‘reason’	<i>dàlilú</i>	LHH	→	<i>dàlilú filà</i>	LLH
	‘orange’	<i>lèèmuné</i>	LHH	→	<i>lèèmuné filà</i>	LLH
	‘market’	<i>mààkítí</i>	LHH	→	<i>mààkítí filà</i>	LLH
	‘bread’	<i>bìrèédí</i>	LHH	→	<i>bìrèédí filà</i>	LLH
(b)	‘lock’	<i>bògóró filà</i>	LHH			
	‘scorpion’	<i>bùntáí filà</i>	LHH			
	‘hairstyle (sp.)’	<i>jùbáadó filà</i>	LHH			
	‘boubou’	<i>kàftáánú filà</i>	LHH			
	‘bedcover’	<i>sùddááré filà</i>	LHH			
	‘fork’	<i>fùrséttí filà</i>	LHH			
(c)	‘porcupine’	<i>bàlà má filà</i>	LLH			
	‘shirt’	<i>dòròkí filà</i>	LLH			
	‘coffin’	<i>gbàlà ngá filà</i>	LLH			
(d)	‘punishment’	<i>sògóró ~ sógóró filà</i>	LHH ~ HHH			
	‘hawk’	<i>sègélé ~ ségélé filà</i>	LHH ~ HHH			
	‘needle’	<i>mèséndé ~ méséndé filà</i>	LHH ~ HHH			

In tetrasyllabic roots the modification of HS domain is less common: LLHH tonal pattern is preserved in ten cases, and is shifted to the last syllable in seven tetrasyllabic nouns, they are listed in (5.290a) and (5.290b) respectively.

(5.290) (a)	‘lock’			<i>kùláléntén filà</i>		
	‘poor person’			<i>bòlòkólón filà</i>		
	‘pestle’			<i>kòlònkálán filà</i>		
	‘machete’			<i>kùrùkélén filà</i>		
	‘coconut’			<i>kùukùináátí filà</i>		
	‘performer of circoncision’			<i>bàrijélú filà</i>		
	‘cliff’			<i>fàtàkóló filà</i>		
	‘tree (sp.)’			<i>kòtòcálé filà</i>		
	‘tree (sp.)’			<i>tàndàsáará filà</i>		
	‘griot’			<i>jàmàkálá filà</i>		
(b)	‘reason’	<i>àlbùrʔáná</i>	LLHH	→	<i>àlbùrʔáná filà</i>	LLLH
	‘orange’	<i>màrijááwó</i>	LLHH	→	<i>màrijáàwó filà</i>	LLLH
	‘market’	<i>sìgàrééti</i>	LLHH	→	<i>sìgàrèèti filà</i>	LLLH
	‘bread’	<i>bùrùnbùrín</i>	LLHH	→	<i>bùrùnbùrín filà</i>	LLLH
	‘Sunday’	<i>àlàhàttí</i>	LLHH	→	<i>àlàhàttí filà</i>	LLLH
	‘warthog’	<i>kìdàkìdà</i>	LHLL	→	<i>kìdàkìdà filà</i>	LLLH
	‘bird (sp.)’	<i>tànbádùfà</i>	LHLL	→	<i>tànbádùfà filà</i>	LLLH

5.10 Summary

This chapter has introduced the main elements of Kakabe phonology and the main tonal processes applied to the realization of lexical tones.

Kakabe is characterized by rather low tonal density, meaning that underlyingly, segments are often not specified for tone. This is manifest in the fact that the majority of lexical items is distributed in a relatively small number of tonal patterns (Section 5.4).

Another general property of the Kakabe tonal system is that in this language the underlying tonal representation is divided from the surface realization by a considerable distance which is spanned by various types of tonal processes, to the analysis of which was dedicated the most part of the chapter.

Tonal processes are sensitive to the prosodic organization of the utterance. The smallest prosodic unit hosting tone in Kakabe is mora, though, under certain constraints, when no other TBUs are available, one mora can host two tones. At the same time, syllable is also active in some aspects of the realization of tone. Thus, albeit the association of two tones with a heavy syllable is allowed structurally, in the realization of HL sequence associated with one syllable,

L displays a strong tendency to be realized as floating, and therefore after the syllable. Next, the activeness of foot in the realization of tones has already been argued by a number of authors for other Mande languages (Weidman & Rose 2006; Green 2010; Green et al. 2013; Vydrin 2010). As has been shown, in Kakabe, HS insertion induced by OCP is sensitive to the foot organization. Prosodic word is the domain of tonal compounding. Prosodic phrase is the domain of Tone Leveling which exists in two variants: Final Tone Leveling, HLH → HLL and Medial Tone Leveling, implying H spread to the right and L delinking, HLH → ⁺HL. Finally, the insertion of HS is blocked only if IP boundary interferes. Thus, this tonal operation belongs to IP level.

Floating tones in Kakabe are either assigned lexically or arise due to the tendency of L to delink from a syllable which already hosts a H tone. This tendency is at the core of the evolution in the realization of the referential article. Crucially, apart from Kakabe, there are several other Western Mande languages in which L of the article is realized not at the end of NP but after it, when the last syllable of the NP hosts a H tone. One can suppose therefore that there exists a tendency to avoid of complex tones on one syllable.

The emergence of the non-segmental marker of referentiality involves two parallel processes, and for both of them a starting point can be identified. The first is the disappearance of the segment itself (front vowel in Mokole and the back vowel *o* in Manding) which starts with the total assimilation to the lowest *a* and then, supposedly, spreads to higher vowels. As has been shown, though in general in Kakabe the segmental expression of the article is still present, some speakers use segmentless forms, in context where, in principle, the segment should surface. The second process is the detachment of the tone from its segmental base (L realized not on the last mora of NP but after it), the hotbed for which is the context with a H associated to the same final (or unique) syllable. It is not clear how these two processes are related. Thus, in non-nativized borrowings, where the purely tonal realization of the article is common, L, nevertheless continues to link to NP. This question remains open for further research.

Chapter 6

Intonation and intonation-related phenomena

6.1 Introduction

One of the difficulties in the description of intonation in a tone language is that there is no universal semantic criterion to distinguish between these two phenomena. Rather, they must first be differentiated on formal grounds, after which it is possible to find out what functions and meaning are associated with tone and with intonation.

To begin with, intonation involving pitch can be absent in a tonal language: the tonal curve might be defined by lexical tones only. But if tone and intonation do coexist in a language, they are opposed structurally, occupying two different levels in the phonological representation. In this case, F₀ curve of the utterance results from two separate operations: the realization of the elements of the tonal register, and second, the realization of intonational operations on F₀. Thus, in a tonal language it is necessary to define first whether there are any operations apart from tone which have an impact on the F₀ curve.

The semantic or functional criteria can be misleading for the differentiation between tonal and intonational phenomena. For example, in a tonal language the function of signaling sentence type can be taken up by tone, whereas cross-linguistically it is commonly marked through intonation.

Kakabe has intonational operations which are phonologically distinct from tone. Down-drift which has already been discussed in the preceding section can be seen as the basic intonational operation which is superimposed on lexical tones and which participates in phrasing. Register raising is another intonational operation superimposed in Kakabe on tones. It is re-

alized through the reversion of downdrift, sometimes combined with the expansion of pitch register. Register raising creates a prominence position for a category of words associated with a particular type of focus. In this function it comes very close to a grammatical marker, since, as I will show, register raising is associated with polarity items opposing them to other types of indefinite pronouns.

At the same time, sentence mode is also expressed by tonal morphemes which show the same behavior as lexical and grammatical tones and which in part of the cases combine with intonation. Thus, in general, tone and intonation in Kakabe are tightly intertwined.

This chapter presents sentence-level prosodic phenomena involving both tone and intonation. These tonal-intonational patterns can be localized at the right edge of the utterance (boundary tones and IP-final intonation) or utterance-internally, on lexemes with various focus-related meanings, finally, a tonal-intonational prosodic pattern can be realized on a whole utterance, as it is the case of multiple-negative clause construction.

The chapter is organized as follows. The first section is dedicated to the discussion of the existing theories of intonation and the discussion of the relation between intonation and lexical tone in the general phonology as well as in the literature on African languages (6.2). Section 6.3 introduces the intonational operation of register raising, discusses the intonational nature of downdrift and IP in Kakabe. After that, I analyze the realization of IP-final prosodic operations, namely, the boundary tones combined with register raising (6.4). A particularly interesting case is the realization of \uparrow HL% boundary tone which enters into complex relations with the lexical tones occurring at the end of the IP and the syllabic grouping of final moras, a detailed account of it is given in 6.4.5. Section 6.5.1 describes the realization of intonation and tonal patterns associated with pragmatic prominence which can occupy an IP-internal position. Since pragmatically-prominent items can be IP-medial or IP-final, apart from the raising of the pitch, their prosodic prominence is associated with downdrift reset. Finally, in Section 6.6 I discuss a tonal-intonation pattern which spans over several negative clauses.

6.2 Tone and intonation in phonological theory

Tone is defined as a phonological phenomenon based on F0 distinctions which participate in distinguishing lexical and grammatical meaning (Hyman 2001; Yip 2002 among many others). Linguistic tone should not be confused with F0, a phonetic phenomenon which can be used in a language for various functions. Intonation shares with tone its main phonetic correlate, F0, but serves a different functional domain, phrase and utterance-level meanings.

In my description of intonation I will adopt an approach (e.g. Inkelas et al. 1990) according to which intonation and tone are two phonologically distinct phenomena which, if they coexist in a language, occupy different tiers of phonological representation.

There has been a long debate about whether prosody, pitch distinctions in particular, should be represented through absolute and discrete, or, on the contrary, as relative and continuous entities. Since 1950s the evolution of the phonological theory was marked by the going back and forth from one position to the opposite regarding this question.

The highly influential phonological theory by Jakobson et al. (1952) introduced the fundamental division between segmental and prosodic features. Inherent features (vowel and consonant contrast which are definable in absolute acoustic terms) are opposed to prosodic features (pitch, stress, duration, defined only relatively to context). According to this dichotomy, intonation, as a part of prosody, was described in terms of movement of pitch, gradual oppositions, degrees of stress (e.g. Crystal 1969; Bolinger 1961; 1965; O'Connor & Arnold 1973). For example, in Crystal's transcription each syllable is described through relationship to the preceding syllable: same level, slightly higher, slightly lower, much lower, very much higher and very much lower.

6.2.1 Autosegmental theory

The innovative force of the autosegmental theory of tone (Goldsmith 1976; Leben 1973) was, in particular, in that it reunited tone and segmental features that had been set apart just before. It applies notion of distinctive features to both tone (in level-tone Sub-Saharan languages), on the one hand and consonants and vowels, on the other hand. There is a close relationship between the analysis of segments into distinctive features and an autosegmental analysis; each feature in a language appears on exactly one tier. Autosegmental phonological approach allowed to integrate lexical tone into the core of phonological theory.

6.2.2 Autosegmental-metrical theory of intonation

The autosegmental phonological theory of Goldsmith and Leben and the metrical theory of Liberman (1975), Liberman & Prince (1977) gave rise to autosegmental-metrical (AM) theory¹, where the model based on the discrete feature representation was extended further to intonation. AM approach to intonation was first formulated by Pierrehumbert (1980), and developed further in (Beckman & Pierrehumbert 1986; Gussenhoven 2004; Jun 2005; Ladd

1. The term for this approach was first introduced by Ladd (1996).

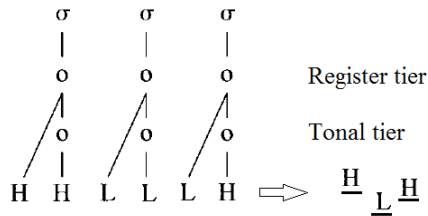
2008) among others). The ambition of AM theory is to introduce intonation into the core of phonological structure, by representing intonational patterns as *phonological* strings of tones which are associated with metrical elements. AM is an abstract phonological model aiming to represent the contrastive elements of an intonational system. These elements are a string of tonal autosegments which associate with structural positions in metrical structure: 1) metrically prominent syllables (*pitch accents*) and 2) prosodic boundaries (*boundary tones*). The linguistically relevant points reflect pitch modulations that co-occur with prominent syllables or phrasal boundaries, see Arvaniti (2017). This approach took as model the autosegmental representation of tone, developed on the data of level tone Sub-Saharan languages, and, essentially, it aims to wipe out the differences between intonation and tone.

AM is currently the dominant framework for the description of intonation. It was directly adopted into intonational pragmatics (Hirschberg & Pierrehumbert 1986), into work on syntax-prosody interface (e.g. Selkirk 1986, 2011; Büring 2016), finally, it served as basis for the widely applied ToBI (Tones and Break indices) transcription system (Hirschberg 2005). The collective volumes (Jun 2005, 2014) are an attempt to create a typology of intonation within the framework of AM model and the ToBI system.

6.2.3 Register tier theory

Parallel to AM theory which was concerned mostly with intonation in non-tonal languages, Register Tier Theory was developed, in particular, to account for intonation related phenomena, such as downdrift in tone languages. In this approach, the idea to represent tone on a separate tier which was one of the main contributions of the autosegmental approach to the phonological theory of Goldsmith, was further developed into a more complex representation with different tone types and different tiers (e.g. Hulst & Snider 1993b; Snider 1990; 1999), see also overview in Connell (2011). For example, in register tier theory in the version by Hyman (1993), tone can link to nodes on two distinct tiers: the tier of tonal node and the tier of tonal root node, as represented (6.1) below.

(6.1) Register Tier Theory (Hyman 1993): Representation of the downdrift realization of HLH sequence



This framework permits the description of the cumulative nature of downdrift (automatic downstep in the terminology used in register tier theory) (Snider 1998), and upstep (Snider 1990). It is also used for the description of intonation in tone languages. For example, Inkelas et al. (1990) represent the intonational morpheme for Hausa questions with a Register feature, [H]. Yip (1993), discussing the intonation and lexical tone in Mandarin, proposes to consider the register tier as a tier which hosts intonation and insists that it is separated from the tonal tier. A hypothesis has been articulated within this approach which puts into relation the number of level tones and the restriction on intonational operations involving tone, to which I will return later.

In general, this separate-level approach to intonation and tone contrasts with the orthodox AM theory in the version of (Pierrehumbert 1980; Beckman & Pierrehumbert 1986) which is basically linear, and where all F0 phenomena are accounted for through a “flat” string of tones.

6.2.4 Intonation as opposed to tone

Table 6.1 below compares the characteristics of tone in a level-tone system and intonation. To begin with, tonal module operates with discrete oppositions such as High, Low, Mid. On the other hand, the realization of intonation is formulated relatively to the pitch range or to the level tones. Intonational operations can involve the expansion of pitch range, the realization of F0 at the bottom of the pitch range, or it may modify the relative realization of level tones with respect to each other, as it is the case with downdrift. Next, the phonetic correlate of tone is F0 only, whereas intonation, apart from F0, can also involve duration, intensity, rhythm and phonation. The unit on which tone is realized is either syllable or mora, as for the intonation it is realized relatively to the edge of the intonation phrase or to a prominent item within the intonation phrase. Finally, tone primarily serves to distinguish lexical and grammatical oppositions, whereas intonation signals mostly prominence and illocutionary force type of the utterance. It should be underlined that this last opposition should not be taken in absolute

terms: as has already been said, ‘intonational meaning’ can be taken up by tone, and, as I try to show later on the example of Kakabe, an intonational operation can be involved in the expression of grammatical opposition (see 6.5.3).

	tone in level-tone systems	intonation/tonal operations
type of F0-related oppositions	oppositions between absolute values, e.g. H vs. L vs. Mid	pitch movement (upwards, downwards), operations with pitch range
phonetic exponents	F0 (pitch)	F0 (pitch), intensity, phonation type, duration, rhythm, formant (other than F0) patterns ² , etc.
Primary unit of association on the segmental tier	syllable/ mora	edge of intonation phrase or pragmatically prominent unit within intonation phrase
Primary semantic and functional domain	lexical and grammatical distinctions	phrasing, marking of prominence, illocutionary force (sentence mode)

Table 6.1: Typical properties of tone and intonation

To sum up, tone and intonation can be seen as two different modes of exploiting F0 in a language. Tone is associated with lexical and grammatical meanings and with prosodic units of the bottom level, whereas intonation is rather involved with clause-level meaning and higher prosodic units.

6.2.4.1 *Partitioning of functional domains between tone and intonation*

It is commonly accepted that tone and intonation are not mutually exclusive, but in tone languages intonation is often minimized or non-existent (Cruttenden 1997, Arvaniti 2017; Michaud 2005; 2008; 2017; Michaud & Vaissière 2015). One of the few exceptions is the analysis of Dutch dialect of Venlo by Gussenhoven & Van Der Vliet (1999). In this dialect, a lexical tone contrast is combined with four intonation contours.

Certain function of the “intonational” domain can be taken up by other modules of the language: by segmental morphology, by lexical tone or by syntax. Thus, morphological ex-

pression of focus and, in particular, marking of focus through verbal inflection is very common in African languages (Creissels et al. 2008: 149). Signaling question mode through interrogative particles is common in languages of the world (Dryer 2013b), both in tonal and non-tonal languages. Torreira et al. (2014) show that the use of segmental markers for polarity questions is significantly more frequent for tonal languages as compared to languages without lexical tone, which confirms the view that “the use of tonal features to mark lexical contrasts leads to a diminished functional load for utterance - level intonation”.

Apart from that, functions served in other languages by intonation can be marked by (grammatical) tones. Thus, in Hausa yes/no question is marked by L tone which is added after the rightmost H lexical tone. In Luganda there is a phrase-boundary H% which acts like any other lexical H (this and other examples of tones serving phrasing, prominence marking, and sentence mode are cited in Michaud 2017: 427-428). Coexistence of tone and intonation within one language is also possible. In contrast to cases like Hausa and Luganda, where the tones with “intonational functions” are integrated into the phonological string of lexical tone, in most tonal East and Southeast Asian languages, for example, in Vietnamese and in Standard Mandarin, “intonational phenomena do not affect the phonological identity of the lexical tones. Instead, intonation is superimposed on tone sequences” (Michaud 2017: 435), the same idea about the division between tone and intonation is expressed in (Bearth 1998).

Thus, it is important to distinguish the case where intonation as special phonological phenomenon coexists with the tone, from the case where the “intonational” functions are taken up by lexical tone. Following Michaud (2005; 2017), I will use the term *tonal intonation* to refer to cases when phrasing, prominence or sentences mode is signaled by tone proper. This means that these tones must display the same behavior, follow the same rules, as lexical tones.

The issue of the integration of intonation into the system of lexical tone is somewhat obscured in the often-cited typology of possible interactions and intonation, proposed in Hyman & Monaka (2011) which is reproduced in (6.2) below:

- (6.2) accommodation: both tone and intonation are realized, perhaps, on different syllables or within intonation superimposed on lexical tone.
 submission: lexical tone is overridden by intonation
 avoidance: intonation is minimized

The submission is clearly a case of intonational tone integrated into the tier of lexical tone, otherwise, it could not replace the lexical tone. Avoidance is the case when intonational functions are not served by F0 (they are, supposedly, delegated to morphology or syntax). The

accommodation type includes both tonal and non-tonal intonation. The subtype (a) of accommodation in (6.3) below, when $F0_{\text{lex tone}}$ are $F0_{\text{intonation}}$ distributed over different tone-bearing units, both can be accommodated by (lexical) tone tier. Thus, Otopamean languages of Mexico “restrict their lexical tone contrasts to pre-final syllables, reserving word-final syllables for intonational contrasts” (Hyman & Monaka 2011: 267). Finally, in the subtype (b) in (6.3) intonation is non-tonal, it accounts for the cases like Vietnamese and Mandarin, mentioned earlier.

(6.3)	accommodation	(a) on different syllables	→	tonal intonation/ ?non-tonal intonation
		(b) intonation superimposed on lexical tone	→	non-tonal intonation
	submission	intonational tones replace lexical tones	→	tonal intonation
	avoidance	no intonation	→	no intonation (either tonal or non-tonal)

Tone and intonation are clearly opposed in the analysis of Bearth (1998). He distinguishes between two types of tonal languages according to how they combine tone and intonation: (i) those that stack intonation patterns over lexico-grammatical tones and (ii) those that express intonation at the periphery of the utterance, intonation does not interact with the lexico-grammatical tones. See also (Caron 2015) for the discussion of these two modes of tone and intonation coexistence in Zaar, a group of Chadic languages.

Bearth (1998) makes clear distinction between tone and intonation for the case of Toura:

Signifying intonation in Toura is realized as periphery intonation, namely under the shape of intonational features that, due to their peripheral position in the utterance do not interfere in any way with the tonal contour drawn from the lexico-grammatical tones (1998: 81)³

To sum up, $F0$ distinctions serving phrasing, signaling prominence mode of speech are more often not instances of tone. They can be identified as tone only in that particular case when such $F0$ distinctions behave phonologically the same way as lexical tone.

3. Original citation: “L’intonation significative se réalise en toura comme intonation périphérique (IPH), c’est-à-dire sous forme de traits insonatifs qui, du fait de leur localisation périphérique dans l’énoncé, n’interfèrent aucunement avec le contour tonal constitué à partir de la TLG [tonalité lexico-grammaticale]”.

6.2.4.2 *Boundary tones: tone or intonation?*

Certain element of AM model prove to be useful to account for intonation which is integrated in the system of lexical tone. The notion of boundary tone transcribed as T% and first introduced in AM (first in Liberman 1975's thesis and then taken up by Pierrehumbert 1980) is established in the vocabulary of Bantu studies (Kisseberth 1984 was among the first to apply it to Bantu, see also (Kissenberth & Odden 2003) among many others), as well as in the description of the tonology of other African languages. It is used to refer to the phrase-final tones which, phonologically, are on the same tier as the lexical tones. These boundary tones are introduced after lexical tones, but they follow the same rules and interact with lexical tones. Thus, AM theory contributed to the African tone studies the idea of tone which is introduced by the boundary of an intonation phrase. More generally, the advantage of AM theory is that it highlights the fact that tone can be related not only to prosodic units at the bottom of prosodic hierarchy, but also to higher units.

By the definition mentioned before, tone always participates in conveying lexical meanings, but it can express any kind of grammatical meaning, and tone can also convey meanings which are cross-linguistically frequent in the domain of intonation. To continue the expression of Hyman (2011) according to which "tone can do everything that segmental morphology can do", it can also do all what intonation can do (signal illocutionary force distinctions and phrasing).

To conclude, boundary tones are of the same phonological nature as lexical and grammatical tone, with the particularity that the TBU that they are associated with is specified as IP-final.

6.2.4.3 *Research on intonation in tone languages*

Intonation has been studied relatively little in African languages. A good indicator of the level of interest to that topic in African studies is that in the bibliography, dedicated exclusively to prosody and tone in Niger-Congo non-Bantu languages by (Green 2009), out of 125 listed

works, only six have a focus on intonation.⁴

The collective volume (Downing & Rialland 2016) aims to fill in the gap in the description of intonation in tonal African languages. It includes the description of this topic for twelve languages. Below is the formulation of the main topics of the volume:

The studies in this volume make particular contributions to our knowledge of the role of “downtrends”, changes in register and boundary tones, especially final boundary tones in the intonation of tone languages (Downing & Rialland 2016).

Apart from this volume, “intonation in tone languages has not been studied nearly as much as in non-tonal languages, probably on the assumption that lexical and grammatical tone would override any pitch differences attributable to intonation” (Cahill 2016: 26).

None of the Mande languages are represented in (Downing & Rialland 2016). The only work for Mande languages where intonation is discussed in detail is Mountfort (1983)’s thesis “Bambara declarative sentence intonation”. Yet, it contains only the analysis of phonetic implementation of downtrends (declination, downdrift), and all the questions relating to the meaningful aspects of intonation, and the intonation system in its phonological aspect in general, remains out of the scope of the study. Apart from downdrift which is regularly discussed in Mande literature, intonation-related phenomena (boundary tones, register changes, intonation proper) are almost never mentioned in descriptions of Mande languages. The few exceptions are the discussion of intonation of Tura, a Southern Mande language (Bearth 1968, 1993; Idiatov 2017), the short description of intonational operation in Vai (Welmers 1976), the paper by Diané & Vydrin (2016) on the marking of interrogation in Maninka⁵ and, finally, intonation is briefly mentioned in Vydrin’s (2017) sketch on Dan (Southern Mande).

4. See the list below:

1. Rialland, Annie, and Stéphane Robert. “The Intonational Pattern of Wolof.” *Linguistics* 39, no. 5 (2001): 893-939.
2. Wiesemann, Ursula. “Tone and Intonation Features in Fon.” *Linguistique Africaine* 7, 1991.
3. Dakubu, Mary Esther. “Prosodic Features of the Gurene Verb.” *Gur Papers* 7 (2006): 16-27.
4. Laniran, Y. “Intonation in Tone Languages: The Phonetic Implementation of Tones in Yoruba.” Ph.D. dissertation, Cornell University, 1992.
5. Clark, Mary Morris. “A Dynamic Treatment of Tone: With Special Attention to the Tonal System of Igbo.” Ph.D. dissertation, University of Massachusetts, 1978.
6. Mountford, Keith William. “Bambara Declarative Sentence Intonation.” Ph.D. dissertation, Indiana University, 1983.

5. Their conclusion is that in Maninka rising intonation is used to mark interrogation in yes/no questions.

6.2.5 Prosody and information structure

A final issue to be discussed in this theoretical introduction is information structure, a domain which is traditionally associated with intonation. Focus is known to affect the intonation, more specifically, the pitch register of utterances in many languages (Gussenhoven 2007b). In Büring's (2009) typology of focus marking, prosodic prominence is claimed to be the universal marker of focus⁶. Yet, there is an ever-growing list of languages which are reported to have no prosodic marking of focus at all, mostly in Africa (e.g. Zerbian 2008; Robert & Rialland 2001, see the overview in Rialland & Aborobongui 2016) but also outside of Africa (e.g. Yukatek Maya, Gussenhoven & Teeuw 2008, Karitiâna, a Tupian language, Valin 2015).

As it has already been discussed in this chapter, apart from prosodic prominence, the inventory of focus-marking devices used across languages include syntactic dislocation, morphological marking by means of special focus marker or through the paradigm of aspectual markers which is typical of the African continent (e.g. Hyman & Watters 1984; Robert 2010; 2016; Schwarz & Fiedler 2008). Finally, certain African languages lack any grammatical marking of focus at all (Aboh et al. 2008).

At the same time, focus can be taken as a larger category than contrastive and information focus. Focus can be viewed as a “multifunctional” category (Hovarth 1986; Giannakidou 2011) targeted by different focus-related categories: information and contrastive foci, interrogative phrases, polarity items⁷, etc. The common base of these categories is the lattice of alternatives against which element in focus and which makes it the informational center of the utterance.

Kakabe is one more example of a language, apart from those mentioned above, where neither contrastive focus nor information focus affect prosody. At the same time, other types of focus, namely that of strong polarity items, are associated in Kakabe with prosodic prominence marking through register raising. Whereas an element in the scope of contrastive or information focus is construed against a simple set of alternatives, polarity items involve scalar endpoint which implies that their referents are construed against a hierarchically structured set of alternatives (Fauconnier 1980; Krifka 1995; Haspelmath 1997; Horn 2000; Hoeksma 2012). For example, the English utterance (6.4 a) can be construed against the set of referents *Mary, Peter, Michael, Anna, etc.* The members of the set are arranged on a scale according

6. According to his analysis, in languages where focused constituent is accompanied by a morphological marker, the latter marks the prominence of prosodic units which he admits himself to be “highly speculative”.

7. The fact that polarity items and focus in the restricted sense (informational or contrastive focus) are closely related is confirmed from the evidence from Amharic, where the morpheme *-mm* is used both to signal contrastive marker and to form polarity items from interrogative pronouns, see (Demeke & Meyer 2008).

to how smart they are considered to be, e.g. *Paul* is smarter than *Mary*, who is smarter than *Peter*, etc. By contrast, the utterance with the universal quantifier *all* in (6.4 b), gives rise a simple, not a hierarchically organized set of alternatives.

(6.4) (a) Polarity item utterance: *Paul is smarter than **anyone** in their class.*

(b) Utterance without any polarity item: *Paul is smarter than all of them.*

As I argue in Section 6.5.3, within the category of indefinite pronouns, intonational register raising, on the one hand, and the H with floating L as opposed to simple H, on the other hand, serve to signal whether the pronoun gives rise to the set of alternatives against which the utterances is interpreted, and if so, whether this is a simple or a hierarchically structured set.

Apart from that, register raising is related to emphatic sentence-final particles and ideophones (see 6.5.1).

6.2.6 Intonation in the CA approach

I will describe the function of intonational operations with the terms of conversation analysis (CA) approach. Intonation plays a central role in the organization of verbal communication. In CA approach (Sacks et al. 1974, Ochs et al. 1996, Selting & Couper-Kuhlen 2001), language is approached as “talk-in-interaction”. Participants organize their interaction by distributing turns to speakers.

The starting point of this approach is the observation that verbal interaction is a surprisingly well-organized process⁸. Normally, only one participant speaks at a time and turn-taking by participant occurs mostly with minor or no gaps. This is possible due to an elaborate formal structuring of the conversation⁹. The turns which the speakers take are built from turn-constructive units (TCU), each TCU can potentially constitute one speaker turn. TCU themselves are characterized by internal structuring which allows the speech participants to predict its completion and thus, the moment where the next speaker can potentially start his

8. This concerns rather the behavioral aspect of communication, rather than the efficiency in the transmission of meanings and intentions. Well-organized communication is evolving as a fluid sequencing of gestures and phrases, whereas the conveying of the content between the states of mind of the speakers is a different question. Thus, the speaker B can very promptly respond by “yes” or “sure” to portions of discourse produced by the speaker A. At the same time, this does not imply that the speaker B is successfully analyzing all the intentions and meanings put into the utterances by the speaker A, but is rather an indication of his alertness in the process of interaction.

9. Evidently, apart from oral signals this includes visual cues, such as gestures, mimicking which remains outside of the scope of the current study.

turn. In other words, TCUs contain cues which signal to the participants what is expected and can be done in the ongoing conversation:

Language, as embodied in particular sequences of interaction and through the voices of particular speakers, allows for the anticipation of possible completion before it arrives. Language thus supports a system of smooth turn transition, as well as a system in which gaps and overlaps can be deployed for strategic and meaningful interactional purposes (Ford 2001: 53)

TCU has to be syntactically well-formed and it can belong to one of the four syntactic types (Sacks et al. 1974):

Lexical TCU: e.g. “Yes”, “There”

Phrasal TCU: e.g. “In the basket”, “Out of here”

Clausal TCU: e.g. “When I am free”, “If I got the job”

Sentential TCU: e.g. “I am working on my thesis”, “He has got my car”.

As for the intonation, the prosodic organization of verbal interaction got relatively less systematic attention in the framework of CA.

Couper-Kuhlen & Selting (1996: 25) describe the role of prosody in the following way:

Prosodic features <...> function as part of a signaling system which - together with syntax, lexico-semantics, kinesics and other contextualization cues - is used to construct and interpret turn-constructional units and turns-at-talk.

There are other aspects affecting the functioning of intonation contours. Thus, intonational contours specify “a relationship between propositional content and the mutual beliefs of participants in the current discourse” (Couper-Kuhlen 2015: 84). The boundary tone can express a propositional attitude, e.g. Ward & Hirschberg (1985) claim that Fall-rise intonation contributes to conveying the speaker’s uncertainty. Another aspect that intonation is associated with is the information flow: intonation can contribute to signaling the distinction between theme and rheme, see (Steedman 2007).

6.3 Tone and intonation in Kakabe: general aspects

6.3.1 IP in Kakabe

The tonal manifestation of IP, apart from boundary tones, is described in Chapter 5, see, in particular, 5.3.4. In this chapter I describe the boundary tones associated with the edge of IP

and the intonational register raising which can also be associated with the right boundary of IP.

As has been said, in the description of the functioning of intonational phenomena in Kakabe I will use the notions of CA approach. In CA approach the interface between prosodic and syntactic units is mediated by turn-constructional units, and this resolves the long standing problem of the syntax-prosody interface (see Selkirk 2011; Truckenbrodt 1999):

The basic prosodic phrase in speech, when viewed interactively, is likely to be **not** the prosodic counterpart of a grammatical sentence or clause, but rather a unit defined with respect to the utterance as a turn-constructional unit, a ‘phonetic chunk’ which speakers use to constitute and articulate turns-at-talk. Couper-Kuhlen & Selting (1996: 16)

TCU corresponds to IP. In Kakabe IP is characterized by two tonal properties: 1) it is the domain of downdrift 2) it terminates with a boundary tone. Boundary tone can occur only at the end of a IP. Intonation unit can contain multiple phonological phrases (PhPs) which are the domains of the L spread and tone-leveling.

The default IP tonal contour is characterized by the following features:

- normal pitch range;
- continuous downdrift over the whole IP;
- boundary L%.

Apart from L% IP can end with the tonal morphemes \uparrow HL%, (\uparrow)H% or IP-final, stand-alone pitch rise which I mark by \uparrow , the same as used for register raising. As I show further, the boundary L% stands apart these three other IP-final operations, and in the way it interacts with lexical tones, it can be considered a default boundary tone (or, possibly, an intonational operation, see 6.4.2.2).

The extension of the pitch span and downdrift reset are introduced with PPLs and the other three boundary tones and the IP-final register raising or (standing alone) final pitch rise: final (\uparrow)H%, final rise \uparrow % and the \uparrow HL% boundary tone.

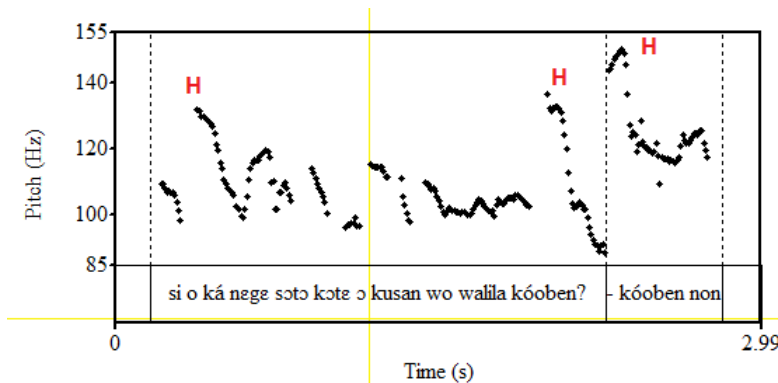
The partial downdrift reset which accompanies left PhP boundary never raises H to the top of the pitch range, it is discussed Section 5.3.4.1. Differently from that, \uparrow realized on PPLs or as a part of the boundary tone is usually realized higher or at the same level as the first H of the IP, see Examples (6.5)-(6.6 b) in 6.3.2.

6.3.2 Register raising and downdrift reset

Discourse-prominence is translated in Kakabe into register raising. The latter should be distinguished from the automatic upstep of the last H in a HHL sequence, see Section 5.2.2. By contrast to automatic upstep which is case of phonetic coarticulation of tones, register raising signals pragmatically prominent part of an utterance. This kind of register raising is illustrated in (6.5), an excerpt from a conversation between a carpenter and his friend, Amadou Maka. The question pronounced by the latter has a H peak at the beginning, followed by a total downdrift reset on the last word, so that the last H tone is pronounced at the same pitch level as the first H. The adverb *kóòbèn* has an important discursive function. It is similar to French *bien* and is used with with the meaning ‘indeed’, ‘well’. It can be used as a manner adverb or as a quantifier. This is the word which is taken up by the other speaker which also points to its discourse prominence.

- (6.5) *sì ò ká nègéé sòtó kòté ó kùsán wò wàlilà ↑kóòbèn*
 sì wò ka nège-È sòto kòte wò kùsan wò wáli-la kóòben
 if 2PL PFV.TR iron-ART get then 2PL be.able 3SG work-GER a.lot
 ↑kóòbèn nòn
 kóòben nòn
 a.lot DISC

When you buy iron, then you know indeed how to work with it? - Yes, indeed.



The downdrift reset, reflecting the prominence relations as in (6.5) above, does not create a new IP, since otherwise it would be preceded by a boundary tone.

There are three ways in which the tonal space can be explored in the course of the speech being uttered: 1) normal pitch span (defined for each speaker), 2) increase of the pitch span, so that the H tone becomes higher, but the L tone remains at the same level as in the normal pitch span, 3) the raising of the register, where both H and L are higher, (Ladd 2008). The graphic representation from (Ladd & Patterson 1999) of these three regimes is given below:

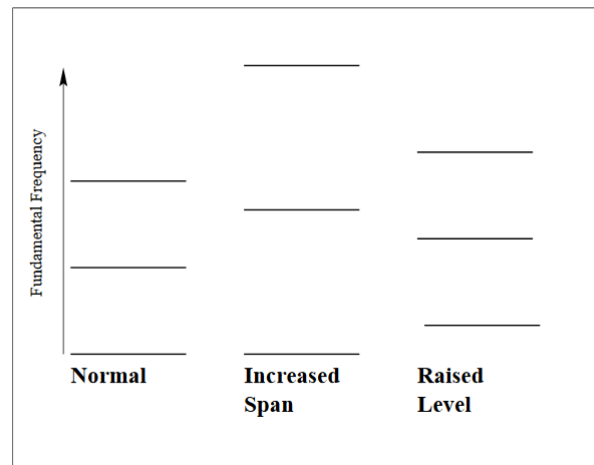


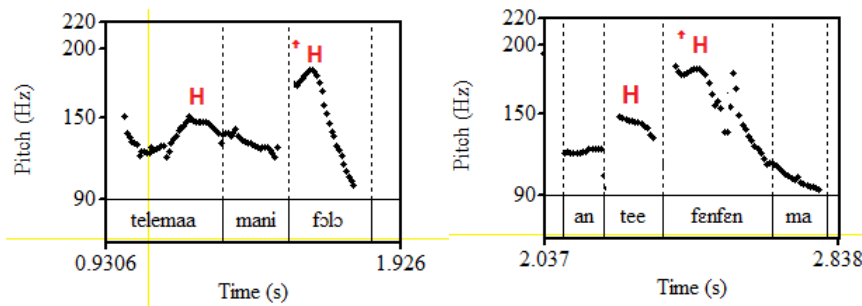
Figure 6.1: Possible variations in span and level (Ladd & Patterson 1999)

In Kakabe \uparrow H is the result of the increase of the pitch span rather than of level raising: a L after \uparrow H falls to the bottom of the pitch span.

Example (6.6 a) illustrates the realization of the \uparrow HL% boundary tone and (6.6 b), that of the \uparrow HL tone of the free-choice pronoun *fěnfě̀n* ‘anything’. These two utterances are pronounced by the same speaker, for whom the normal pitch range is about 90Hz-150Hz, and \uparrow H exceeds this span, cf. the realization of the preceding simple H in the same IP. And the L following \uparrow H is realized at the level of L corresponding to the normal pitch span which shows that we are dealing with the increase of the pitch span.

(6.6) (a) *tèlè máà* *màni* \uparrow *fɔ̀lɔ̀*
 tèlema-È máni fɔ̀lɔ̀- \uparrow HL%
 dry.season-ART COND start-BT
 When the dry season starts.

(b) *àn* *tée* \uparrow *fěnfě̀n* *mà*
 ànu tée fěnfě̀n má
 3PL POT.NEG thing.FR do
 They cannot do anything.



In certain cases extra-high tone is realized only as downdrift reset without exceeding the normal pitch.

In Kakabe, the raising of the level \uparrow can have three types of association: with the H tone of a PPL (see 6.5.1), with the IP-boundary H tone and, finally, it can be realized independently as intonational raising at the right edge of IP (see 6.4).

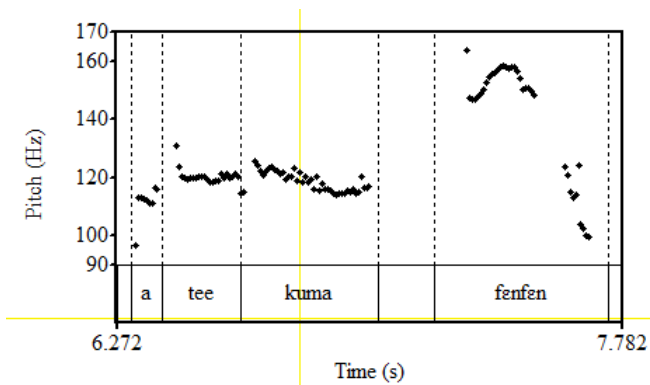
6.3.3 Phonetic implementation of \uparrow H

\uparrow H is realized either at the top of the normal pitch span or higher than it. Thus, though the increased pitch span is not an obligatory phonetic correlate of \uparrow H, the downdrift reset is. Since Kakabe is a downdrift language, the top of the normal pitch range corresponds to the first H in the IP. When the IP contains an element with a \uparrow H the latter is realized either at the same level as the first H or higher.

Thus, the extension of the pitch span is a frequent but not obligatory phonetic correlate of \uparrow H. Examples 6.7-(6.10) illustrate the case when the pitch extension does take place. Thus, in (6.7) the tone on *fénfèn* ‘anything’ surpasses 160 Hz, whereas the normal pitch span of the speaker is 90-130 Hz.

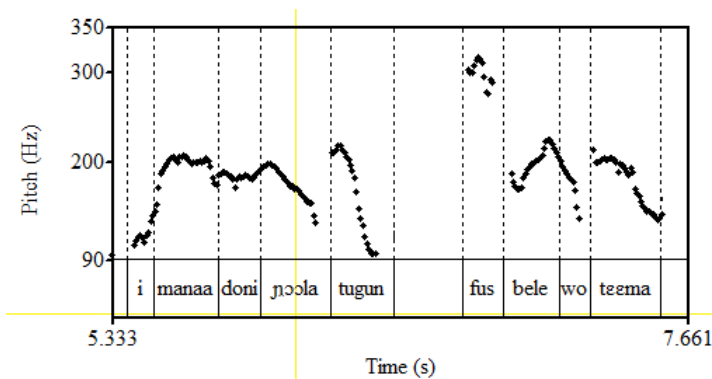
(6.7) *à téé kúma(0.2) ↑fénfèn*
à téé kúma ↑fénfèn
 3SG POT.NEG talk thing.PI

[She couldn’t dress herself, she couldn’t eat,] she couldn’t speak. [She couldn’t do] Nothing at all.



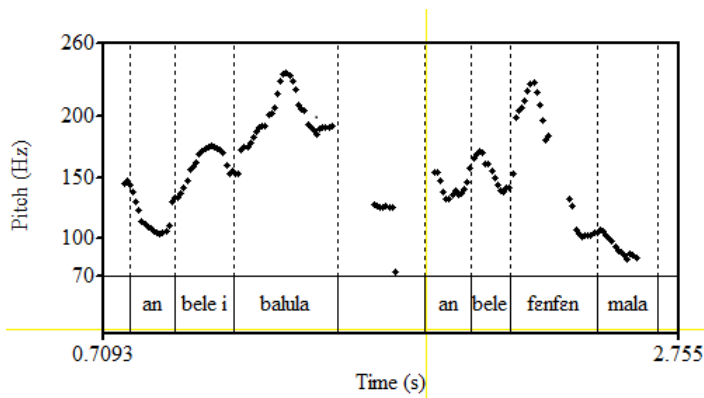
In (6.8) below $\uparrow H$ is at the beginning of the second IP is considerably higher than the $\uparrow H$ as part of the $\uparrow HL\%$ boundary tone at the end of the preceding IP.

- (6.8) *ì mánáá dònì nǒǒ là $\uparrow tǔgùn(0.31)$ $\uparrow fús$ $\uparrow bélé$ wò téeà*
ì máni à dònì nǒǒ la tǔgun- $\uparrow HL\%$ $\uparrow fús$ béle wò téeà
 2SG COND 3SG send there OBL TOP.SH NPI be.NEG 2PL between
 When you've brought it there, there is nothing [to talk about] between you two.



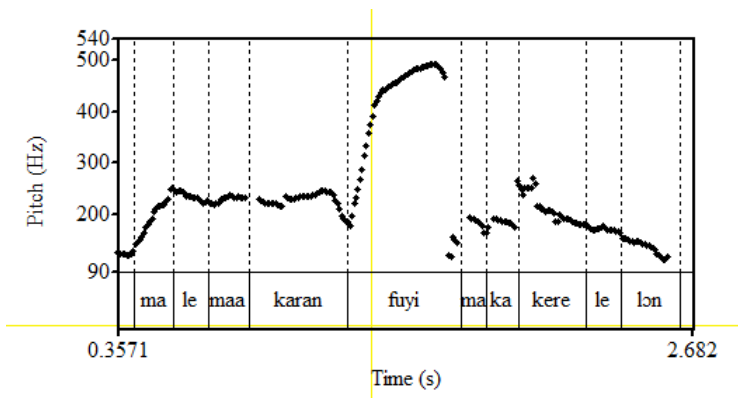
In (6.9) $\uparrow H$ as a part of the boundary $\uparrow HL\%$ tone and $\uparrow H$ on $\uparrow fénfèn$ are both realized in a pitch range which is larger than the normal pitch range.

- (6.9) *àn bélé i bá $\uparrow lúlá$ àn bélé $\uparrow fénfèn$ màlà*
ànu béle i bálu-la- $\uparrow HL\%$ ànu béle $\uparrow féfèn$ má-la
 3PL be.NEG 2SG feed-GER-HL.BT 3PL be.NEG nothing do-GER
 They don't feed you, they don't do anything.



The utterance in (6.10) is an example of a very large rise of tone: $\uparrow f\acute{u}yi$ ‘nothing at all’ is realized with a tone almost 250Hz higher than the tone before it, whereas the usual size of excursion is between 10Hz and 30Hz¹⁰. The extra-raised register of $f\acute{u}yi$ affects the tones of the whole utterance. Two L tones are eliminated in anticipation of the register rise: first, the L on the focus marker $l\grave{e}$, second the L $k\grave{a}ran$ ‘to study’. This kind of anticipation is not uncommon, see also (6.99) where the tone of the verb is not lowered after the DO pronoun, as expected because it is followed by the ideophone $\uparrow f\acute{a}s$ realized in the raised register.

- (6.10) *m\grave{a} l\grave{e} m\acute{a}a k\grave{a}r\acute{a}n $\uparrow\uparrow f\acute{u}yi$ m\grave{a} k\grave{a} k\acute{e}^{\star}r\acute{e} l\grave{e} l\grave{o}n*
m\grave{a} l\grave{e} m\acute{a}a k\grave{a}r\acute{a}n f\acute{u}yi m\grave{a} ka k\acute{e}ri-\grave{E} l\grave{e} l\grave{o}n
 1PL LG IDENT.NEG study at.all 1PL PFV.TR hoe-ART FOC know
 We didn’t study at all, the, how, that’s what we know.

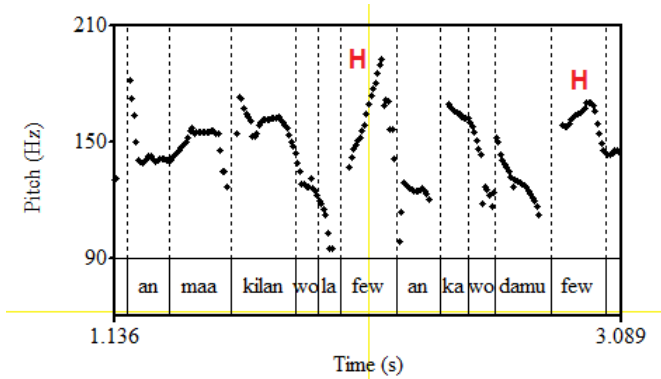


Examples (6.11) and (6.12) illustrate the realization of $\uparrow f\acute{e}w$ ‘absolutely’ both within the limits of the pitch range and surpassing it. As can be seen, compared to the highest tone in the preceding part of the clause, the tone of $\uparrow f\acute{e}w$ can attain the level higher than the preceding H

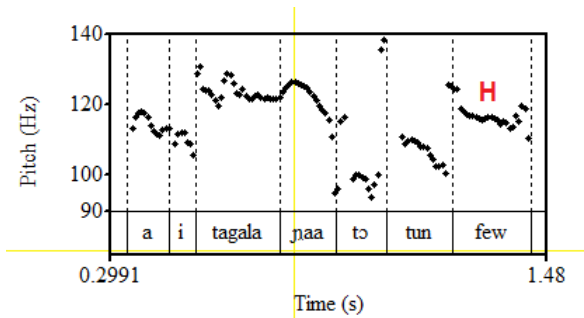
10. Not surprisingly, such cases of extreme prosodic highlighting provoke an accordingly strong reaction of speakers. In my records, in all the cases when the speaker attains a very high pitch level (which implies the size of excursion of more than 50Hz), the listeners around start to laugh.

tone (the first clause in (6.11)), it can be realized at the same level (the second clause in 6.11), finally, it can be realized slightly lower (6.12).

- (6.11) *àn máá kilán wò là †féw àn ká wò dāmù †féw*
ànu máa kílán wò là †féw ànu ka wò dāmu †féw
 3PL PFV.NEG be.afraid that OBL at.all 3PL PFV.TR that eat at.all
 They were not at all afraid of it, they ate it without hesitation.

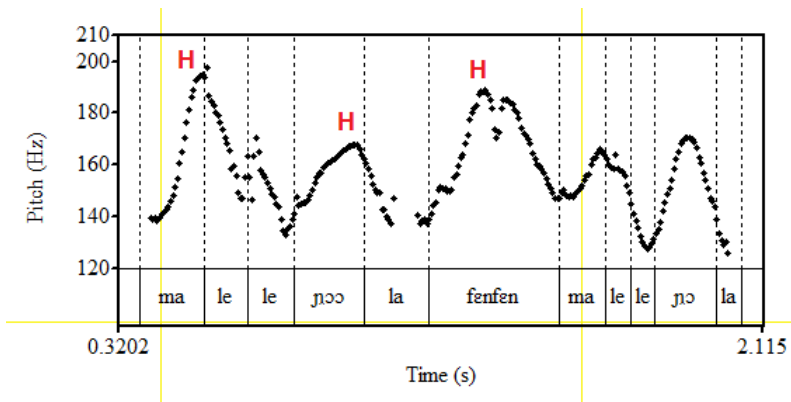


- (6.12) *à ì tágáá nǎà tò tún †féw*
à bi tága-la nǎà tò tún féw
 3SG be go-GER front.ART to only at.all
 It just goes on forward.

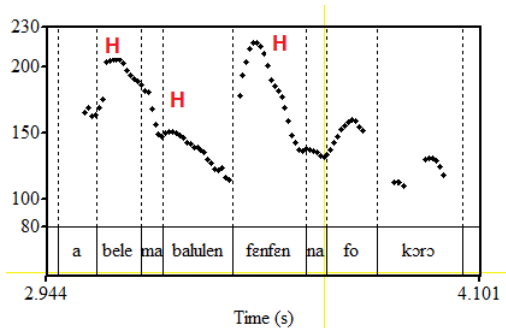


In (6.13) and (6.14) *†fɛnfɛn* is realized within the limits of the normal pitch range, in (6.13) H on *†fɛnfɛn* is slightly lower than the first H or the IP, and in (6.13) it is slightly higher. But in both cases they are realized close to the top of the pitch range and also perceptibly higher than the preceding H, see the H on *nóó* ‘there’ an *bálu-len* ‘live-PC.STAT’ accordingly.

- (6.13) *mǎ lè lè nǎó là †fɛnfɛn mà lé lè nǎó là*
mà lè lè nǎó la †fɛnfɛn mà lè lè nǎó la
 1PL LG FOC there OBL thing.PI 1PL LG FOC there OBL
 We are here, whatever happens, we are here.



(6.14) *à bélé mà bàlùlèn fénfèn nà fó kòróò*
à béle mà bálu-len fénfèn la fó kòro
 3SG be.NEG 1PL feed-PC.ST thing OBL except rice
 They don't give us anything to eat except for rice.



6.3.4 The data

For the analysis of Kakabe intonation system I used almost exclusively the records of natural conversations, with the total duration of more than seven hours (see the texts with more than one speaker in Appendix C). Most of the records are natural conversations produced in the course of interaction between at least two speakers. All of them are audio- and video-recorded. Thus, even though I didn't carry out any systematic analysis of any non-verbal signals, this information could be useful for the better understanding of the situation of interaction between the participants of the conversation.

Every stretch of speechflow in this data has a clearly identifiable recipient who is responsible for monitoring the speech. This means that even if one person dominates the ground, he never speaks 'alone' or 'to himself': there is always a person who either answers his questions (and thus becomes the active speaker) or, if no question is asked, manifests his attention by vocalization (*uh-m, awa* ~ 'okay', *ɛɛy* 'yes' etc). Crucially, these tokens of attention from

the recipient (the less active participant) are never random: they appear after one of the four intonation contours (discussed below), or after discourse particles (usually also hosting an intonation contour). This means that speech contains formal cues for the listeners where he is supposed to react, so that their interaction does not break down. So, natural speech is always manifestly an interaction between people, and secondly, at least some formal characteristics of the speech are designed for this interaction.

6.4 IP-final prosodic operations

In this section I will describe the realization and the functional distribution of IP-final tonal morphemes and the IP-final pitch rise. Kakabe has three IP-final tonal morphemes and final pitch rise which distinguish between illocutionary types of utterances:

Underlying form	Referred to as	Description
(↑)μ̂%	(↑)H%	final H associated with a floating mora and optionally with the pitch level rise ↑;
↑μ̂μ̂%	HL%	final HL tone associated with two floating moras and preceded by the pitch level rise ↑;
μ̂%	L%	final L associated with a floating mora;
↑%	↑%	final pitch rise, realized after the final mora.

Table 6.2: IP-final tonal and intonational operations

As can be seen, phonologically, this is a mixed group. (↑)H%, ↑HL% and L% are associated with floating moras and, as shown later in the chapter, display the behavior similar to lexical tones, in particular, the referential article. At the same time, (↑)H%, ↑HL% are associated with the raising of the pitch level which is optional of the former and obligatory for the latter. The fourth IP-final operation is manifested through the pitch rise ↑ only which is realized after the last mora, and is not associated with any TBU. In glossed examples these four IP-final operations are represented as in Table 6.3, BT stands for boundary tone, and Fin.R for final rise.

IP-final operation	2nd line in Example	Gloss
(↑)μ̂%	-H%	-H.BT
↑μ̂μ̂%	-↑HL%	-HL.BT
μ̂%	-L%	-L.BT
↑%	-R%	-FinR

Table 6.3: Representation IP-final operations in glossed examples

The opposition between the four IP-final operations are exemplified below:

- (6.15) *mùsèè báá kòntònnà*
 1PL be.3SG greet-GER
 The woman is greeting him.

- + ↑HL% *mùsèè báá kòn↑tónnà*
 + (↑)H% *mùsèè báá kòntòn(↑)ná*
 + L% *mùsèè báá kòntónnà*
 + ↑ *mùsèè báá kòntònnà↑*

The IP-final morphemes (↑)μ̂%, ↑μ̂μ̂%, and μ̂% are manifested by mora augmentation of the IP-final syllable, if the final mora of the IP is associated with another underlying tone (for μ̂μ̂% lengthening of the penultimate syllable is also possible, as is discussed in 6.4.5). Otherwise, when toneless moras are available at the end of the IP to which (↑)H%, ↑HL% or L% can link, the floating moras are deleted, and no mora augmentation takes place.

Importantly, the addition of the boundary morphemes (↑)μ̂%, ↑μ̂μ̂%, and μ̂% is preceded by Tone Leveling which can lead to the deletion of PhP-final H tone(s)¹¹. In this case, if the final TBUs of the IP are ‘liberated’ from the underlying H tone(s), becoming available for the association of the tone of the boundary morpheme, see Sections 6.4.4.5 and 6.4.5.5 for the examples.

I will use the notation (↑)H%, ↑HL% and L% for the three boundary morphemes, though, it should be kept in mind these are morphemes which are not purely tonal, and each tone is associated with a floating mora which can be manifested in moraic lengthening.

11. This tonal operation is discussed in Section 5.6 in the previous chapter.

As for the function of boundary tones, they occur in the speech flow at a point after which the interlocutor either takes her turn or pronounces a token of attention. Thus, they mark a transition relevance point in the conversation.

L% is a final intonation after which the other speaker can take her turn. When a question word is present in the utterance the IP-final L% contributes to signaling a question. The final rise ↑% can be the signal of turn-keeping or, on the contrary, they can mark a question, and thus solicit the interlocutor's entry onto the scene. (↑)H% is either a marker signaling the end of a passage with predicate negation, or a continuation marker. Finally, the bell-shaped ↑HL% final contour always signals turn-keeping: after units ending with this contour the interlocutor normally does not take his turn but expresses his acknowledgment which is taken as an encouragement to continue.

This configuration is represented in Table (6.4) where each of the boundary tones is related to one of three ways of advancing the conversation, formulated as a three-way distinction between turn-ending (final intonation), turn-yielding (question) and turn-keeping (continuation). The range of utterance types is not exhaustive, for example, I don't discuss the marking of exclamation.

	Turn-end	Turn-yielding	Turn-keeping
L%	+	+ (question word)	-
↑%	-	+	+
(↑)H%	+ (negation)	-	+
↑HL%	-	-	+

Table 6.4: Final contours as transition-relevance place

It should be noted that the list of functions represented in Table 6.4 is not exhaustive: apart from turn-taking, intonation patterns and boundary tones also serve to indicate the attitudes and emotions of the speaker. But, for the consideration of space I do not discuss it here.

All of the three upward final contours (↑)H%, ↑% and ↑HL% which can be referred to as 'upward' since they involve a H tone and/or a pitch rise can signal continuation and are opposed to the downward L% associated with finality. The register raising associated with final ↑H%, ↑% and ↑HL% create a peak which is higher than the last lexical tone which can be H or L, lowered by downdrift or not. The difference between the three upward IP-final operations is defined by the timing of the peak, by its closeness to the right edge of the IP. In ↑HL% the peak is hosted by the penultimate mora, in (↑)H% the peak is hosted by the last mora and in the ↑% contour the peak is aligned after the last mora (on the final part of the mora).

6.4.1 Example

The usage of some of these contours are illustrated in (6.16), an excerpt drawn from a conversation recorded in the Nyamayara village in December 2013. It contains a part of a dialogue between Mammadou Kamara (MK) and a young woman Noumoula Keyta (Num.K). The topic of the current stretch of conversation is the activities of women during Ramadan. In (6.16) below every PhP occupies a separate line, the beginning of the IP is marked by visible horizontal line which thus also signals the downdrift reset (for the description of the properties of PhP and IP in see Section 5.3.4 in the preceding chapter). The boundary tone at the end of IP is given in the column between the transcription and the translation. When IPs are separated by pauses and/or by tokens of attention from MK [mhm], this is noted on a separate grayed-out line.

(6.16) Extract from a conversation (Nyamayara, December 2013)

MK	1a	<u>Nùmùlà Kéétà</u>	L%	Noumoula Keyta,
	2a	wó lè		as for you,
	2b	súúmá ⁺ yé mán dòn		when Ramadan begins
	2c	wò ì fén dè wàlilà		what do you do
	2d	súúmá ⁺ yé búútè tò		during Ramadan
	2e	<u>wò lá kàyéèni yèn</u>	L%	for your husbands?
Num.K	3a	ááà ... súúmáyè mán dòn↑	↑%	When the Ramadan begins,
MK		<u>mhm</u>		
	4a	mà ì mín bààràlà↑	↑%	what do we do ?
MK		<u>mhm</u>		
Num.K	5a	súúmá ⁺ yé mán dò:n		When the Ramadan begins,
	5b	mà bí: (0.17) tùgú ⁺ ré lè kè↑élà	HL%	we do pounding.
MK		<u>mhm</u>		
Num.K	6a	sàgòè ↑máà	HL%	In the morning
MK		<u>mhm</u>		
Num.K	7a	<u>mà nì jéè sò↑rùì (0.46)</u>	HL%	we scoop water
	8a	mà ì mín ⁺ kéla		and we do thus
	8b	<u>mòðnéè là↑ (0.16)</u>	↑%	with the porridge
	9a	mà ní wò fòó báára sàgòèmà		we do it all in the morning,
	9c	<u>mà náá ⁺làsìgì (0.94)</u>	L%	we put it [in the hut].
Num.K	10a	ùràà mán mádòn↑	↑%	When the evening comes,
MK		<u>mhm</u>		
Num.K	11a	kàyéén nì ...		men
	11b	súkkará sòn ⁺ gé dí mà bòlò↑ (0.31)	↑%	give us money for sugar.
MK		<u>mhm</u>		
	12a	àn náà fɔ̃		They tell us
	12b	mà nì wílì	L%	to go working
MK		<u>mhm</u>		
Num.K	13a	háàrà̀nù sùndèn	L%	so, they fast.

As can be seen, the size of the IP can vary considerably. In the speech of MK five PhPs are united into the IP-2 by one boundary tone in the question of MK, whereas Num.K divides her speech in shorter IPs, consisting of one or two PhPs and only once of three PhP. It should be said that MK, who is very present in my records, has the tendency to utter IP units which generally contain more PhP than those of his interlocutors. Thus, the chunking into IP may depend on the individual preferences of the speaker. The length of PhP also varies a lot, cf. (11a) and (11b). Looking at the correspondence between IP and syntactic units, apart from clauses, a separate IP can be formed by a vocative phrase (1a), by an adverbial phrase (7a).

Let's now look at the distribution of the boundary tones in the example. The two IP pronounced by Num.K in (6.16) end with L% which are the address and the wh-question.

Num.K starts her description with repeating the question (3a) and (4a) where ↑% is used. Boundary H or rising tone is almost universally associated with general question and with non-finality. In affirmative sentences it marks uncertainty of the speaker or the fact that his speech is not finished. Steedman (2007) defines the role of the high boundary in English as follows: "The basic sense of high boundaries is to identify the hearer as in the speaker's view committed to the relevant information unit" (251). In line with that, in (6.16) the IPs ending with ↑% are almost all responded to by [mhm] which signals that the hearer is following to what is said.

As the ↑% , the ↑HL% boundary tone occurs in non-final clauses, and requests the confirmation of the involvement of the speaker, as can be seen they are also followed by [mhm] in (6.16).

The L% occurring at the end of (9c) is a sort of a paragraph marker: it is a preliminary stop before passing to the other part of the story, namely, to what happens in the evening. Importantly, it is followed by the longest pause in the extract.

In what follows I discuss all boundary tones, first the distinctive phonological features of the edge tone and the interaction with lexical tones, second its function in discourse.

6.4.2 Final L%

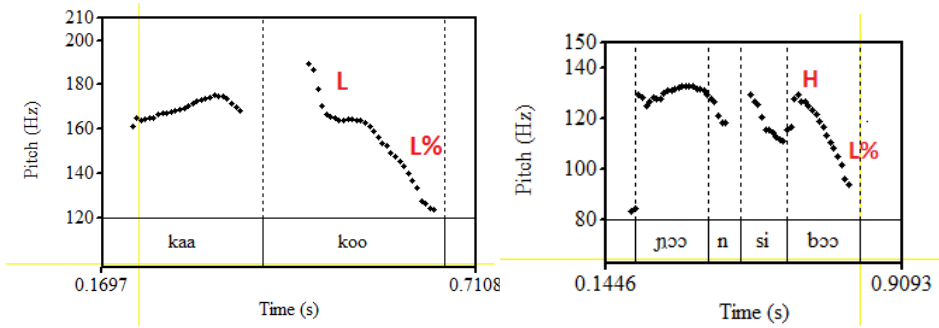
6.4.2.1 Realization of L%

The final L% signals finality, see Example (6.30) and (6.32) in before. Apart from that, L% occurs at the end of question that have segmental markers of interrogation: wh-questions containing a question word and alternative questions containing a special interrogative marker of the alternative question *káa*.

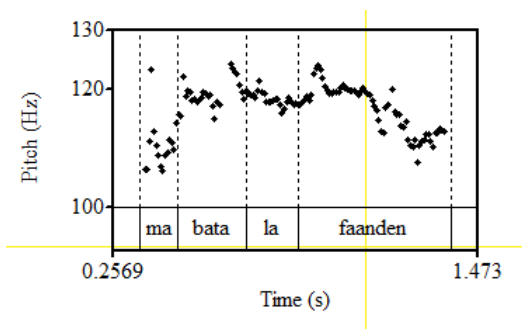
The final L% is canceled under certain conditions in IPs containing determiners *fó* ‘all, every’ and *wó* ‘any’, see Section 6.5.3.5. Related to this case, L% is absent in IP containing utterance negation, see Section 6.4.4.2.

L% is aligned on the final mora of the IP. Example (6.17a) and (6.17b) show the realization of L% tone in an all-H utterance and in an all-L utterance respectively. As can be seen, when an IP ends with a monosyllabic verb, the latter is pronounced with a long vowel, and thus L% is hosted by the second mora.

- (6.17) (a) *kàà kòò*
 kà à kò-L%
 INF 3SG wash-L.BT
 ‘... and to wash it’.
- (b) *ɲóò ò si bóò*
 ɲóò ò si bó-L%
 then 1SG POT go.out-L.BT
 ‘Then, I will go out’.



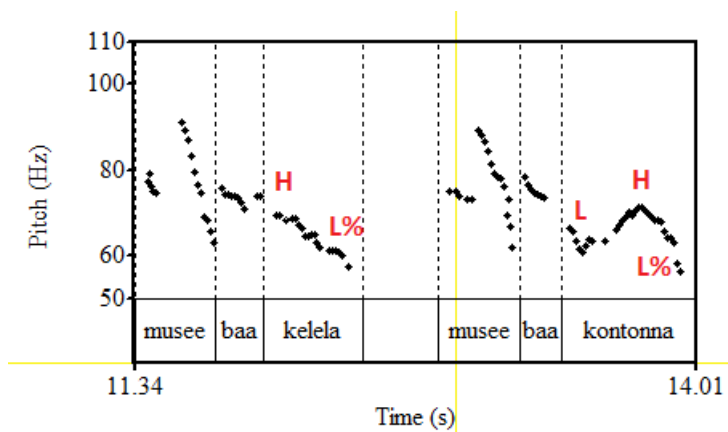
- (6.18) *mà bátá láfáándèn*
 mà báti à la-fá-nden-L%
 1PL PFV.OF 3SG CAUS-be.full-PC.ST-L.BT
 We filled it.



Examples (6.19a) illustrate the realization of L% on IPs where the last lexical tone links to the third syllable from the end. If the final lexical tone is L and there is a mora available, L% attached to a final L can cause the appearance of HS, as in (6.19b).

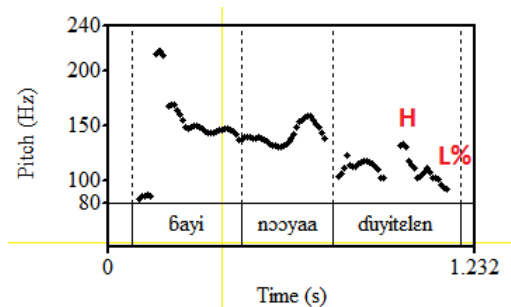
(6.19) (a) *mùsèè* *báá* **kélélà*
 mùsu-È bi à kéle-la-L%
 woman-ART be 3SG call-GER-L.BT
 ‘The woman is calling him.’

(b) *mùsèè* *báá* *kòntónnà*
 mùsu-È bi à kònton-la-L%
 woman-ART be 3SG greet-GER-L.BT
 ‘The woman is greeting him’.



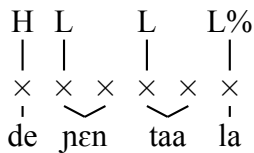
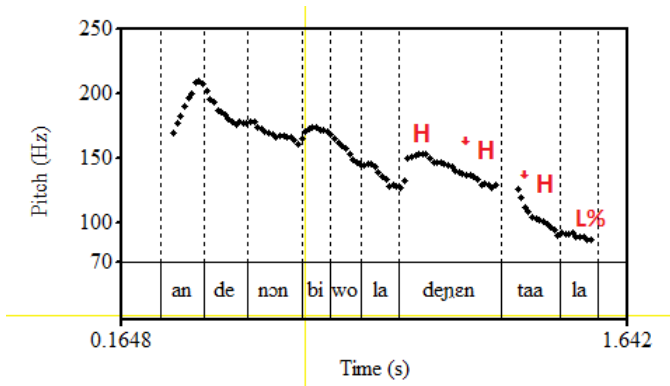
Example (6.20) is another illustration of HS triggered by L%:

(6.20) *ḃáyì* *nòḃyáà* *dūyitélèn*
 ḃáyì nòḃya-È dūyite-len-L%
 since slavery-ART diminish-PC.ST-L.BT
 The slavery diminished.

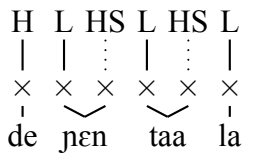


The HS inserted before L% can then undergo left spread due to Medial Tone Leveling. See (6.21), where two HS tones are inserted and both undergo left spreading, leading to the delinking of the preceding L tones, as shown on the schema below.

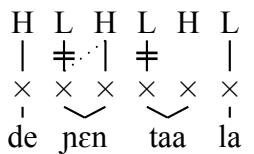
(6.21) *ǎn dè nòn bí wò là dè⁺nén ⁺taálà*
ànu lè nòn bí wò la dén-È-nu tà-la-L%
 3PL LG be 2PL POSS child-ART-PL take-GER-L.BT
 It's them who take your children.



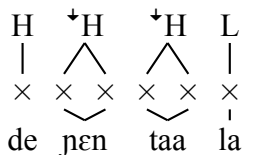
Linking of L% to the last mora of the utterance



Insertion of HS tone between the adjacent L tones



Spread of both H tones to the left due to Medial Tone Leveling, leading to the delinking of the preceding L tones



Surface realization

The only two monomoraic morphemes with a lexical tone which can occur at the end of an IP is the focus marker *lè* and the referential article *-È*. L% converges with the lexical L of these two morphemes, and is consequently not manifested in the tonal curve. Thus, *lè* or a NP with article is pronounced the same way when it is at the end of an IP with L% or when

it is in the IP-internal position.

This contrasts with the situation when *lè* or the article hosts (↑)H%, ↑HL% or ↑%. As has been shown above, these three boundary tones are all added after the lexical L, followed by mora addition if necessary. Thus, contrary to (↑)H% and ↑HL%, L% never induces mora addition, but this is explained by the fact that, first there are no monomoraic morphemes with H tone which can occur IP-finally, and L% converges with the L on the final mora.

Another special feature of L% is that it can be blocked by the presence of a determiner with ↑H, see Section 6.5.3.5 and replaced by (↑)H% in IPs with negation, see Section 6.4.4.

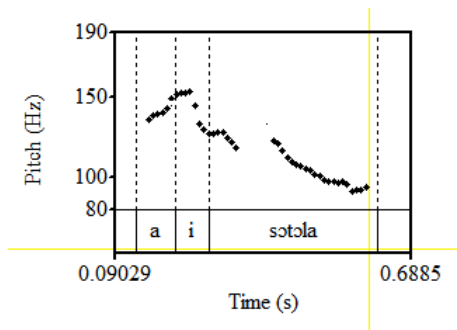
6.4.2.2 *Boundary L% and final lowering*

Utterance-final low tone is a very common phenomenon cross-linguistically, and it occurs in all kind of prosodic systems, Japanese, English, Dutch, Yoruba among many others, see (Rialland & Aborobongui 2016: 12) for references. Final lowering is opposed to downdrift and declination, as a local phenomenon, realized on the last mora or syllable of an intonation unit (Michaud 2017: 370). The question is whether in tonal languages final lowering is part of the tonal system or, rather, belongs to intonation. Its realization varies across languages. Besides being realized as low it can also be realized as extra-low, going to the bottom of the speaker's pitch range. In Embosi (Bantu) the final lowering is realized extra-low and can be associated with devoicing (Rialland & Aborobongui 2016: 12). Final lowering can be a low plateau, as in Chichewa, or a final fall, as in Bemba and Embosi.

The reference to the bottom of the pitch range indicates that the phenomenon in question is intonational, rather than tonal, and the association with devoicing also points in this direction.

Nevertheless, as has been shown, in Kakabe IP-final L triggers the insertion of HS and, at least in these cases, it should be considered a part of the tonal system. At the same time, according to my observation, as in the mentioned case of Embosi, final lowering can be associated with devoicing. It is also not totally clear to me whether the HS insertion between this final low is obligatory or not. This is not always easy to determine due to tone-leveling, described in Section 5.6 which transforms HLHL sequence into H⁺HL and therefore can make the realization of HS less salient in the tonal curve. Thus, the tonal curve in (6.22) could be interpreted in both ways.

- (6.22) *à i sətòlà*
 à bi sətɔ-la-L%
 3SG be get-GER-L.BT
 It can be obtained.



First, it may result from the IP-final L, HS insertion and the following application of tone leveling, as in (6.23 a). Second, it might be the realization of L tone lowered further by intonational lowering (6.23 b).

(6.23) (a) $\grave{a} \acute{i} \grave{s}\grave{o}t\grave{o}l\grave{a} \rightarrow \grave{a} \acute{i} \grave{s}\grave{o}t\acute{o}l\grave{a} \rightarrow \grave{a} \acute{i} \uparrow \acute{s}\acute{o}t\acute{o}l\grave{a}$

(b) $\grave{a} \acute{i} \grave{s}\grave{o}t\grave{o}l\grave{a} \downarrow$

It is possible that in Kakabe in some cases a final boundary L% is realized, and then a HS is inserted, and in others the final lowering is intonational. A more thorough analysis is needed to have a clear answer, so far, as an interim decision I describe the final lowering in Kakabe as a boundary tone

6.4.3 Final rise $\uparrow\%$

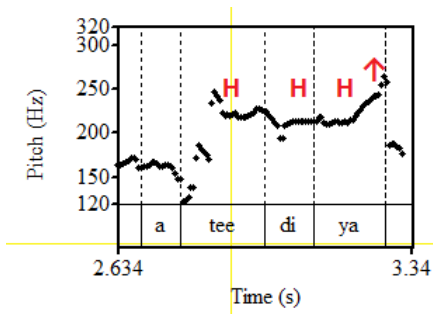
The realization of the final pitch rise $\uparrow\%$ which is the simplest case among the upward final contours, since, being a purely intonational operation, it does not interfere with the lexical tones of the utterance. As to its function, final rising is used in general questions, (??), (??) and as continuation intonation (6.26).

As has been said above, $\uparrow\%$ is realized **after** the last mora. It does not need a segmental host since it is an intonational operation which is realized sequentially after the lexical tones. If we consider that tone of $\uparrow\%$ is a structurally different item compared to tone, this explains why it never replaces the tones.

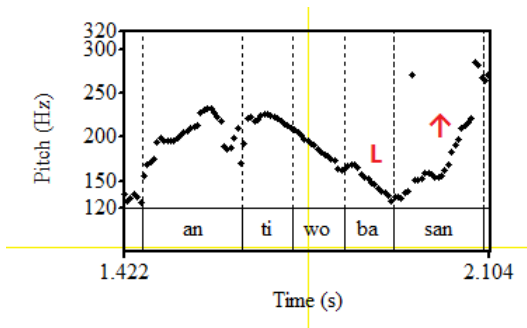
Example (6.24) illustrates the realization of $\uparrow\%$ added onto a H lexical tone and Example (6.25) illustrates the realization of $\uparrow\%$ after a L tone.

(6.24)

\grave{a} *tée* *díyá* \uparrow
 \grave{a} *tée* *díya*-R%
 3SG NEG.POT please-FinR
 Will it not be good?



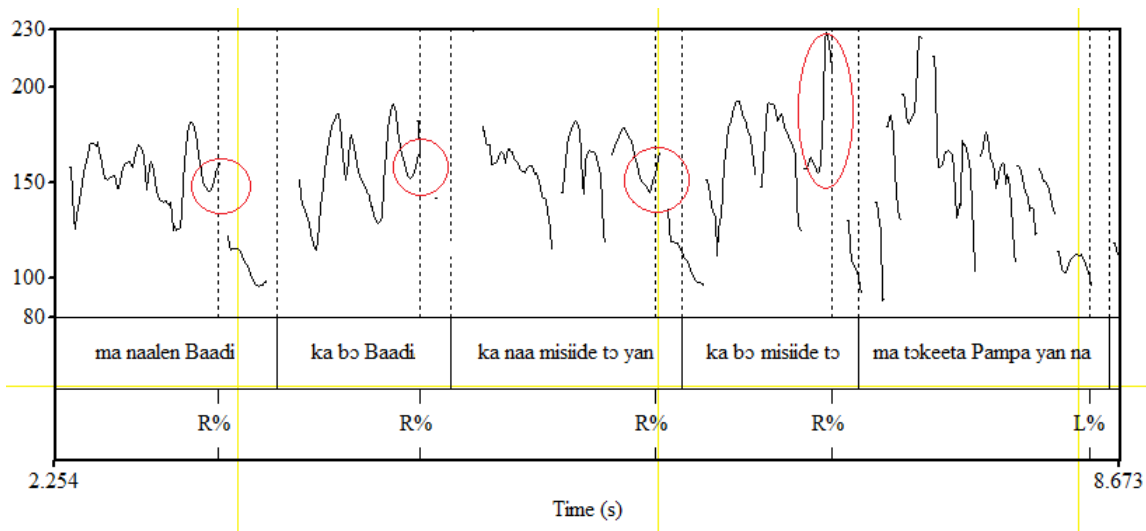
(6.25) ànú tí †wó bàsàn↑
 ànu báti wò bàsan
 3PL PFV.OF that mix
 They have mixed it



The excursion size of pitch rise may vary, cf. (6.25) with a large size of excursion, and (6.24) where the excursion smaller, I will refer to this type of boundary tone as minor ↑%.

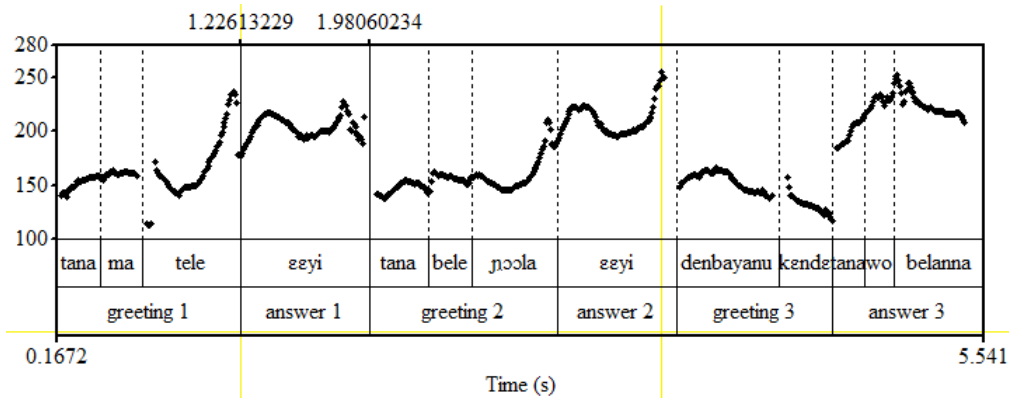
In the case when ↑% is used to signal a theme, the difference between major vs. minor ↑% correlates with the closeness to the rheme. Example (6.26) contains five propositions conveying a sequence of events. The first four correspond to IPs ending with ↑%, and the fifth to the IP is marked as the endpoint, and as the rheme with the L%. The ↑% which immediately precedes is a major rise, much more prominent than the preceding three rises.

(6.26) mà nààlén Bààdí↑ We came to Baadi,
 kà bó Bààdí↑ and when we came to Baadi,
 kà nàà mìsíídè tó yàn↑ we came to the market place there,
 kà bó mìsíídè tì↑ and we left the market place
 má t̀k̀k̀è̀t̀à Pámpá yàn nà↑ and we arrive to here, to Pampa.



Apart from signaling the transmitting of the turn from one speaker to another or, on the contrary, its continuation, the final rise can also serve to signal the change or continuation of a certain type of the discussed topic. Let’s look at Example (6.27) below which contains a conventional sequence of greeting-answer pairs. Importantly, in the first two pairs each turn ends with a rising pitch, whereas the last pair of turns does not have any final upward tone movement. Thus, the role of the rising movement of tone in this case is to signal the continuation of a certain “genre” of interaction, greeting in this case.

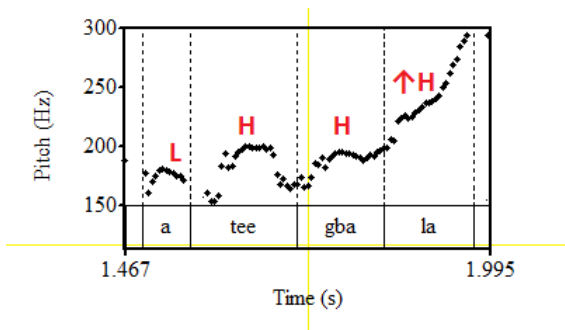
- (6.27) *tàna maa tèle*↑ Is there no trouble?
 - *ééyi*↑ -Yes
tàna béle jòòlà↑ Is there no trouble there?
 - *ééyi*↑ -Yes
dénbáyànù kèndè Are your family fine?
 - *tàna wó beláanna* - They are fine



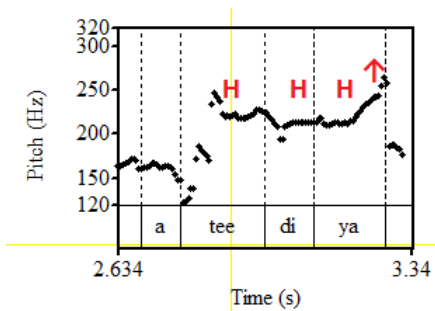
6.4.4 Boundary (\uparrow)H%

Contrary to Final Rise aligned at the end of the last syllable of the utterance, the boundary (\uparrow)H% is realized on the entire last syllable of the utterance it is associated with. Compare (6.28) and (6.29) (the latter a reproduction of Example (6.24) already discussed earlier). In (6.28) the second syllable of the H-toned verb *gbála* ‘dry’ is realized at a higher level than its first syllable. By contrast, in (6.29) the second syllable of the H-toned verb *díya* ‘please’ is realized at the same height as its first syllable, and the rise to a higher level takes place later. Thus, the difference between Final Rise and (\uparrow)H% is in the timing of the transition to a higher level. The two utterances also differ by illocutionary force: is a negative assertion, whereas (6.29) is a question.

(6.28) *à téé gbá↑lá*
 à téé gbála-H%
 3SG POT.NEG dry-H.BT
 It won't try.



(6.29) *à téé díyá↑*
 à téé díya-R%
 3SG NEG.POT please-FinR
 Will it not be good?



The alignment of (↑)H% and is described in more detail in Sections 6.4.4.4. Before that, in Sections 6.4.4.1-6.4.4.3, I discuss the functions of the (↑)H% boundary tone.

6.4.4.1 Boundary (↑)H% as continuation marker

(↑)H% contributes to establishing a thematic relation of one uttered chunk of information with respect to some further sequence. Examples (6.30)-(6.32) illustrate the use of (↑)H% in affirmative utterances where it signals that more is to follow. In (6.30) in both cases it appears at the end of a matrix clause which introduces some content:

(6.30)

<i>fó mà ní wó jìnìnká mà náà lón-H%</i> ,	We need to ask you in order to know
<i>fě̀n dè máátá à sáboè là-H%</i> ,	what is the reason that
<i>má lè má nènènè kéléjènù̀ bì táálá jòò là-L%</i>	us, other brothers go there

In (6.31) (↑)H% occurs at the end of two sequences setting up the scene of the main event (with chunking this introduction into three IPs):

(6.31) <i>há̀rì wón tùmá-H%</i> ,	At that time
<i>Sèèkù̀ Tù̀ré-H%</i> ,	when Sékou Touré
<i>dèpitèè lè</i>	was a deputy.

In (6.32) (↑)H% serves to create coherence between three clauses:

(6.32) <i>bá †má lè má nòlén †dé nùn-H%</i>	You see, we were enslaved,
<i>mà kólónízélén-H%</i>	we were colonized
<i>tìbáábòè̀nù̀ nín fúlán dè bòlò-L%</i>	by white people and by Fulbe.

The boundary (↑)H% is frequent in contrastive context, see (6.33), where it occurs at the end of the first clause which from to the second clause by one element:

(6.33) <i>̀n kà ké †lé lón ́n nènènè lá(0.21) ̀n kà ké</i>
<i>̀n ka kè lè lón ̀n nènene la-H% ̀n ka kè</i>
1SG PFV.TR this FOC know 1SG mother OBL-H.BT 1SG PFV.TR this
<i>†lé lón ́n bààbà là</i>
<i>lè lón ̀n bàaba la</i>
FOC know 1SG father OBL

It's her that I know for my mother It's her that I know as my father.

6.4.4.2 Boundary (\uparrow)H% induced by negation

H% has a different usage in utterances with declarative negation as compared to affirmative utterances. (\uparrow)H% in negative utterances is equivalent to L% for an affirmative proposition being used a turn-final marker, as in (6.34):

- (6.34) *háray má máá súúmayè tòtì↑ná*
háray mà máá súumayε-È tòtípa-H%
 DISC 1PL PFV.NEG fast-ART spoil-H.BT
 We don't fail to fast.

In (6.35) the negative utterance in the first line ends with (\uparrow)H%. It finalizes the turn of one speaker and gives way to the turn of another speaker:

- (6.35) MJ: *báà àn tàà dì mà má-↑H%* They didn't give it [the rights] to us.
 AM: *fí ↑fě́n nà?L%* Why?
 MJ: *é? à fí fě́n nà?↑%* So, [you're asking] why?
àn í mà nób-lén ↑dé nùn-L% They were our masters.

The conditions of the use of (\uparrow)H% in negative utterances are formulated below:

1. Negation (\uparrow)H% appears only in main non-interrogative clauses, i.e. it is NOT licensed in:
 - (a) interrogative utterances;
 - (b) subordinate utterances (relativization, conditional protasis, temporal clause, etc.);
 - (c) negative continuation constructions that are associated with particular intonation pattern (see Section 6.6.1).
2. Negation (\uparrow)H% is blocked in the presence within the same IP of a pragmatically prominent lexeme hosting \uparrow H.
3. Prosodic constituency conditions:
 - (a) Negation (\uparrow)H% is IP-final;
 - (b) Negation (\uparrow)H% is licensed locally within the PhP: Negation (\uparrow)H% cannot be separated from the negation operator that triggers it by a PhP-boundary.

The implementation of these conditions is discussed and illustrated in the following three subsections.

6.4.4.2.1 Negation (↑)H% and clause type

As stated in Condition (1), only declarative negation in a main clause can trigger IP-final (↑)H%. If the negation is part of an interrogative utterance, the boundary tone is defined by the type of the question and not by negation. In (6.36 a) the negation is embedded in an alternative question and in (6.36 b) in a content question. Accordingly, L% is assigned to the end of the IP in both cases which is the boundary tone pertaining to these types of questions.

- (6.36) (a) *wò sí m̀̀g̀ò k̀̀rà̀ndén s̀̀t̀ò k̀̀óò̀bèn káá wò máá m̀̀g̀ò*
wò sí m̀̀g̀ò k̀̀rà̀nden s̀̀t̀ò k̀̀óò̀ben káá wò máá m̀̀g̀ò
 2PL POT man learned obtain many or 2PL PFV.NEG man
k̀̀rà̀ndén †s̀̀t̀ò
k̀̀rà̀nden s̀̀t̀ò-L%
 learned get-L.BT

Did you get a lot of educated people or didn't you get any educated people?

- (b) *f̀̀n dè báà màlà háá k̀̀t̀è àn bélé †á f̀̀là*
f̀̀n lè bi à má-la háá k̀̀t̀è ànu bélé à f̀̀-la-L%
 thing FOC be 3SG do-GER until now 3PL be.NEG 3SG say-GER-L.BT
 Why don't they still speak it [the language]?

A subordinate clause with negation can belong to the same IP as the main clause, and it is the latter that defines the boundary tone of the whole. Thus, in (6.37) the conditional protasis clause *sà̀n máá gbéé túgùn* 'if it is not clean' belongs to the same IP as the main clause after it, and the IP in question ends with L%:

- (6.37) *sà̀n máá gbéé túgùn ì náán †t̀† náátí túgùn*
sì ànu máá gbéé túgùn ì ni ànu t̀̀nàati túgùn-L%
 if 3PL NEG.COP be.clean again 2SG OPT 3PL REP-carry again-L.BT

If they are not clean, you have to carry it again.

In (6.38) the conditional protasis clause with negation follows the IP and there is no H% tone either:

- (6.38) *ké lè ò nà áparán†té lá sí ké †yán bélé*
kè lè ò la áparanti-È là sí kè yàn bélé
 this FOC 1SG POSS apprentice-ART LOC if this that COP.NEG
yàn
yàn-L%
 that-L.BT

This one is my apprentice it that here is not present.

When the subordinate clause with negation projects a separate IP, again, it does not end with H%. In (6.39) the conditional protasis with negation is separated by IP boundary from the following main clause and it hosts the \uparrow HL% boundary tone which marks continuation:

- (6.39) *sii máá m̀̀ǹ̀d̀̀d̀̀(0.32) à máá ̀̀j̀̀ǹ̀ i*
sì ì máá à m̀̀nd̀̀-̀̀HL% à máá j̀̀ǹ̀ ì
 if 2SG NEG.PFV 3SG give.a.handfull-HL.BT 3SG NEG.PFV be.good 2SG
lá
 la-H%
 LOC-H.BT

If you don't feed the dog, it's not good for you [because the dog won't get used to you].

Finally, no Negation (\uparrow)H% is present in negative utterances that make part of what I refer to as negative continuation construction, e.g. (6.40). It represents a complex utterance uniting two or several negative clauses and characterized by a particular intonation contour the realization of which is described in Section 6.6.1.

- (6.40) *báà nègèsóó béléé b́́ĺ́ĺ́:(0.2) ̀̀ḿ́t́́ b́́ĺ́èè b́́ĺ́*
báyì nègesoo béle ì bólo mótó béle ì bólo
 DISC bicycle be.NEG 2SG hand motorbike be.NEG 2SG hand
 Well, you don't have either a bicycle or a motor bike.

6.4.4.2.2 Negation (\uparrow)H% and lexemes hosting register raising

As argued in Section 6.5.1, Kakabe has a class of lexemes that are characterized by inherent assertion focus and which host \uparrow H (register raising applied to the lexical H of the lexeme). These are polarity items, the universal quantifier, the emphatic particles, e.g. \uparrow *fó* ~ *fó* 'every'; \uparrow *wó* ~ *wó* 'any'; \uparrow *kóobèn* 'indeed, a lot', etc. According to the condition (2) of the realization of Negation (\uparrow)H%, when the utterance with a sentential negation contains such lexeme, the negation cannot license (\uparrow)H%, see (6.41 a) and (6.42).

- (6.41) (a) *à téé ̀̀f̀̀ǹ̀f̀̀ǹ̀ má*
à téé ̀̀f̀̀ǹ̀f̀̀ǹ̀ má
 3SG POT.NEG do
 They won't do anything.
- (b) *ḱ́nt́́f́́ĺ́ĺ́ ̀̀ẃ́ b́́ĺ́é ì là*
ḱ́nt́́f́́ĺ́ĺ́ ̀̀ẃ́ b́́ĺ́é ì là
 problem UNIV be.NEG 2SG OBL
 You don't have any problem.

Part of these lexemes are always IP-final, e.g. the $\uparrow f\acute{e}w$ ‘absolutely’ in (6.42). In this case the raised $\uparrow H$ could, in principle, be the boundary tone of the negation and the lexeme could be underlyingly toneless. Yet, since other lexemes with a similar pragmatic profile (inherent assertion focus) host $\uparrow H$ when they are IP-medial the analysis of $\uparrow H$ is preferable¹².

- (6.42) *àn máà yèn $\uparrow f\acute{e}w$*
ànu máa à yén $\uparrow f\acute{e}w$
 3PL PFV.NEG 3SG see at.all
 They didn’t see it at all.

6.4.4.2.3 Negation (\uparrow)H% and prosodic boundaries

The third condition implies that in order to trigger the (\uparrow)H% boundary tone the marker of negation must be in the last PhP of the IP, otherwise the PhP boundary blocks the boundary tone. Let’s look at Examples (6.43 a)-(6.43 d), in all of which the negation markers (copulas or auxiliaries) are in the final PhP of the utterance. In (6.43 a) *béle* is in IP-final position, in (6.43 b) it is followed only by a verb with which it forms one PhP. Finally, in (6.43 c) and (6.43 d) the negation marker is followed by DO and a verb that are also included in one PhP in Kakabe (see 5.3.4.2).

- (6.43) (a) *hári wón tùmá nègè bé \uparrow lé*
hári wò-nu tùma nège béle-H%
 PST that-PL time iron be.NEG-H.BT
 At that time there was no iron.
- (b) *káyde à téé gá \uparrow sé*
káydi-È a téé gàse-H%
 paper-ART 3SG NEG.POT arrange-H.BT
 The documents cannot be put in order.
- (c) *àn máá kiléè sòtón*
ànu máa kili-È sòton-H%
 3PL PFV.NEG screw.driver-ART get-H.BT
 They didn’t have a screw driver.
- (d) *jàkà à béle ésán \uparrow sé \uparrow lé sànná*
jàka à béle ésans-È lè sàn-la-H%
 DISC 3SG COP.NEG fuel-ART FOC buy-GER-H.BT
 But it wasn’t the fuel that he was buying.

12. One can suppose that (\uparrow)H% is diachronically related to the lexemes with inherent assertive focus and that, originally it is one those items that lost its segmental substance.

A separate PhP in Kakabe is projected by a non-pronominal IO (see Section 5.3.4.2). From this follows the absence of final (\uparrow)H% in (6.44):

- (6.44) *mà máá ké bójnè là*
mà máá ké bón-È la
 1PL PFV.NEG arrive house-ART OBL
 We didn't arrive home.

By contrast, in (6.45 a) and (6.45 b) where the IO is pronominal and the negative marker is not separated from the end of IP by any PhP boundary the utterance terminates with the negation-induced (\uparrow)H%:

- (6.45) (a) *ǎn dè máá kílán wò lá*
ànu lè máá kílán wò la-H%
 3PL FOC PFV.NEG be.afraid that OBL-H.BT
 They are not afraid of it.
- (b) *ǎá àn tá⁺á dí mà \uparrow má*
ǎáyi ànu téé à dí mà ma-H%
 DISC 3PL POT.NEG 3SG give 1PL to-H.BT
 They didn't give it to us.

See also (6.46) where the first IP containing the negative auxiliary *máa* and a full-fledged NP ends with L%, whereas the second IP which is a response to it does not contain any IO and ends with the boundary H%.

- (6.46) *.(ànu máá ⁺máándé à sú⁺gé là)_{IP} (ànu máá*
ànu máá máandé à súgu-È là-L% ànu máá à
 3PL PFV.NEG remember 3SG kind-ART OBL-L.BT 3PL PFV.NEG 3SG
máán \uparrow dé)_{IP}
máandé-H%
remember-H.BT
 They don't remember of such a thing. - They don't remember about it

In a non-verbal utterance with a negative copula immediately followed by a postpositional phrase, the negation (\uparrow)H% is present both if the postpositional phrase is pronominal (6.47 a) and when it contains a full-fledged NP, as in (6.47 a) and (6.47 b). The presence of the boundary tone in the latter case is due to the fact that the NP forms one PhP with the negative marker which immediately precedes it. This contrasts with verbal clauses (6.44) in which the negative auxiliary and the lexical verb form one PhP and the postpositional phrase with an NP forms another PhP.

- (6.47) (a) *kóntóról béléà tó*
 kóntorol béle à tɔ-H%
 control be.NEG 3SG on-H.BT
 There's no way to control it.
- tóóró bélé wò wáttòè tó*
 tóoró béle wò wáttu-È tɔ-H%
 suffering be.NEG that time-ART in-H.BT
 There was no suffering in that time.
- (b) *mà tán máá dùgèè lá*
 mà tán máá dùgu-È la-H%
 1PL property ID.NEG land-ART OBL
 This land is not our property.

6.4.4.2.4 Marking continuation for negative utterances

The question arises as to how continuation is signaled for negative utterances. It should be kept in mind though that sentential negation is not neutral to the structure of conversation. Sentential negation is always rhematic, and, consequently, utterances with sentential negation can hardly play a role of introductory material with respect to some further utterance. Yet, an utterance with sentential negation can be pronounced with a listing intonation and in this case \uparrow HL% is used:

- (6.48) *mà yáà dònna má kènéèn dè là nòn-L%*, We brought it walking by foot
ótó béle- \uparrow HL% [we had] no car,
wélo béle- \uparrow HL%, no bicycle,
móto béle- \uparrow HL%, no motorcycle,
mà ì táálá má kènéèn \downarrow dlá nùn-L% we went on foot.

Table 6.5 below compares the means of signaling of finality vs. continuation for affirmative and negative utterances.

	final	continuation
affirmative	L%	H%, \uparrow HL%
negative	H%	HL%

Table 6.5: Signaling of continuation vs. finality for affirmative and negative utterances

6.4.4.3 Discussion: tone, intonation and negation

Cross-linguistically, tone and intonation are not often reported to be involved in marking negation. According to Dryer's (2013a) typological survey of negation constructions, there is only one language (out of 1324), namely Engenni (Edoid), where tone is the sole marker of negation. Apart from that, he mentions a few cases where negation is coded both by tone and a segmental marker. One of the few examples is Mano (Eastern Mande), where negation is coded either by a preverbal negative particle or by changing the tone on the subject pronoun. In Igbo, a Niger-Volta language H replaces the L of the auxiliary in negative utterances (Ndimele 2009; Obiamalu 2013).

Outside of Africa, tone is engaged in the coding of negation in Phake, a Tai-Kadai language of Assam (India). In this language, if a verb has the second tone (High falling), it changes to rising when negated, at the same time, the rising tone on the last syllable of the sentence signals question (Michaud 2017: 430 < Morey 2008).

As for the intonational marking of negation, I am not aware of any examples except for Bobo (North-Western Mande) as described by Morse (1976), where negative non-interrogative utterances have a special intonation pattern (similar to that of exclamations).

As has been shown above, in Kakabe the negation-induced H% has a limited domain of application. First, it is sensitive to the prosodic organization of the utterance. It is licensed by the presence of a negative auxiliary or copula and is blocked if this negative marker is separated from the end of IP by a PhP boundary. Second, it is not compatible with IP-internal intonational register raising which is hosted by such elements as polarity items. Third, the negation H% is overruled by boundary tones of other sentence mode operators, if the negation is embedded in an interrogative utterance. The H% of negation is overruled by other intonational operations and has to be local with respect to the negation marker by which it is licensed.

Below I consider two analysis of possible motivation of negation-related boundary H%.

6.4.4.3.1 Boundary H% in negation as the extension of continuation marking

The boundary morpheme H% is not specialized for negation, but serves primarily to signal continuation. The motivation for the use of the same prosodic marking for continuation and negation can probably be found in the analysis of the function of negative utterances in conversation (Ford 2001; Schegloff 1996; Sacks 1992). In her study of negation in conversation in English, (Ford 2001) comes to the conclusion that negative utterances are units which lack completion and therefore demand further elaboration:

Broadly speaking, the work of the negative TCU involves rejection, either rejection of an immediately prior proposition or the rejection and shifting away from a topic or sequence. The work of what follows the negative TCU is to provide a resolution of the rejection: an alternative to what came before, an account for the rejection, a modified form of agreement (e.g., to take up a proffered topic while rejecting a proposition), or a shift to another topic or sequence (Ford 2001: 60).

See also the analysis of negatively framed utterances as an environment for negative responses in (Heinemann 2003).

In this perspective one can suppose that in Kakabe H% boundary tone has been extended from continuation marking to negative utterance due to the similarity of their roles in the conversation structure. At the same time, only prosodically minimal negation utterances were involved, leaving unaffected the extended negative utterances, where the PhP with negation is followed by an additional PhP within the same TCU.

This analysis is, of course, highly speculative, and it does not account for fact that the same intonational or tonal marking for continuation and negation is, supposedly, very rare typologically.

6.4.4.3.2 Boundary H% as part of double negation-marking construction

A possible continuation of the analysis proposed above is to consider boundary H% as the second part of a double negation-marking construction. As has been already said, (↑)H% is blocked by polarity items, compare the pairs (a) and (b) in (6.49) and (6.50) below.

- (6.49) (a) *dóódò máá bità* (b) *à máá bì↑tá*
 ↑*dóódò máá bita* *à máá bitá-H%*
 PERS.PI PFV.NEG catch 3SG PFV.NEG catch
 Nobody was caught. He wasn't caught.
 * *dóódò máá bì↑tá*

- (6.50) (a) *à bélé fěnfěn màlà* (b) *à bélé à mà↑lá*
 à béle ↑*fěnfěn má-la* *à béle à má-H%*
 3SG be.NEG thing.PI do-GER 3SG be.NEG 3SG do-GER
 She isn't doing anything. She isn't doing it.
 * *à bélé fěnfěn mà↑lá*

This property makes the Kakabe negative construction with H% similar to the ‘French-style’ double negation construction. The second part of the negation, *pas*, is mutually exclusive with the negative quantifiers such words as *rien* ‘nothing’, *personne* ‘nobody’, *nulpart* ‘nowhere’ etc. This distribution is explained by the fact that *pas* originally belonged to the same semantic group as *rien*, *personne* etc., namely polarity neutral emphatic markers ‘even a thing’, ‘even a person’ etc. (Van Alsenoy & van der Auwera 2014: 17-18)¹³. As discussed in (6.5.3), $\uparrow f\acute{e}nf\acute{e}n$ and $\uparrow d\acute{o}od\acute{o}$ are neutral polarity items which can be used either in negative or in affirmative utterances.

The second aspect which favors the double-negation analysis is the existence of sentence final emphatic particles $\uparrow f\acute{e}w$, $\uparrow f\acute{i}y\acute{i}$ which host (\uparrow)H tone, and which are very frequent in negative utterances. Since they are always IP-final, there is no way to tell whether (\uparrow)H is their lexical tone or whether it is the IP-final tone. These particles can be used in both negative and positive context, see (6.51 a) and (6.51 b) respectively, but in negative contexts they are more frequent. Thus, among 49 utterances with $\uparrow f\acute{e}w$ in my corpus, 38 are negative. For more examples of negative utterances with final emphatic particles, see Examples (6.10)-(6.12) earlier in the chapter.

(6.51) (a) *à máà màrsè* $\uparrow f\acute{e}w$
 à máa màrsè $\uparrow f\acute{e}w$
 3SG PFV.NEG sell EMPH
 It didn’t sell (at all)!

(b) *má báb bán* $\uparrow f\acute{e}w$
 mà báti bán $\uparrow f\acute{e}w$
 1PL PFV.OF finish
 We have finished! (completely).

The sentence-final emphatic particles, along with assertion focus markers are a common source for the second element of a double negation-marking construction, at least in Western African languages, see Beyer (2009: 205). One can suppose that (\uparrow)H% with the floating mora is the ‘less segmental’ equivalent of emphatic final particles which became associated with negation.

To sum up, both the relationship of mutual exclusion with polarity items, and the structural proximity of H% with utterance-final emphatic particles can be considered as arguments to analyze the structure with the negative auxiliary or copula and the boundary (\uparrow)H% as a double negation-marking construction. At the same time, even if it can be considered a type

13. It should be noted, though, that polarity items do not always exclude the second part of the bipartite negation, they are compatible, for example, in Santome, a Portuguese-based creole (Hagemeyer 2009)

of double-negation construction, there are, of course, important differences with the cases referred to in this term in the literature: the prosodic nature of the second element in Kakabe and the restrictions on its appearance within one PhP with the negative auxiliary or copula.

Double-negation constructions are common in the area not far, but still not adjacent to the Kakabe zone, being more to the East. They are found in Eastern Mande, Kru, Gur and Kwa languages, see (Kastenholz 2002; Beyer 2009; Idiatov 2012). Kakabe is not in contact with any languages with double negation, thus there is no evidence for contact influence.

So far, there is no conclusive evidence to decide between the analysis of (↑)H% induced by negation as the extension of the continuation boundary tone, and the analysis according to which (↑)H% is rather a part of double negation construction going back to an emphatic marker.

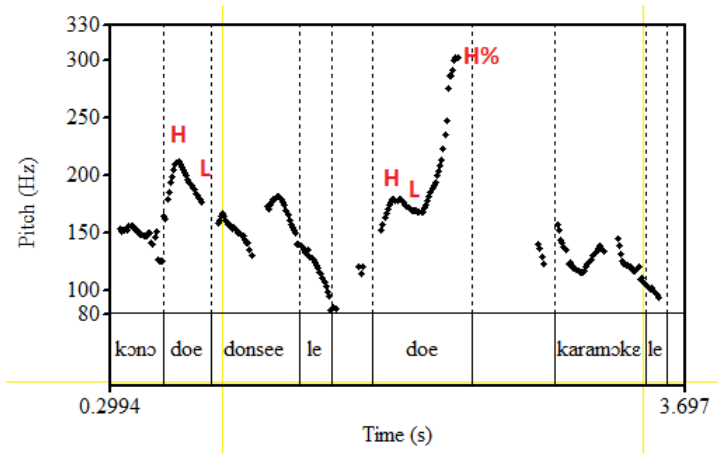
6.4.4.4 The alignment of (↑)H%

The floating mora of the boundary (↑)H% morpheme surfaces when it is added to a mora at the end of IP which is associated with a lexical tone. Otherwise, the floating mora of the boundary (↑)H% is deleted.

Thus, in (6.52) and (6.53), the last (lexical morpheme) mora is already occupied by an underlying lexical tone, and the mora of the boundary (↑)H% is added to it which manifested in lengthening. In (6.52) the second instance of the pronoun *dòè* ‘the other’ hosts three tones: the lexical H, the L of the article and the (↑)H%. It is considerably longer compared to the first *dòè* which hosts only H and L, since an extra mora is added to host (↑)H%.

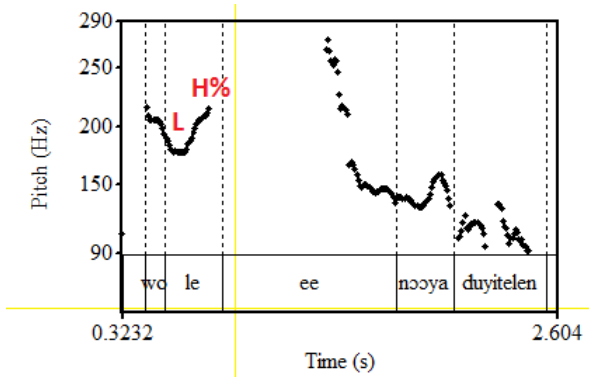
(6.52) *dòè* ⁺*dònsé*⁺*é* *lè*(0.23) *dòè*↑*é*(0.35) *kàrà̀mó*⁺*ké* *lè*
 dó-È dònso-È *lè* dó-È-H% kàramókɔ-È *lè*
 one-ART hunter-ART-H.BT FOC one-ART teacher-ART FOC

The first one is the hunter and the other one is a teacher.



In (6.53) below an extra mora is added to host (↑)H% because the last mora belonging to the focus marker *lè* is already linked to the lexical L:

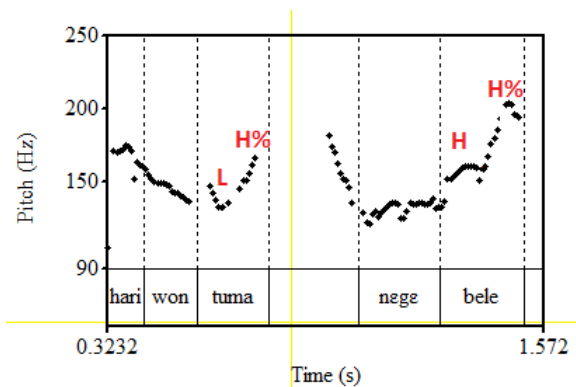
- (6.53) *wó lè(0.41) nòyáà dùyítèlèn*
wò lè-H% nòya-È dùyite-len
 that FOC-H.BT slavery diminish-PC.ST
 That's how the slavery has given way.



On the contrary, in Examples (6.54)-(6.55 b) below, no lexical tone is associated with the last mora, consequently, the floating mora of (↑)H% is deleted and the tone is associated with this mora.

The utterance represented in (6.54) contains two IPs each ending with (↑)H%. In the first IP the penultimate mora is linked with lexical L and the second IP with lexical H.

- (6.54) *hári wòn tùmá(024) nègè bé↑lé*
hári wò-nu tuma-H% nège béle
 PST that-PL time-H.BT iron be.NEG-H.BT
 At that time there was no iron.



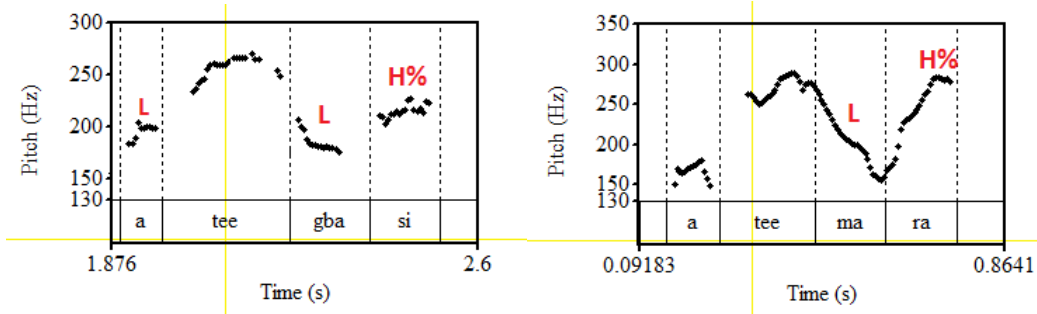
(↑)H% is realized as a peak which is higher than the last underlying lexical tone, see (6.54) and (6.57). At the same time, the size of the excursion of the rise varies, compare the two

pairs: (↑)H% after H in (6.54) vs. (??), and (↑)H% after L (6.55 a) vs. (6.55 b). The constant part is that (↑)H% is realized at a higher level than the last lexical tone, either H or L.

Examples (6.55 a) and (6.55 b) illustrate the realization of (↑)H% after a mora with lexical L tone. As can be seen, (↑)H% does not always rise to the top of the pitch range.

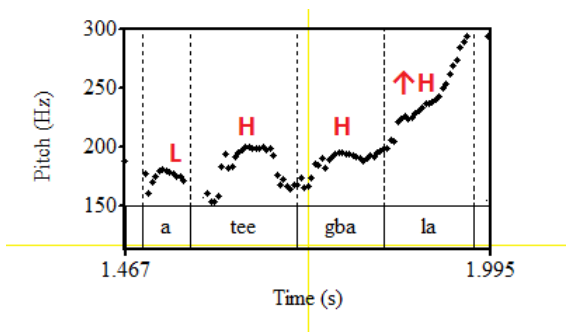
(6.55) (a) *à tée gbàsí*
à tée ì gbàsí-H%
 3SG POT.NEG 2SG beat-H.BT
 He won't beat you.

(b) *à tée màrà*
à tée màrà-H%
 3SG POT.NEG hide-H.BT
 It cannot be hidden.



Compare (6.55 a) and (6.55 b), on the one hand, with (6.56), on the other hand, where the last lexical tone is H. In this case the boundary H% is realized one step higher than the lexical H.

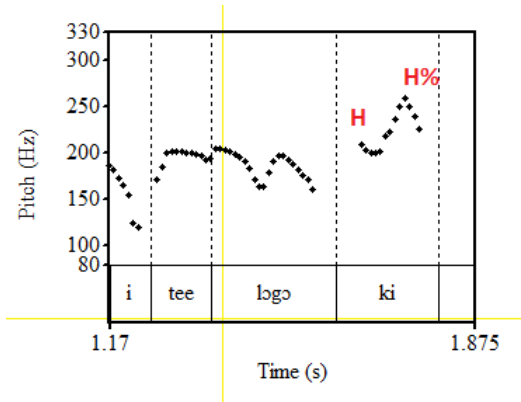
(6.56) *à tée gbá↑lá*
à tée gbála-H%
 3SG POT.NEG dry-H.BT
 It won't try.



Monosyllabic verbs are always pronounced with a long vowel when they host the boundary (↑)H%. Yet, it is not clear whether this second mora is added because of the boundary tone

or whether this mora belongs to the lexical form of the verb, since as said earlier, in general, monosyllabic verb can be pronounced either with a long or with a short vowel.

- (6.57) *i téé lógó kí↑i*
i téé lógó kí-H%
 2SG POT.NEG tree plant-H.BT
 You cannot plant a tree.

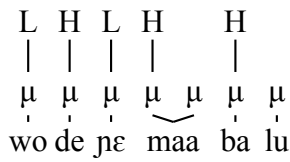


6.4.4.5 Boundary (↑)H% and Final Tone Leveling

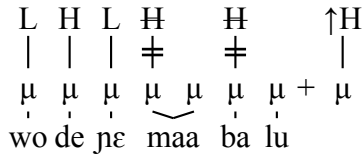
As has already been said, Final Tone Leveling (FTL) which can lead to the deletion of PhP-final H tone(s) (see 5.6 about this tonal process) takes place sequentially before the combination of the utterance with the IP-final boundary morphemes. Therefore, before (↑)H% is to be aligned, the end of the utterance can be freed from a lexical H(s) through FTL deletion.

In (6.58) FTL leads to the deletion of H on the perfective negative copula *máa* and on the verb *bálu* ‘be alive’. After the application of FTL, boundary morpheme is added: H% links to the last TBU of the utterance, whereby the floating mora becomes superfluous and is deleted. At the end of the derivation, default tone spread applies.

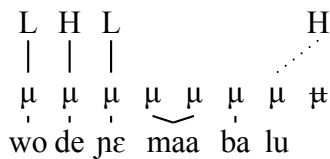
- (6.58) *wò déjè màà bálú*
wo dén-È máa bálu-H%
 that child-ART IDENT.NEG be.alive-H.BT
 This child didn’t survive.



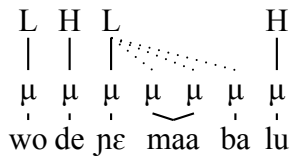
Underlying tones.



Deletion of PhP-final H (FTL) and the addition of the boundary morpheme with H tone and one floating mora.



H% links to the last TBU of the utterance which is toneless and the floating mora is deleted.



Default tone spread on toneless TBUS at the end of the derivation.

In (6.59 a)-(6.58) are given more examples of utterances where the realization of H% is preceded by final H deletion through FTL.

- (6.59) (a) *tùbàbùnégè* *bèlé*
 tùbabu-nεε-È béle-H%
 white.man-iron-ART be.COP.NEG-H.BT
 There was no iron from the white people.

- (b) *ń* *tée* *†nón* *wò* *lònná*
 ń tée nòn wò lón-la-H%
 1SG POT.NEG be.able that know-GER-H.BT
 I don't know anything about it.

- (c) *dámurè bèlè bànná(0.23) kùtáà bèlè bànná*
dámuri-È béle bán-la kùta-È béle bán-la-H%
 food-ART be.NEG finish-GER clothes-ART be.NEG finish-GER-H.BT
 There is no lack of food, there is no lack of clothes.

The utterances in (6.60 a) and (6.60 b) end with verbs with lexical H and the negative auxiliary *máa* which also has underlying H. The tonal realization in both examples results from the application of FTL which deletes the H tones on the auxiliary and on the verb, after which the boundary (\uparrow)H% is associated with the syllable of the verb. The alternative analysis according to which the last lexical H would be retained is ruled out by the obligatory character of FTL and the ban on Partial FTL (5.128) described in Section 5.6.1.4.

- (6.60) (a) *kòno à sóè màà yén*
kòno à súu-È máa yén-H%
 but 3SG night-ART NEG.PFV.OF see-H.BT
 But his body could not be found.

- (b) *bàtèrè kósè màà bó*
bàteri-È kósi-È máa bó-H%
 battery-ART end-ART NEG.PFV.OF leave-H.BT
 The end of the batteries didn't go out.

6.4.5 Alignment of the \uparrow HL% boundary tone

The case of \uparrow HL% boundary tone brings to light a particularly complex mechanism of interaction between phonotactic structure, lexical tones and boundary tones, combined with an intonational operation.

Example (6.61) illustrated two possible ways of the alignment of \uparrow HL%. In (a) the boundary tone is aligned on the last two syllables and in (b) and (c) it is aligned on the last syllable.

- (6.61) (a) *mà bí: tùgú⁺ré lè \uparrow kéla [mhm]*

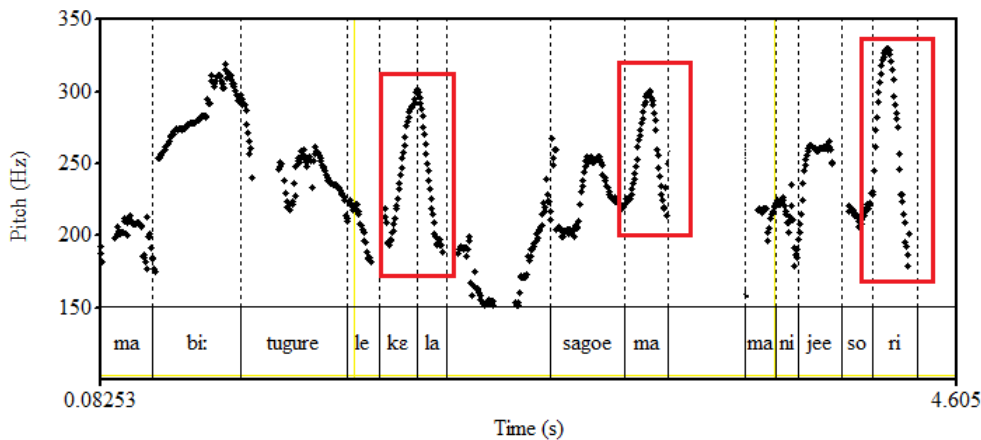
- (b) *sàgòè \uparrow máa [mhm]*

- (c) *mà nì jéé sò \uparrow rii [mhm]*

mà bi tùguri-È lè ké-la- \uparrow HL% sàgo-È ma- \uparrow HL%
 1PL be pounding-ART FOC do-GER-HL.BT morning-ART in-HL.BT

mà ni jii-È sòri- \uparrow HL%
 1PL SBJV water-ART scoop-HL.BT

We do pounding, in the morning, we scoop water.



As one can see, the \uparrow HL% contour can be aligned on the last syllable only, or occupy the last and the penultimate syllables. The contour \uparrow HL% requires two moras for its alignment, since it consists of two tones.

I analyzed the alignment of \uparrow HL% using a database of 312 IPs with the boundary tone in question which is the total number IPs with \uparrow HL% occurring in the non-monologue texts in my corpus.

The alignment of the \uparrow HL% contour is defined by the two following generalizations:

- HL% occupies the last two moras of the IP which can be either the floating moras of the boundary morpheme itself or the final moras of the preceding morpheme(s), or the combination of the two.
- The deletion of the final lexical tone is, in most cases, avoided. Therefore, the tones of \uparrow HL% are usually aligned after TBU bearing the last lexical tone in the IP.

Furthermore, the alignment of \uparrow HL% depends on two parameters: 1) the position of the mora with the last lexical tone in the IP 2) the grouping into syllables of the final moras of the IP (excluding the floating moras of the boundary \uparrow HL% morpheme). The schematic representation of the realization of \uparrow HL% is represented in Table 6.6. The first column represents the last one or two syllables, their weight and the position of the last underlying (non-boundary) tone) which is the input to the addition of the boundary \uparrow HL% morpheme. The second column represents the output of the process which can differ from the first by the length of the syllables and the tonal configuration. The third column specifies by how many moras the output is longer than the input and, second, what syllable is lengthened compared to the input: the ultimate or the penultimate syllable. Thus, this column indirectly indicates whether one or both of the floating moras of the \uparrow HL% boundary morpheme are deleted, and where do its remaining moras land: are they added to the penultimate or to the last syllable.

	Input IP-final sylla- ble(s)	Output IP-final syllable(s)	Added moras	Example	Gloss
(1)	/CṼ#/	→ CṼ↑VṼ#	μμ _{ultimate}	<i>lè</i> → <i>lè↑éè</i>	FOC
(2)	/CṼVCV#/	→ CṼV↑CṼV#	μ _{ultimate}	<i>dáà la</i> → <i>dáà ↑láà</i>	door.ART OBL
(3a)	/CVV#/	→ ↑CṼV#	∅	<i>(dánka)tɔɔ</i> → <i>(dánká)↑tɔɔ</i>	cursed
(3b)	/CṼV#/	→ CṼ↑VṼ#	μ _{ultimate}	<i>bàa</i> → <i>bà↑áà</i>	goat
(4a)	/CVCV#/	→ ↑CṼCṼ#	∅	<i>(kà)lama</i> → <i>(kà)↑láma</i>	ladle
		→ ~ (df.) CṼ↑CṼV#	μ _{ultimate}	<i>(kà)lama</i> → <i>(kà)là↑máà</i>	
(5a)	/CṼCV#/	→ CṼ↑VCṼ#	μ _{penult}	<i>fàga</i> → <i>fà↑ágà</i>	die
		→ ~ (df.) CṼ↑CṼV#	μ _{ultimate}	<i>fàga</i> → <i>fàg↑áà</i>	
(5b)	/CṼVCV#/	→ CṼ↑VCṼ	∅	<i>sìise</i> → <i>sì↑isè</i>	chicken
		→ ~ (df.) CṼV↑CṼV	μ _{ultimate}	<i>sìise</i> → <i>sì↑sèè</i>	

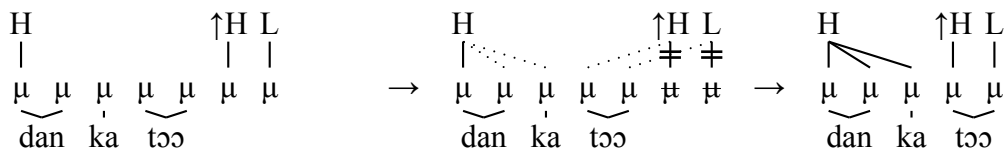
Table 6.6: Realization of ↑HL% boundary morpheme depending on the phonotactic structure and the position of the last lexical tone.

μ_{penult} – one mora added to the penultimate syllable; μ_{ultimate} – one mora added to the ultimate syllable; ∅ – zero moras added (both moras of the boundary morphemes are deleted); (df.) – application of the default strategy

– End of IP.

As we can see, no mora is added, *i.e.* both floating moras are deleted, when both final moras in the output are not associated with any underlying tone, lines (3a) and (4), e.g.:

dánkatoɔ ‘cursed’ + \uparrow HL%



Both floating moras of the \uparrow HL% boundary morpheme surface in the output only in the case when the last mora is associated with a lexical tone, hence the realization $l\grave{e}\uparrow\grave{e}\grave{e}$ of the IP-final focus marker $l\grave{e}$ when \uparrow HL% is added to it. The two-mora lengthening resulting from the addition of \uparrow HL% is described in detail in the following subsection (6.4.5.1). In the remaining cases one mora is deleted and one mora is retained, e.g. *bàa* \rightarrow *bà* \uparrow *áà* ‘goat’. When the two final moras are free of lexical tone which is the case of the inputs /CVV#/, /CVCV#/, /C \grave{V} VCV#/ both moras of the boundary morpheme can be deleted.

The default strategy for the realization of the tone of \uparrow HL% marked as default, (df.), in Table 6.6 is its alignment on the last syllable. It is also the only option for the outputs from (1) trough (3b). By contrast, for the outputs of the types /CVCV#/, /C \grave{V} CV#/ and /C \grave{V} VCV#/, in (4), (5a) and (5b), respectively, the \uparrow H of the boundary morpheme can be aligned on the penultimate syllable. In the case of /C \grave{V} CV#/ this leads to the addition of one of the two floating moras to the penultimate syllable, since otherwise the penultimate mora is already associated with a tone, e.g. *fàga* \rightarrow *fà* \uparrow *ága* ‘die’. In the other two cases, the penultimate mora of the output is free for the association of \uparrow H which gives *kàlama* \rightarrow *kà* \uparrow *láma* ‘ladle’ and *sìise* \rightarrow *sì* \uparrow *ísè* ‘chicken’.

As can be seen, the penultimate syllable association strategy which is possible for /CVCV#/, /C \grave{V} CV#/ and /C \grave{V} VCV#/ (either because its penultimate syllable is extendable or because there is a toneless mora available to host \uparrow H) is in variation with the default, final syllable association of both tones. As shown later, it is not clear what defines the choice between the two, supposedly, it is due to dialectal difference.

To sum up, the alignment of \uparrow HL% is sensitive to the prosodic structure of the end of the IP, to the presence of lexical tones and to the quality of this tones. In what follows I show that there are some exceptions to the represented mechanism where the tones of the boundary morpheme can override the lexical tones.

As I shown in Section 6.4.5.5, final syllables of the IP can be freed from the lexical H tone, due to the application of FTL, operating at the PhP level, in which case they become available for the association of \uparrow HL%. In the following subsections (6.4.5.1-6.4.5.4) I will show that the realization of \uparrow HL% also depends on the morphological properties of the IP-

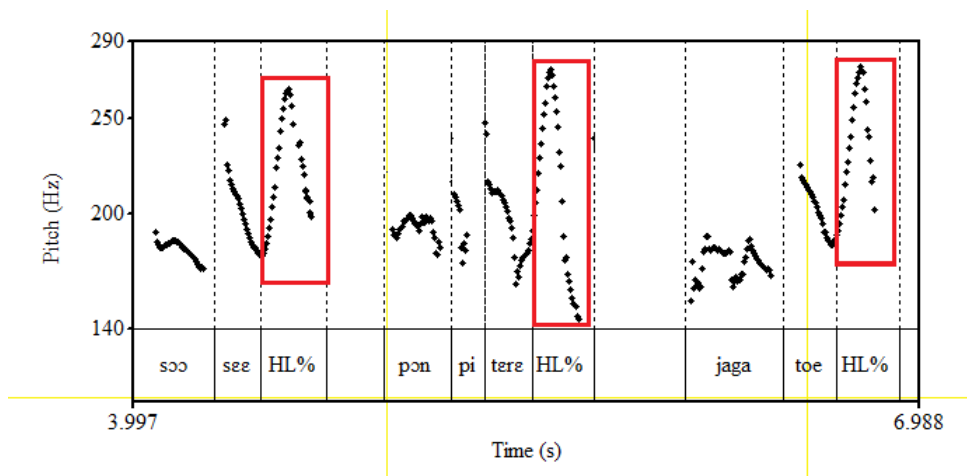
final elements. The remainder of the section is organized as follows. Section 6.4.5.1 describes the realization of \uparrow HL% in case when the penultimate or last mora is linked to the L of the article or is followed by a floating L. Finally, in Section 6.4.5.7 I discuss the question of final heavy syllable and the effect of \uparrow HL% on the realization of an underlyingly heavy syllable.

6.4.5.1 Lexical L on the last mora

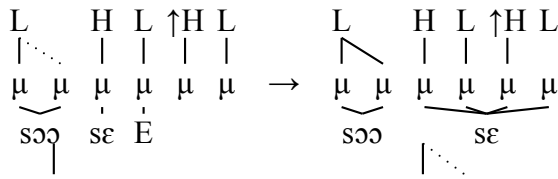
6.4.5.1.1 Referential article

When lexical L is at the end of the IP, there is not a single toneless mora available to host \uparrow HL%, consequently, both floating moras are retained. Essentially, the lengthening resulting from the addition of the floating moras of the boundary morpheme is moraic. Thus, the duration of the final vowels of the three nouns in (6.62) clearly manifests that one mora corresponds to each tone. Accordingly, the final vowel of *pónpitérè* corresponds by its duration to three moras. And the final vowel *sòɔsɛ* + ART + \uparrow HL% hosts four tones: HS, the L of the article and the contour \uparrow HL%, and consequently comprises four moras.

- (6.62) *sòɔsééèè* *pónpitérèèè* *jàgàtóèèè*
sòɔsɛ-È- \uparrow HL% *póm-pitérɛ-È- \uparrow HL%* *jàgatu-È- \uparrow HL%*
 bean-ART-HL.BT potato-ART-HL.BT aubergine-ART-HL.BT
 [That is we grow in the vegetable garden:] beans, potato, aubergine

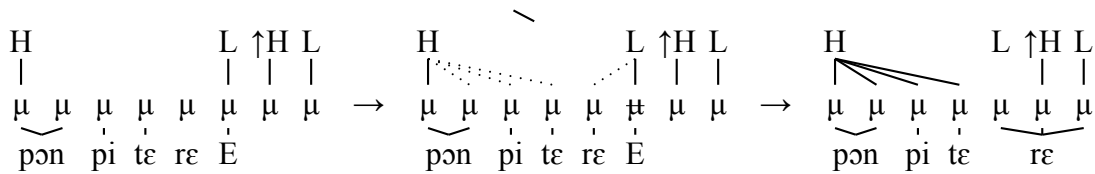


In the realization of *sòɔsɛ+È+HL%* ‘beans-ART-HL’ three moras are added to the final mora of the noun root: the mora of the article and the two moras of the tonal morpheme:



It remains an open question whether such vowels lasting for three and four moras and hosting three or four tones should be considered one syllable.

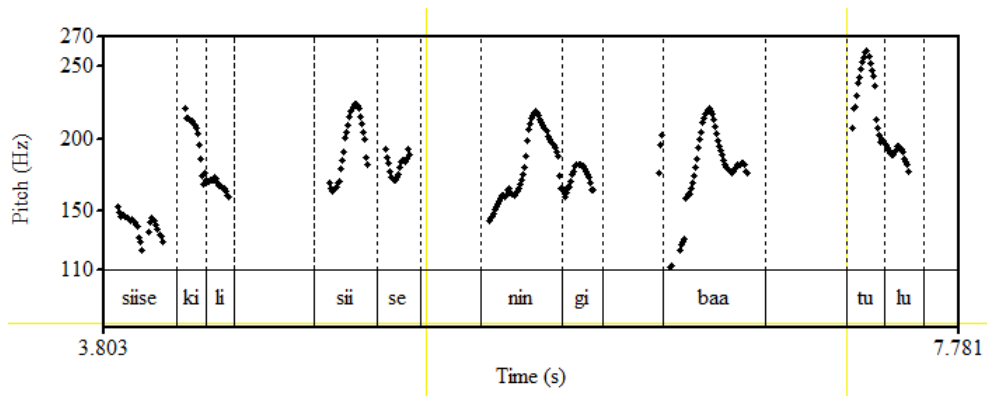
In *pónpitere-È-↑HL%* ‘potato-ART-BT’ the resulting last syllable is associated with three moras, because the mora of the article is deleted (see Section 5.9.1.1):



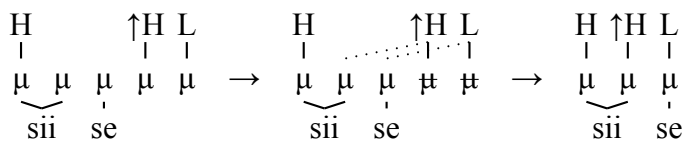
Example (6.63) below illustrates how $\uparrow HL\%$ is aligned on IP consisting on single nouns without article. This example illustrates at a time several of tonal and phonotactic configurations discussed above.

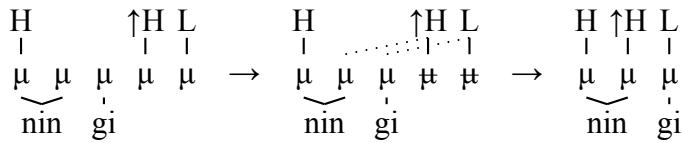
(6.63) *sìsè ↑kìlì sì↑ísè nì↑íngì bà↑àà ↑túlù*

[They would come and force us to give away fonio], eggs, chicken, cows, goats, oil.

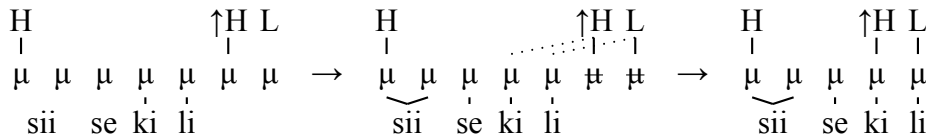
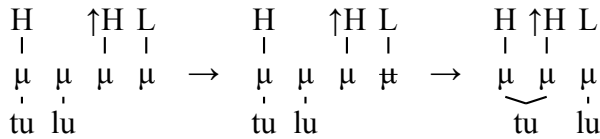


Since the first syllable of the nouns *sìsè* ‘chicken’ and *nìngì* ‘cow’ is heavy, there is space for both the lexical tone of the noun and the boundary tone:





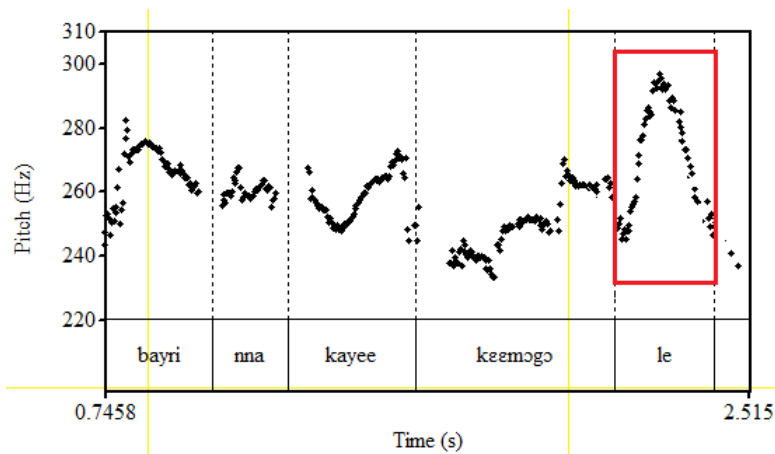
When $\uparrow\text{H}\%$ of the $\uparrow\text{HL}\%$ is linked to a syllable which already has an underlying tone, the $\uparrow\text{H}\%$ rises from the level of the lexical tone. Compare *túlu* in (6.63) above, where $\uparrow\text{H}\%$ rises from the level of the lexical H, and *sìsekili* in the same example, where $\uparrow\text{H}\%$ links to the penultimate syllable with no underlying lexical tone (the lexical tone of *kili* is deleted due to the fact that it is the second element of a compound, see Section 5.9.2.1), and thus, $\uparrow\text{H}\%$ is realized simply as high and not as a rise. This shows that the underlying tone is preserved in the surface realization when the boundary $\uparrow\text{HL}\%$ is associated with the IP:



6.4.5.1.2 Focus marker

Apart from the referential article, the focus marker *lè* is the only other monomoraic morpheme with L tone which can appear at the end of an IP. In (6.64) below $\uparrow\text{HL}\%$ is realized on the focus marker *lè*, and two moras are added to it to host the three tones, the L of the focus marker and the $\uparrow\text{HL}\%$ of the final contour. The preservation of the L of the focus marker can also be seen from the fact that a HS is realized on the preceding two syllables.

- (6.64) *báy[↑]ri ñ ná kàyéé kèmógó lè[↑]éè*
báyri ñ la kàyì-È kèemogó lè- $\uparrow\text{HL}\%$
 DISC 1SG POSS man-ART old.person FOC-HL.BT
 My husband is an old person.



The \uparrow HL% is added to the final *lè* the same way as in (6.64) in six other utterances in the database, they are listed below:

- (6.65) (a) *sì wò báà ròndilà wò kùnéèn tò lè↑éè*
sì wò bi à rónđi-la wò kùn-È-nu tò lè-↑HL%
 if 2PL be 3SG carry-GER 2PL head-ART-PL on FOC-HL.BT

If you carry it on your heads ...

- (b) *àni yáà fɔ̀là lè↑éè*
ànu bi à fɔ̀-la lè-↑HL%
 3PL be 3SG say-GER FOC-HL.BT

They say that ...

- (c) *àn í nààlà háá máánún dè↑éè*
ànu bi nà-la háá Máamun lè-↑HL%
 3PL be come-GER until Mamou FOC-HL.BT

They come until Mamou.

- (d) *ḃá *ʒ* mós lè báà fɔ̀lɔ̀lén dè↑éè*
ḃáyì ò-mò lè bi à fɔ̀lɔ̀-len lè-↑HL%
 since 2PL-1PL LG be 3SG start-PC.STAT FOC-HL.BT

Since we have started it...

6.4.5.2 Lexical L at the end of a penultimate heavy syllable.

There are two types of lexical L tone which can occupy this position: the L of the referential article and the floating L¹⁴.

14. It could also be the focus marker *lè* followed by toneless postposition, but, except for identity/class-membership constructions, *lè* rarely precedes the postposition and there are no examples in corpus the HL boundary tone is realized on an IP terminating with *lè* + postposition.

In (6.66) the penultimate syllable is *min^L*, a bimoraic syllable with HL tone, as expected, an extra mora is added to host the complex tone to the last syllable:

- (6.66) *háray ñ bí wó tàràlèn mìn ↑náà*
 háray ñ bí wò tàra-len mín^L la-↑HL%
 DISC 1SG be 2PL ask-PC.ST REL OBL-HL.BT
 The thing that I'm asking you...

As discussed in Section 5.9.1, the syllable with the article is long in two cases 1) when the article is added to a monosyllabic CVV noun 2) when HS tone is realized on the same syllable as the article. In this case ↑HL% is aligned on the last syllable which is consequently lengthened, see (6.67 a)-(6.67 c) below:

- (6.67) (a) *ì bá⁺á wálilá ⁺ì lá sùntéè ↑tòò*
 ì bí à wáli-la ì la suntu-È tò-↑HL%
 2SG be 3SG work-GER 2SG POSS vegetable.garden-ART in-HL.BT
 You work in your vegetable garden.
- (b) *kònò ó⁺má lè là sóè ↑tòò*
 kònò ó-mà lè la só-È tò-↑HL%
 but 2PL-1PL LG POSS village-ART in-HL.BT
 But in our village...
- (c) *ñ mán ñ lò àn jáà ↑láà*
 ñ máni ñ lò ànu jáa-È là-↑HL%
 1SG COND 1SG stand 3PL eye-ART OBL-HL.BT
 When I stand in front of them ...

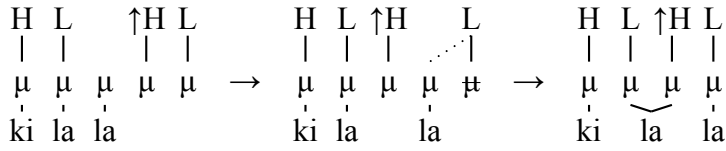
6.4.5.3 Adding mora to the penultimate syllable

When the penultimate syllable is associated with one lexical tone, and it is at the same time the penultimate mora of the IP, in this case ↑H% can be linked to the same syllable as the lexical tone. This leads to a situation when two tones are crowded on one mora. The ways this situation is resolved depends on the morphological boundaries, and also on whether the lexical tone is H or L.

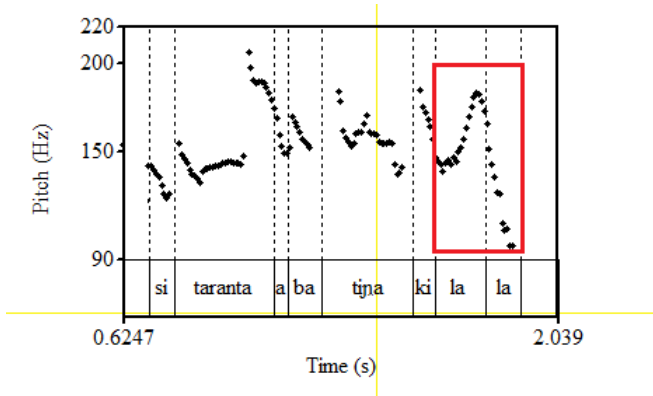
The crowding of tones on one mora is avoided when the penultimate syllable is at the edge of a morpheme. In this case a mora is added to the penultimate light syllable, and consequently, the lexical tone and ↑H% are distributed over two moras, see the autosegmental representation below.

Thus, when the L of the article occupies the penultimate light syllable of an IP, a mora is added to this syllable in order to host the first part of the ↑HL%. Figure below Example

(6.68) shows that the second vowel of *kilà* ‘road.ART’ is lengthened and the syllable bears tone both of the L of the referential article and first part of the boundary tone, whereas L% links to the postposition *la*.

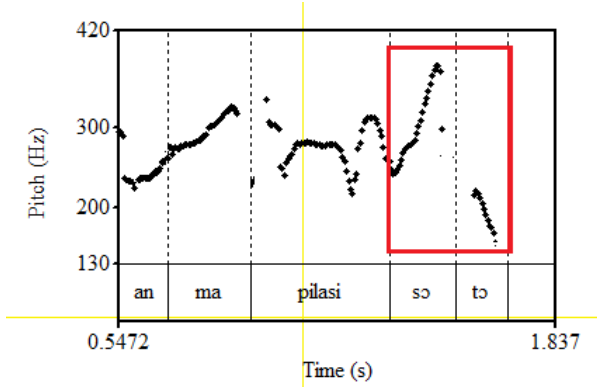


(6.68) *sì tàràntáà* *bát* *tíjána* *kilà↑á* *là*
 sì tàran-ta à báti tíjána kílá-È là ↑HL%
 if find-PFV.INTR 3SG PFV.OF go.bad road-ART OBL HL.BT
 If it turns out that it went bad during the journey



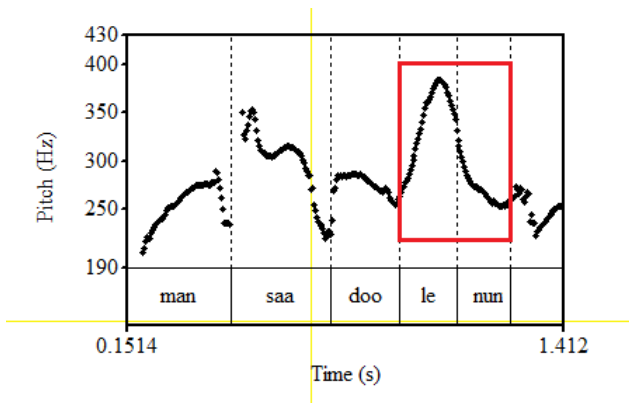
Analogously, in (6.69) the penultimate syllable of the utterance hosts the lexical L of the verb, and it is extended to host H in the ↑HL% boundary tone.

(6.69) *àn máá pílasí sò↑sò*
 ànu máa pílasí sòtò-↑HL%
 3SG PFV.NEG place get-HL.BT
 They didn't find any job.



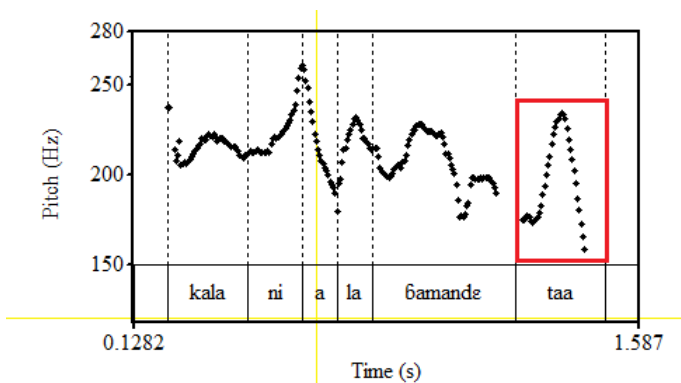
The \uparrow HL% contour is aligned the same way when the focus marker *lè* occupies a light penultimate syllable, see (6.70) where an extra mora is added to *lè*:

- (6.70) *mànsáá †dóó lè↑é nùn*
 mànsa-È dóo lè nùn \uparrow HL%
 chief-ART one FOC PST HL.BT
 There was a chief once upon a time.



An extra mora is also added when the lexical L tone is linked to the penultimate mora which is the first part of a heavy syllable. In this case the syllable ends up with three moras, as in (6.71). On the other hand, if the tone is H, no mora is added.

- (6.71) *kàlà ní à lá bàmán†dé tà↑áà*
 kála ni à la bàmande-È tà- \uparrow HL%
 every SBJV 3SG POSS plate.of.rice-ART take-HL.BT
 Everyone would take his plate of rice.

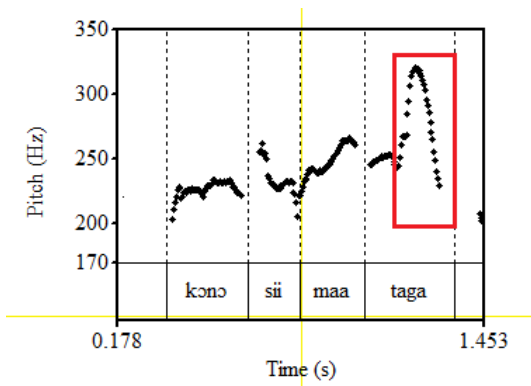


6.4.5.4 The default strategy of the lengthening of the last syllable

Apart from the strategies described above which are sensitive to the position of the last lexical tone, its quality, the syllabic grouping of final moras, one more strategy can be applied which

is not sensitive to any of these factors. Whenever the final syllable of the IP is originally light, the realization of \uparrow HL% can lead to the lengthening of the latter, as in (6.72):

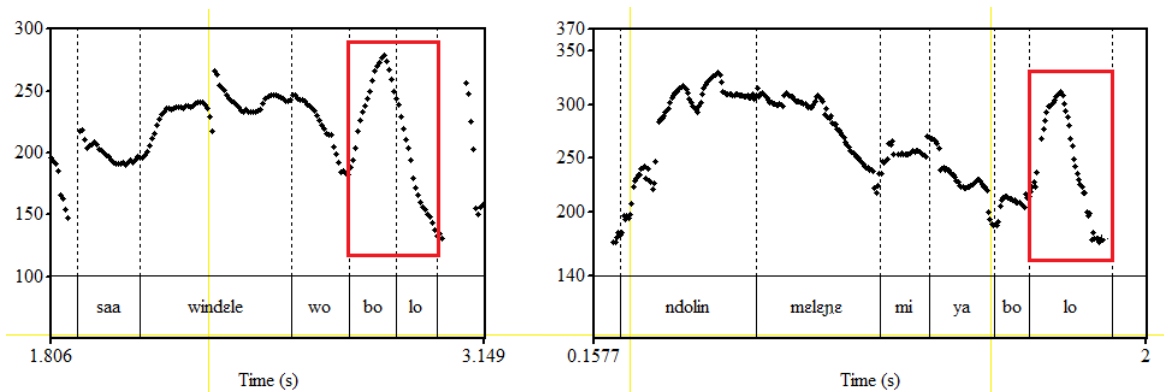
- (6.72) *kònò sù máá tá↑gáá*
kòno sù i máa tága-↑HL%
 but if 2SG PFV.NEG go-HL.BT
 But if you don't go...



The lengthening of the final syllable can be the only available option to host \uparrow HL%. Yet, in all those cases when the prosodic structure and the position of the lexical tone allows for the alignment of \uparrow H% earlier than the penultimate syllable, it also allows for its alignment on the last syllable, see the two pairs of examples in (6.73 a)-(6.73 d) where the \uparrow H% of the contour can be pronounced either on the penultimate syllable or on the last syllable accompanied by the lengthening of the latter in the same context:

- (6.73) (a) *wò ì káábà mín⁺nú sòtòlà ↑nó là*
wò bi káaba-È mín^L-nu sòto-la nɔ la ↑HL%
 2PL be maize-ART REL-PL ger-GER there OBL HL.BT
 The maize that you get there ...
- (b) *ìmám bélé mà bòlò nɔ ↑láà*
imám béle mà bólo nɔ la-↑HL%
 imam be.NEG 1PL hand there OBL-HL.BT
 We don't have any imam here.
- (c) *sàà wíndélén wò bò↑ólò*
sì à wínde-len wò bólo-↑HL%
 if 3SG write-PC.ST 2PL hand-HL.BT
 If it is written by your hand ...
- (d) *ndólinmélénè mín⁺yáá bò↑lòò*
ndólinmélén-È mín^L bi à bólo-↑HL%
 fishing.hook REL be 3SG hand-HL.BT

The fishing hook which he has...

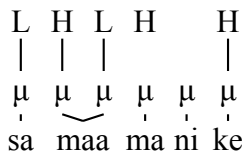
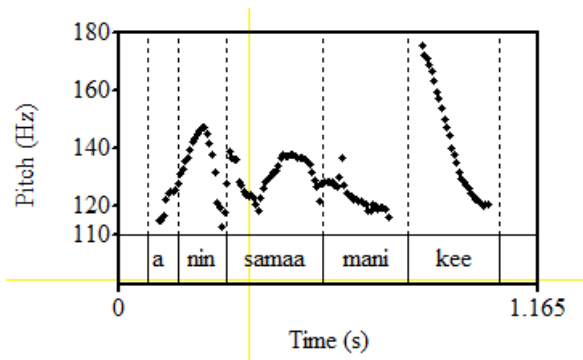


The distribution between the final-syllable vs. penultimate-syllable alignment of \uparrow HL% remains unclear. So far, no functional contrast between the two strategies has been found, neither is this difference dialectal. It can be said, though, that when (for phonotactic and tonal reasons) it is possible to distribute the \uparrow HL% contour over the last two syllables, it is realized on the last two syllables, rather than on one final syllable. Thus, in total, there are 145 IPs in my corpus which structurally allow \uparrow HL% to align on the last two syllables (i.e. cases with the final syllable not underlyingly long, no L tone on the final mora etc.). In three quarter of the tokens (109 IPs) \uparrow HL% is aligned on the last two syllables, and the \uparrow HL% is aligned on the final syllable which is lengthened for this purpose, only in 36 cases.

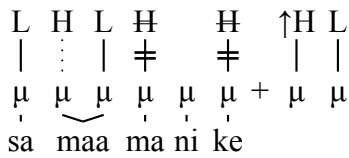
6.4.5.5 \uparrow HL% and Final Tone Leveling

As has been said earlier, the boundary morphemes are added after the application of FTL (Final Tone Leveling, see Section 5.6.1). The realization of tonal morpheme \uparrow HL% after the application of FTL is illustrated by (6.74). In this utterance, the H of the conditional auxiliary *máni* and of the verb *ké* ‘arrive’ are deleted. After that, \uparrow HL% is added and its first tone links to the final TBU of the utterance, which is toneless. One of the floating morae becomes superfluous and is deleted. The other floating mora is added to the IP resulting in the lengthening of the last syllable of the utterance. At the end of the derivation L is associated with the two TBU which would otherwise be toneless.

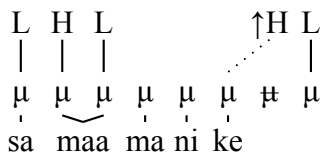
- (6.74) *à nín sà má á* *mà nì* \uparrow *ké*
 à nín sà ma-È *má nì* *ké- \uparrow HL%*
 3SG and rainy.season-ART COND arrive-HL.BT
 When the rainy season arrives



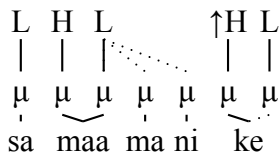
Underlying tones (plus HS on the second syllable of the noun).



Deletion of PhP-final H (FTL) and the addition of the boundary morpheme with H tone and one floating mora.



H% links to the last TBU of the utterance which is toneless and the floating mora is deleted.

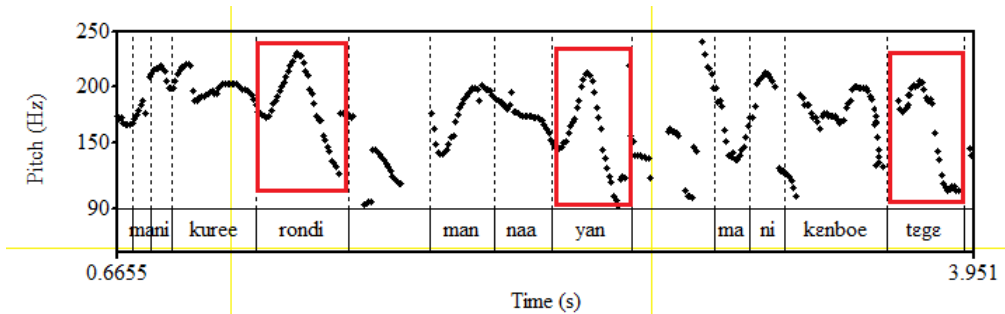


Default tone spread on toneless TBUS at the end of the derivation. Final syllable is lengthened by one mora (belonging to the boundary morpheme).

Compare the realization of $\uparrow\text{HL}\%$ in the three IPs within the utterance in (6.75). In the first and the second IPs $\uparrow\text{HL}\%$ is added to a syllable associated with underlying L, *ròndi* ‘carry on head’ and *yàn* ‘here’, respectively. The result is *rò \uparrow òndi* and *yà \uparrow àn* with the insertion of a floating mora before the final mora of the last word of the utterance. By contrast, no mora is added in the third IP, since it ends with an underlying H-toned verb whose tone is deleted before the addition of $\uparrow\text{HL}\%$.

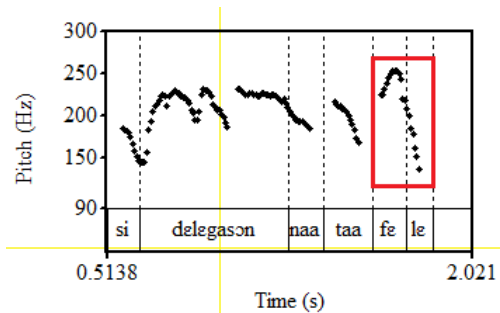
- (6.75) *mà ní kùréé rò \uparrow òndi(0.42) mà ní ⁺náá yà \uparrow àn(0.48) mà*
mà ni kùru-È ròndi \uparrow HL% mà ni ná yàn \uparrow HL% mà
 1PL SBJV stone-ART carry-HL.BT 1PL SBJV come here-HL.BT 1PL
ní kènboé \uparrow tégè
ni kènbu-È tégè- \uparrow HL%
 SBJV coal-ART cut-HL.BT

We carried stones, we would come there, we made coal.



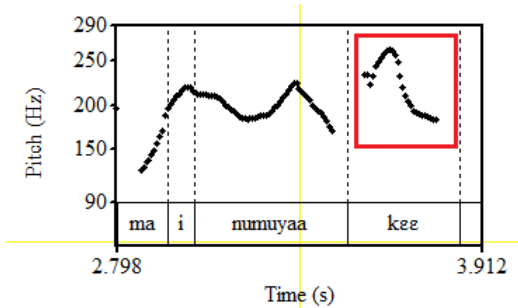
The examples (6.76) and (6.77) are two more illustrations of the realization of $\uparrow\text{HL}\%$ on the IP-final verb whose H tone has undergone the deletion.

- (6.76) *sì délégáson nàtàà \uparrow fě̀lè*
sì délegason nà-ta à fě̀lè- \uparrow HL%
 if delegation come-PFV.INTR 3SG look-HL.BT
 If a delegation comes to look at it...



- (6.77) *mà í nùmùyáà \uparrow kéè*
mà si nùmuya-È ké- \uparrow HL%
 1PL POT smithing-ART do-HL.BT

We would do the smith's work.



6.4.5.6 Exceptions

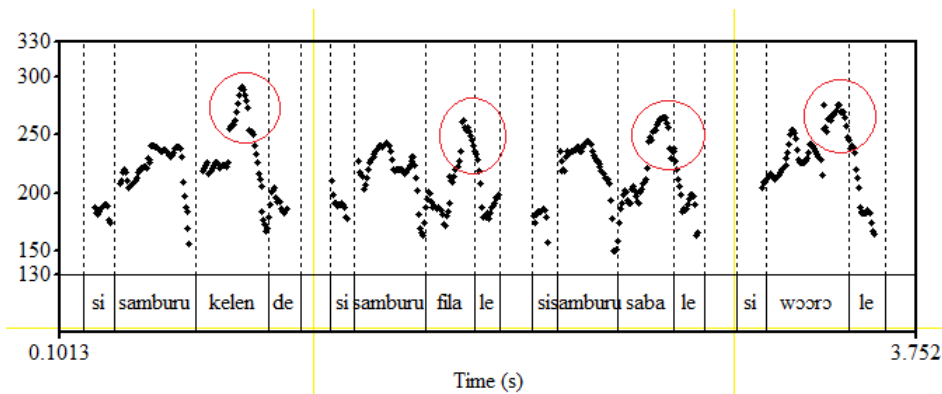
There are two groups of cases when the principle according to which \uparrow HL% aligns after the last lexical tone is not respected: first, when the last mora of IP is linked to the lexical L and \uparrow H is aligned before it (Section 6.4.5.6.1), second, when \uparrow H replaces the lexical L or H on the penultimate mora (Section 6.4.5.6.2).

6.4.5.6.1 Alignment of \uparrow H% before the last lexical tone

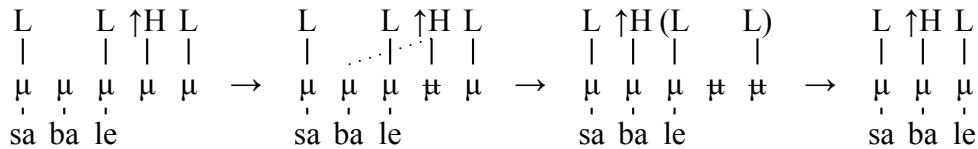
The utterance in (6.78) below contains four IPs with \uparrow HL%. In all the four IPs the \uparrow H% is aligned on final syllable of the numeral preceding the focus marker which has underlying L.

- (6.78) *sì sámbúru kɛ́lɛ́n dè* *sì sámbúru fíɿlá lè* *sì sámbúru*
sì sánburu kɛ́lɛ́n lè \uparrow HL% *sì sánburu fíla lè* \uparrow HL% *sì sánburu*
 if room one FOC HL.BT if room two FOC HL.BT if room
sàɿbá lè *sì wóóro lè*
sába lè \uparrow HL% *sì wóóro lè* \uparrow HL%
 three FOC HL.BT if six FOC HL.BT

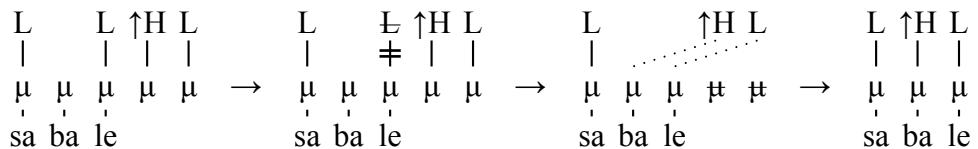
[They will check] whether there is one room, or if there are two rooms or if there are three rooms, or if there are six rooms ...



This realization results from the following derivation. First, ↑H links to the second syllable of the nominal root which is toneless, and this leads to the deletion of the floating mora. Second, the L of the focus marker and the L of the tonal morpheme merge, and the second floating mora is deleted.

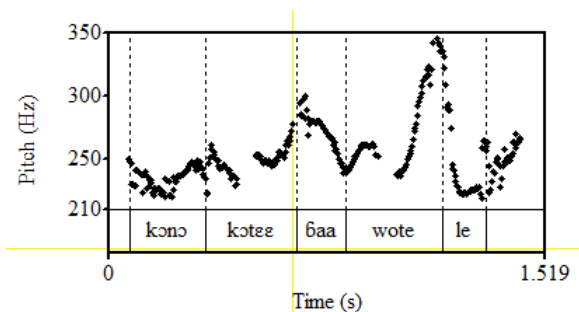


Alternatively, one can suppose that the L of the focus marker deletes, and the tones of the tonal morpheme link to the two final mora which become toneless. Yet, this goes against the principle according to which lexical tones cannot be deleted, the previous analysis is preferable.

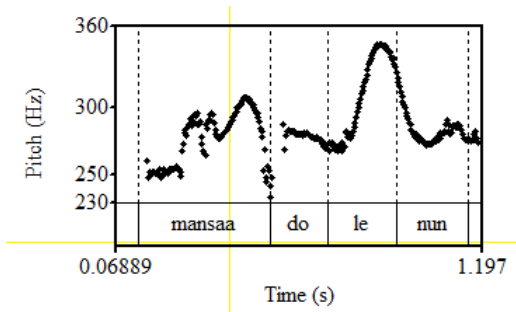


Apart from (6.78), there are only three other examples in my corpus where ↑H ends up on a syllable preceding the syllable, associated with lexical L: (6.79) and (6.80) are also utterances with final *lè*, and in (6.81) ↑H is aligned before the L of the referential article.

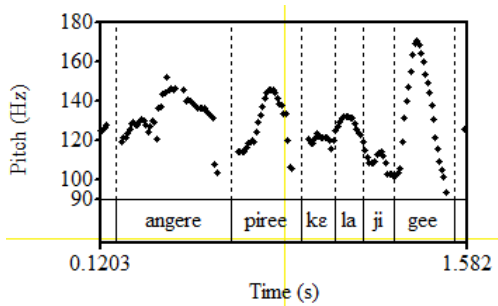
- (6.79) *kònò kòtéé bá wótè↑é lè*
kònò kòtéè báa wóti-È lè ↑HL%
 but now as money-ART FOC HL.BT
 But since now there is money...



- (6.80) *mànsáá †dó lè↑é nùn*
mànsa-È dó lè nùn ↑HL%
 chief-ART one FOC PST HL.BT
 There was a chief once upon a time...



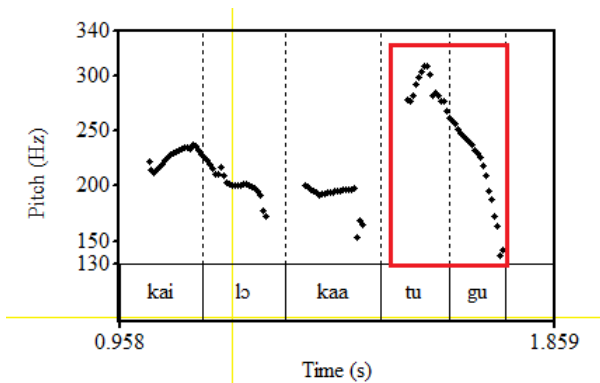
(6.81) *àngé⁺ré pìr⁺é kè lájì↑gèè*
 àngére pìri-È ke la-jìgi-È-↑HL%
 manure-ART price-ART this CAUS-descend-ART-HL.BT
 to lower the price of the manure



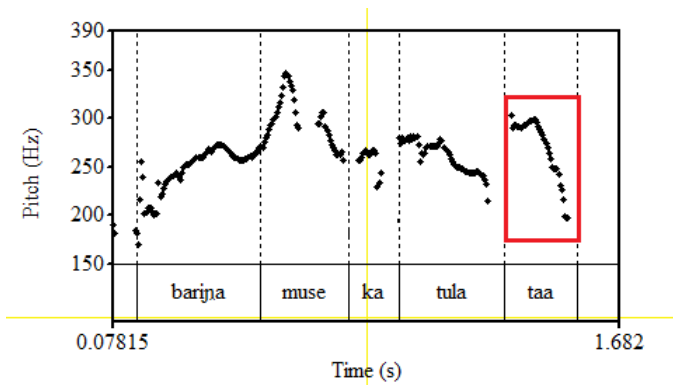
6.4.5.6.2 *H% replaces lexical L*

Out of 23 tokens of IP with lexical L on the penultimate mora, there are only two examples where lexical L is deleted to yield place to the ↑H% on the penultimate syllable, see (6.82) and (6.83) below. More data is needed to evaluate the status of the deletion of the lexical tone.

(6.82) *kà ì lò kà à ↑tùgù*
 kà ì lò kà à tùgu-↑HL%
 INF REFL stop INF 3SG
 ... to settle and to pound



- (6.83) *bàrìjǎ mùsè kà túlǎ †tǎǎ*
bàrìjǎ mùsu-È ka túlǎ-È tǎ-†HL%
 PR.N woman-ART PFV.TR mouse-ART take-HL.BT
 Woman called Barinya took the mouse.



6.4.5.7 Weight of the final syllable and the alignment of †HL%

If the final syllable of the IP is underlyingly heavy, it tends to be realized as heavy when the IP ends with †HL%.

First, if the final syllable of the IP with †HL% is a monosyllabic CV(V) verb, the latter is always realized with a long vowel and †HL% is realized on this final syllable, as in (6.84) below. This is important because in general monosyllabic verbs have unstable length, see Section 3.3.2.2.1.

- (6.84) *sà máǎ mànì †kéè*
sàma-È máni ké-†HL%
 rainy.season-ART COND arrive-HL.BT
 When the rainy season arrives

Second, if the final syllable is of the type CVN, the underlying N is in most cases preserved and †HL% is realized on this CVN syllable (in general N is unstable and is not always realized at the end of an IP, see Chapter 2, Section 4.2). There are 62 tokens of IPs ending with underlying CVN syllables. In 56 cases out of this †HL% is aligned on this last syllable, as in (6.85 a)-(6.85 e) below.

- (6.85) (a) *sì kǎyèènú máǎ sò†ǎn*
sì kǎyi-È-nu máǎ sòn-†HL%
 if man-ART-PL PFV.NEG agree-HL.BT
 If men don't agree ...

(b) *háráy wó lè †mùséènú tù†gún*
háray wo lè mùsu-È-nu túgun-†HL%
 DISC 2PL LG woman-ART-PL again-HL.BT
 Well, and as for you, women

(c) *ì ì búúmákòrì†lèn*
ì bi búu-ma-kòri-len-†HL%
 2SG be be.pregnant-HL.BT
 You are pregnant

(d) *màsáà dóó lè nù†ún*
mànsa-È dóo lè nùn-†HL%
 chief-ART one FOC PST-HL.BT
 There one [person] once upon a time [beginning of a tale]

(e) *̀̀̀ sì mín fò ò †yèn*
̀̀̀ si mín^L fò ò yen-†HL%
 1SG POT REL say 2PL BNF-HL.BT
 [Listen] what I will tell you: “... ”

There are only six cases when the IP ends with CVN and the †HL% is distributed on the last two syllables, they are listed in (6.86 a)-(6.86 f). In three of these cases N can be either preserved in the realization (6.86 a)-(6.86 d), or disappear, (6.86 e) and (6.86 f). It might be relevant that in all these cases the CVN syllable has no underlying tone.

(6.86) (a) *ì báá bàn†bálèn*
ì bi à bànba-len-†HL%
 2SG bi 3SG carry.on.back-HL.BT
 You have it on your back.

(b) *sì à í nìngéè tó†ólèn*
sì à bi nìngéè tò-lén-†HL%
 if 3SG be cow.ART leave-PC.ST-HL.BT
 If there is a cow left after him...

(c) *mànsáà dò lè†é nùn*
mànsa-È dó lè nùn †HL%
 chief-ART one FOC PST HL.BT
 There was a king once upon a time ... [beginning of a tale]

(d) *ì mánáá dònì jóó là †túgùn*
ì máni à dònì jóó la túgun-†HL%
 2SG COND 3SG send there OBL again-HL.BT
 When you bring it there again ...

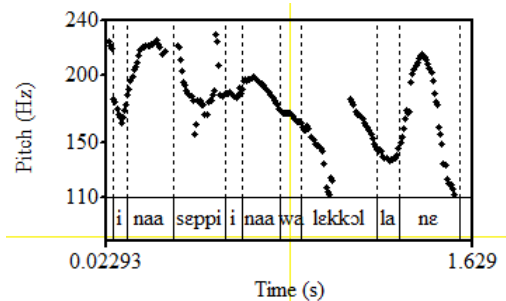
(e) *àn tí mà lá sànséènù sànsà ↑má yè*
ànu báti mà la sànsɛ-È-nu sànsa mà yen ↑HL%
 3PL PFV.OF 1PL POSS hedge-ART-PL put.hedge 1PL BNF HL.BT
 They have put the hedge for us.

(f) *sì mà káá sòtò mín sì tóórɔ̀yà b̀*
sì mà ka à sòtò mín^L si tóórɔ̀ya-È bó
 if 1PL PFV 3SG get REL POT problem take.away
óm↑á yè
ó-mà yen ↑HL%
 2PL-1PL BNF HL.BT
 If we find someone who can resolve our problems ...

6.4.5.8 Lexically associated ↑HL%

It is not always easy do distinguish between a lexically-toned and the boundary tone. Thus, there are lexical items that, on the one hand, tend to occupy the IP-final position and, second, that often host the ↑HL%. Let’s look at the realization of the echo-question particle *ne* which is almost always final and is almost always pronounces with ↑HL, as in (6.87):

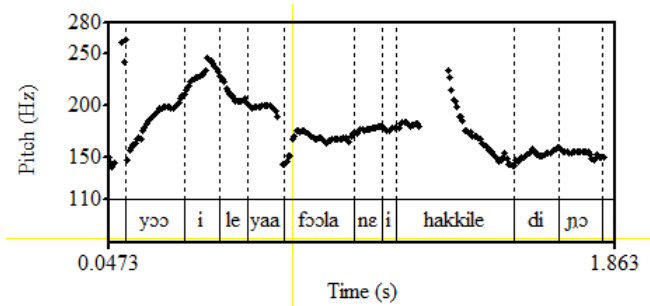
(6.87) *ì náá †séppi í náá wà lèkkɔ̀l là ↑néè*
ì ni à séppi ì ni à wà lèkkólu là ne-↑HL%
 2SG SBJV 3SG go.on.foot 2SG SBJV 3SG go school OBL ECHO-HL.BT
 You go to school on foot, right?



In rare cases it occurs in the middle of an IP and in this case it has no tone, so that the tone of the preceding element spreads onto it which shows that the HL tone is not its lexical tone but the boundary ↑HL%:

(6.88) *ỳ̀ ì †lé yáá †f̀́lá né ì hákkilè d̀̀*
ỳ̀ ì lè bi à f̀́-la ne ì hákkili-È dí
 DISC 2SG LG be 3SG say-GER ECHO 2SG intelligence-ART pleasant
ɲ̀̀
ɲ̀̀
 there

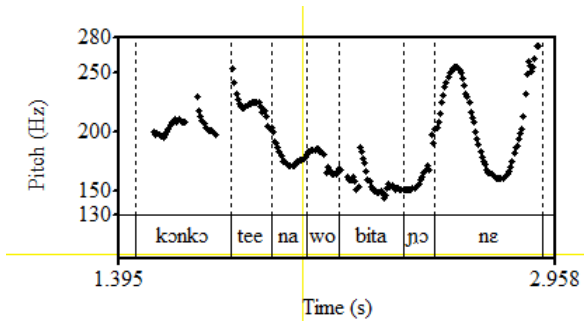
You said, didn't you, that you are clever.



The particle *ne* often host the longer \uparrow HL \uparrow H tone, as in (6.89) below:

- (6.89) *kónkó téé ná wó bità jò nénéé*
kónkó téé nà wò bita jò néné-HLH%
 hunger NEG.POT come 2PL seize there ECHO-HLH.BT

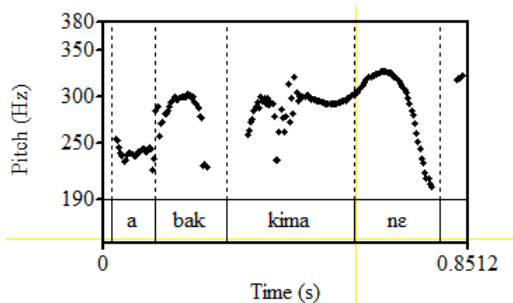
[Well, since you work in the field], you're not hungry, are you? Litt.: "The hunger cannot come to take you there, can it?"



See also (6.90) where *ne* hosts HL which is realized in an already raised register.

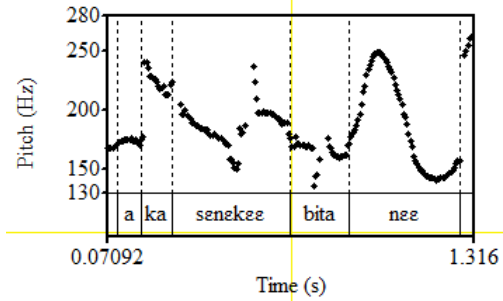
- (6.90) *à bák kímá néné*
à báti kíma ne- \uparrow HL%
 3SG PFV.OF be.cold ECHO-HL.BT

It has cooled off, hasn't it?



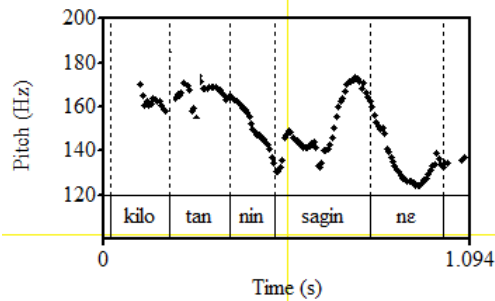
In (6.91) below is can be seen that the final H can not reach the high level:

- (6.91) *à ká sènèkée bità ↑néè*
à ka sènɛ-ké-È bita nɛ-↑HL%
 3SG PFV.TR field-do-ART seize ECHO-HL.BT
 He started doing agriculture, didn't he?



In (6.92) ↑HL is aligned on the penultimate and the last syllable:

- (6.92) *kiló tán †nín sà†gín nè*
kílo tán^L nín ságin nɛ-↑HL%
 kilometre ten and eight ECHO-HL.BT
 Eighteen kilometres, right?



The same happens in (6.93), where ↑H is aligned on *kè*:

- (6.93) *mà là lúntá†né †lé kè†é nè*
mà la lúntan-È lè kè nɛ ↑HL%
 1PL POSS visitor-ART FOC this ECHO HL.BT
 There is our guest there, right?

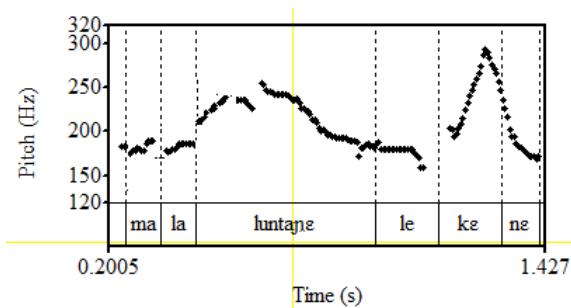


Table 6.7 below represents the number of the four types of tonal realization of the echo-question marker *nɛ*. As can be seen, the most often it hosts the ↑HL tone or the more complex ↑HL ↑H tone.

IP final, hosts ↑HL	↑ <i>nɛɛ</i>	42
final, hosts ↑HL	↑ <i>nɛɛ</i> (↑ <i>ɛ</i>)	36
IP-final, hosts L% , ↑H is hosted by the preceding syllable	↑ ₋ <i>nɛ</i>	4
not IP-final, toneless	<i>nɛ</i>	3
	Total	87

Table 6.7: Tonal realization of the echo-marker *nɛ*

Other lexical items which are often associated with ↑HL% are the particles *nɔn*, *ɔn*, *túgun* all of which can be considered as topic-shift markers, and *kòtɛ* ‘now’. Thus, the realization L↑HL is frequent for *kòtɛ*, cf. (6.94 a) and (6.94 b). See also the discussion about the LHL tone pattern of interjections in Section 5.4.6 in Chapter 5.

- (6.94) (a) *yǎn kò↑tɛɛ(0.35) ò ká tàlɛ̀ è òn mín lòn*
yàn kòtɛ-↑HL% ò ka tàli-È ɔn mín^L lòn
 here now-HL.BT 1SG PFV.TR tale-ART DISC REL know
 So, now.. here’s the story which I can tell...
- (b) *yǎn kòtɛ mà bátáà lòn*
yàn kòtɛ mà báti à lòn
 here now 1PL PFV.OF 3SG know
 Now we know...

6.5 Prosody and information structure

In Kakabe, prosody is not involved in marking contrastive or information constituent focus. This type of focus which is traditionally considered as the core type of focus category is marked instead by the particle *lè*. For this reason, Kakabe could be included in the category of languages that do not use prosody for coding categories of information structure. Yet this conclusion would have been premature, because in Kakabe intonation and tone can express contrasts which belong to the focus category in the larger sense.

As mentioned in the introductory part (see 6.2.5), the current study follows the approach in which focus is considered as a multifunctional category which, apart from the contrastive or information constituent focus in main declarative utterances, also includes interrogative phrase focus, polarity item focus and assertions focus. All these categories can be viewed as

the information center of their utterance, because they give rise to the set of relevant alternatives against which the utterance is construed.

As I argue in Section 6.5.3 within the category of indefinite pronouns, Kakabe uses prosody to signal whether the pronoun gives rise to a set of alternatives against which the utterance is interpreted, and if so, what kind of set of alternatives. Both intonation and tonal oppositions are involved in it: first, the intonational register raising and, second, the H^L tonal pattern as opposed to H. Apart from that, register raising is realized on lexemes which have inherent assertion focus.

6.5.1 Lexical items hosting register raising

This section analyzes the association between register raising and various types of pragmatically prominent lexemes by which I mean elements associated with different focus, as described above. These include polarity items, universal quantifier, the emphatic particles which are characterized by inherent assertion focus, they are listed in (6.95) below.

(6.95) Discourse-prominent lexemes

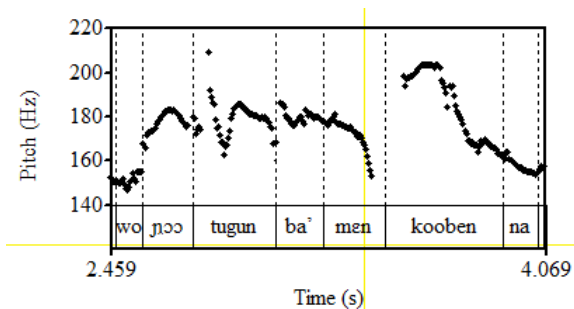
↑H ~ H	↑fó ~ fò ‘every’ ↑wó ~ wó ‘any’ ↑tígítigi ‘exactly, precisely’	IP-medial IP-final	universal quantifier-determiner, free-choice quantifier-determiner
↑HL	↑dóodò, ‘anybody’ ↑fěnfě̀n ‘anything’, ↑wówò, ↑kóokò, N + ↑wó + N ‘any X’	IP-initial IP-medial	polarity items
↑HL ~ ↑H ^L	↑fúsi ~ ↑fúyì ~ ↑fús ^L ‘nothing at all’, ↑fě̀w ‘absolutely’	IP-medial IP-final	domain-widener quantifier
↑H ^L	↑háa ‘until, a lot’, ↑kóobè̀n ‘indeed, a lot’, ↑dé	IP-final	negative/emphatic adverbial quantifiers
(L)↑H ^L	↑pét, ↑pós, ↑wósowoso, ↑sót, mè ↑gés, pè ↑réw, ngà ↑sí, ...	IP-final	ideophones, intensifiers

All these lexemes are characterized by a particular type of focus. Thus, the words $\uparrow f\acute{u}s^L$ ‘nothing at all’ and $\uparrow f\acute{e}w^L$ ‘absolutely’ are a special type of quantifier characterized as ‘domain wideners’ (Chierchia 2006), since they trigger the widening of the domain against which a referent is interpreted. The adverbs $\uparrow h\acute{a}a$ ‘until, a lot’, $\uparrow k\acute{o}ob\grave{e}n$ ‘indeed, a lot’ are a type of propositional quantifier with an intensifying function. On the connection between ideophones and focus see, for example, (Alpher 2001).

6.5.1.1 Adverbs with assertion focus

The adverb *kóobèn* is usually pronounced with register raising, as in (6.96) below.

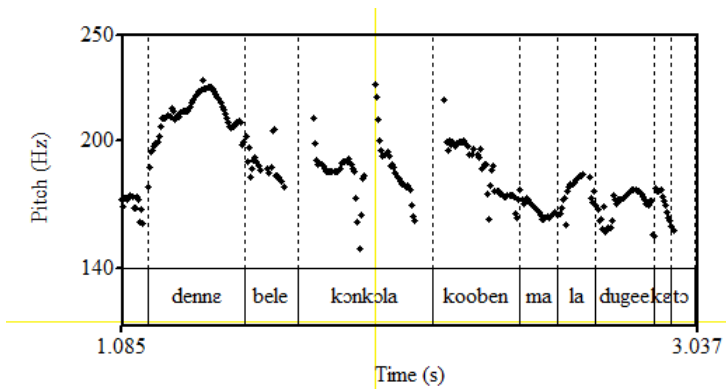
- (6.96) *wò ɲóó tógún bán mén ↑kóóbèn nà*
 wo ɲóó tógún báti mén kóobèn la
 that there again PFV.OF last much OBL
 It has lasted a long while.



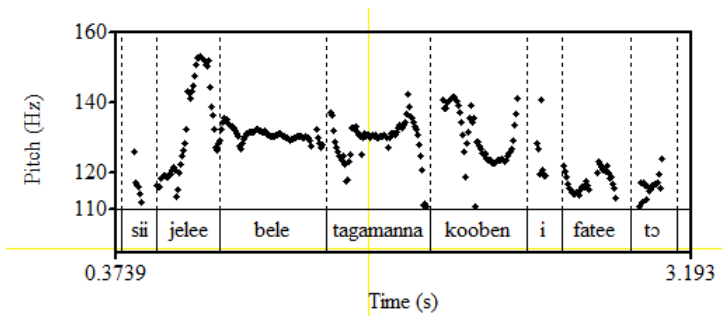
Yet, this adverb can also be realized with a simple H on the first syllable. Thus, in a negative utterance there is no register raising on the emphatic adverb *kóobèn* because the latter is in the scope of negation and therefore is no more the main focus of the utterance.

- (6.97) *dénnèè bèlè kònkòl\grave{a} kóó⁺bén mà lá dùg\grave{e}é k\grave{e}*
 dén-nden-È béle kónk\grave{o}-la kóobèn mà la dùgu-È k\grave{e}
 child-DIM-ART be.NEG be.hungry-GER a.lot 1PL POSS land-ART that
 t\grave{o}
 t\grave{o}
 in

Children don't suffer from hunger too much in our country.



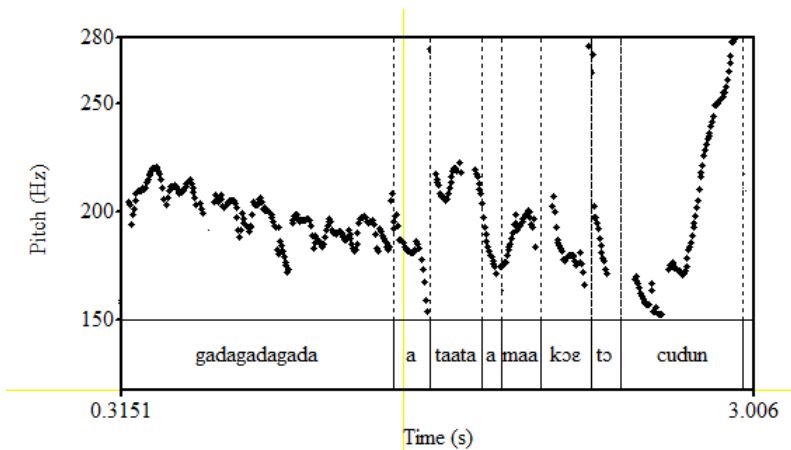
- (6.98) *sii jèlèè bèlè tàgàmànnà kóó⁺bén ⁺i fàtèè tò*
sì ì jèli-È béle tàgaman-la kóobèn ì fàti-È tò
 if 2SG blood-ART be.NEG walk-GER a.lot 2SG body-ART in
 If your blood does not circulate well in your body...



6.5.1.2 Ideophones and intensifiers

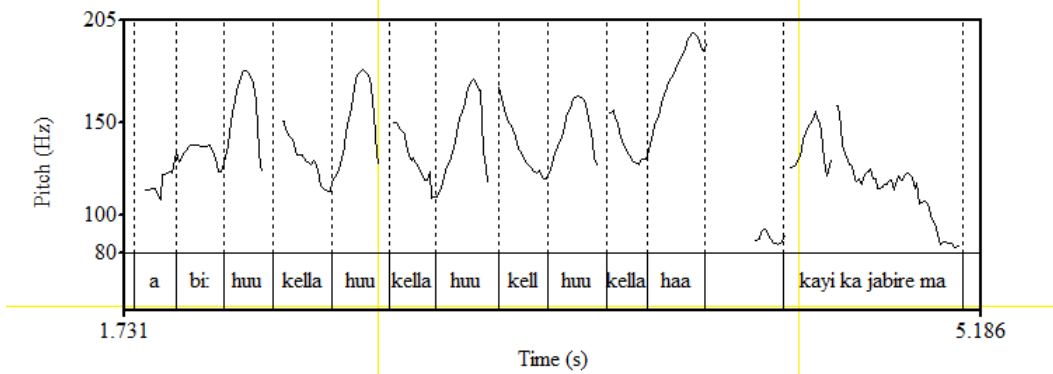
Intensifier is a special type adverb with emphatic meaning and very high semantic specialization to small sets of verbs or, often, individual verbs. In the clause-final position they are always pronounced with a \uparrow H realized in the raised register, as in (6.99) and (6.100) below.

- (6.99) *ò tí mò tólní \uparrow fás*
wò báti mò tólní \uparrow fás
 2PL PFV.OF 1PL welcome INTSF
 You have welcomed us very well!



Ideophones in Kakabe can occur in DO position. Importantly, in this case they are pronounced with simple H and not with \uparrow H. Thus, in (6.102), the ideophone *húù* as a complement of the verb *kéle* ‘call’ in all the four instances is pronounced lower than the particle *háa* which introduces the second clause.

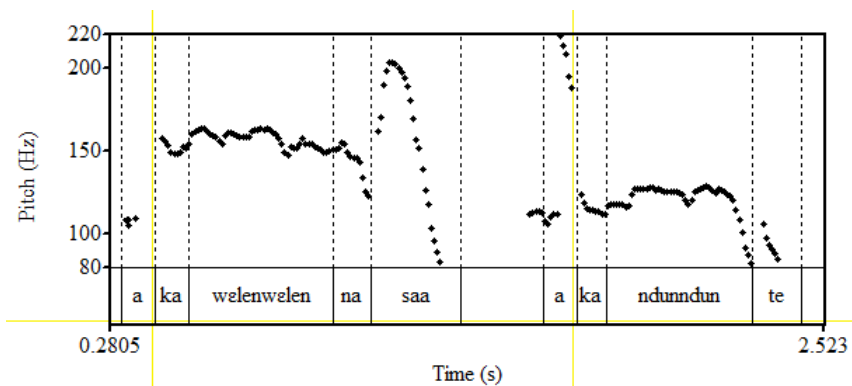
- (6.102) *à bi húù kèllà húù kèllà húù kèllà húù kèllà*
à bi húú kéle-la húù kéle-la húù kéle-la húù kéle-la
 3SG be IDEO call-GER IDEO call-GER IDEO call-GER IDEO call-GER
 \uparrow *háá(0.22) kàyí ká jàbirè mà*
háa kàyí ka jàbiri-È má
 until man PFV.TR answer-ART make
 He called, he called, he called until the man answered him.



In (6.103) below the ideophone *wélenwélen* occupies the DO position and it is pronounced with the tone lower than the boundary \uparrow HL% on the verb after it. The whole of the second clause is realized in a lowered register, and the ideophone *ndúnndun* is thus pronounced with a tone considerably lower than the ideophone in the preceding clause.

- (6.103) *à ká wélenwélen ná \uparrow sáà(0.23) à kà ndúnndún tè*
à ka wélenwelen la-sá- \uparrow HL% à ka ndúnndun tè
 3SG PFV.TR ONOMAT CAUS-lie-HL.BT 3SG PFV.TR ONOMAT split

She put down the [box which produced the sound] “welenwelen” and split [box which produced the sound] “ndunndun”.



6.5.2 Pragmatically prominent items and the blocking of Tone Leveling

Pragmatically prominent lexemes can block the application of Tone Leveling. This process is manifested through the deletion of PhP-final H tone(s) or through the delinking of a PhP-medial L tone; it is described in Section 5.6 in the previous chapter.

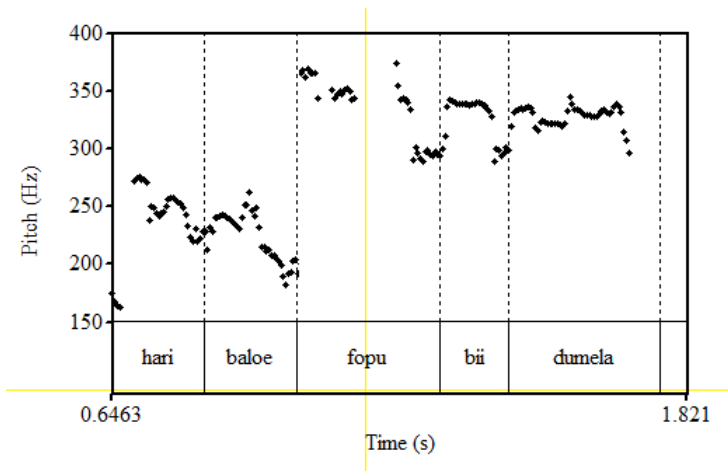
Let's consider the realization of the universal quantifier $fó(o) \sim fóp(u)$ and its effect on Tone Leveling. Table 6.8 represents proportions of different types of its tonal realization. As can be seen, most often, it is realized at the top of the tonal register. In one third of cases, it is preceded by partial upstep (51 occurrences), in 22 tokens it is under downdrift, but with the preserved H, finally, only in two cases its H is delinked.

Tonal realization of $fó(o) \sim fóp(u)$		
At the top of tonal register	97	56,39%
Preceded by partial upstep	51	29,65%
Under (full) downdrift	22	12,79%
H delinked	2	1,16%
Total	172	100%

Table 6.8: Tonal realizations of the universal quantifier $fó(o) \sim fóp(u)$

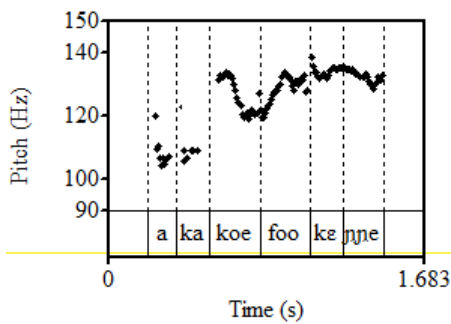
The quantifier can be preceded by the general raising of the tone register as in (6.104).

- (6.104) *hári ì bálòè †fópú bíí dúmélá*
hári ì bálu-È fópu bí ì dúme-la
 DISC 2SG body-ART all be 2SG hurt-GER
 All your body hurts.



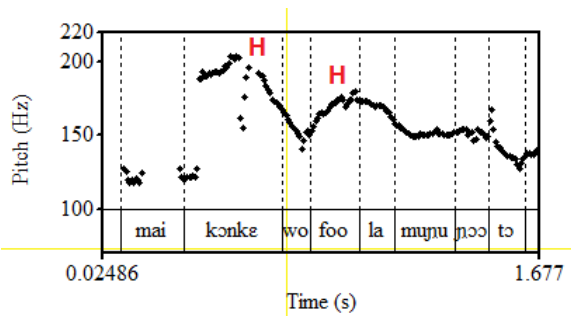
See (6.105) where H of the quantifier is not deleted (the L of the 1SG pronoun *ɲ* is here subject to optional deletion, see 5.7.3.2).

- (6.105) *à kà kóè †fóó ké ɲɲé*
à ka kóo-È fóo ké ɲ yen
 3SG PFV.TR thing-ART UNIV do 1SG BNF
 She did everything for me.



Yet, though pragmatically prominent lexemes are realized at the top of the tone register, the raising of the register is not obligatory for their realization. Thus, in (6.106) the H on *fóo* is under downdrift. But even in this case the H on the quantifier does not participate in Tone Leveling: it can neither be deleted (no FTL), nor can it spread to the left itself (no MTL).

- (6.106) *mà ì kónkè wò fóó lá⁺mùnyú ɲóò tò*
mà bi kónkə-È wò fóo lamùnyu ɲóò tò
 1PL be hunger-ART that UNIV suffer there in
 We are hungry there all that time (litt.: “We suffer all that hunger there”).



Due to its lexical meaning, in most cases, *fóo* hosts the main focus of the utterance. Its H tone can delink only in those rare cases when, due to a particular pragmatic or syntactic configuration, *fóo* is expelled from the main focus of the utterance. This happens in (6.107) where it is in the scope of negation, and the universal quantification makes part of the presupposition.

- (6.107) *dén[↓]nén* *de[↑] téé* *sò* *à* *fò* *sùnnà*
dénden-È-nu *lè* *tée* *sòn* *à* *fóo* *sún-la*
 child-ART-PL FOC NEG.POT agree 3SG UNIV fast-GER

The children, they don't fast all the Ramadan.

Likewise, in (6.108) L of the first clause spreads onto *fó*, whereas in the second clause where no negation is present H of *fóo* is preserved.

- (6.108) *àn* *tée* *sòn* *à* *fò* *sùnnà* *dénnèèn* *dóón* *sàà*
ànu *tée* *sòn* *à* *fóo* *sún-la* *dénden-È* *dóo-nu* *si* *à*
 3PL NEG.POT agree 3SG UNIV fast-GER child-ART one-PL POT 3SG
 ↑*fóo* *súnná*
fóo *sún-la*
 UNIV fast-GER

They don't want to fast during all the Ramadan, and others fast during all the period of Ramadan.

6.5.3 Tone, register raising and sets of alternatives

In this section I will describe three series of pronouns which are distinguished by tone and, as already mentioned earlier, they differ by the type of triggering the set of alternatives.

Table 6.9 represents three series of pronouns, each is characterized by a specific prosodic pattern paired with a particular semantic type of reference. In the interrogative pronouns series *mín^L* 'what' and *yón^L* 'who' represent different roots, but they fit in the paradigm in that their prosodic pattern matches the semantic type associated with this prosodic pattern in

the other two series. The roots *fěn* and *kóo* are also used as nominal roots expressing generic meaning, ‘thing’ and ‘matter, affair’, respectively. The pronoun *dóo* ‘a certain person’ goes back to ‘one’, and, when used adnominally, it is a weakly grammaticalized indefinite marker, see Section 2.5.6 in the grammar sketch. The polarity items are reduplicated roots, whereas indefinite pronouns and interrogative focus pronouns are simple roots.

	indefinite pronouns	polarity items	question pronouns
	H	↑HL	H ^L
thing	<i>fěn</i>	↑ <i>fěnfěn</i>	<i>fěn</i> ^L
proposition/manner	<i>kóo</i>	↑ <i>kóokò</i>	<i>mín</i> ^L
person	<i>dóo</i>	↑ <i>dóodò</i>	<i>yón</i> ^L

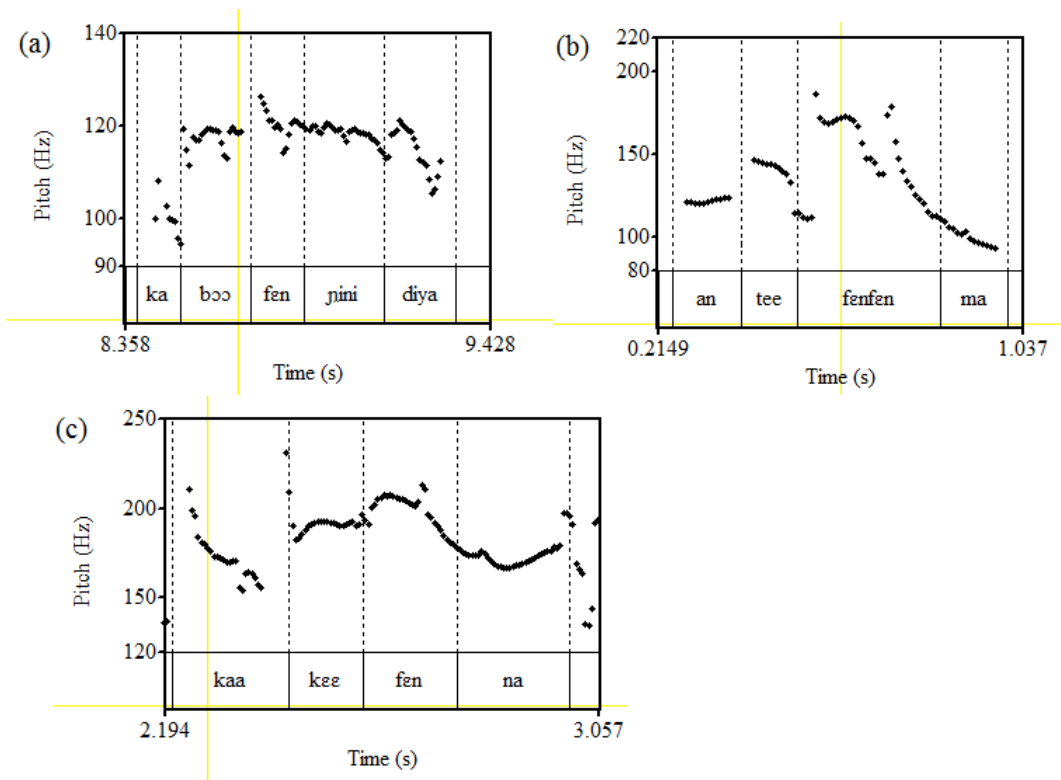
Table 6.9: Three series of indefinite pronouns

Examples (6.109 a)-(6.109 c) below illustrate the three series. Thus, the tone on *fěn*, see Figure (a) below, is at the same level as both the preceding H and the following H, in (b) ↑*fěnfěn* is pronounced with raised H on the first syllable which is considerably higher than the H on the negative potential auxiliary *tée* which precedes it. Finally, in (c) *fěn* as an interrogative pronoun is pronounced with a simple, not raised H, and the floating L is realized on the following postposition *la* which is underlyingly toneless. The minor rise of tone on *fěn* in (6.109 c) is due to H-raising which Hs undergo before L tones (see Section 5.2.2) and, importantly, it is considerably smaller than the excursion resulting from the intonational register raising.

(6.109) (a) *kà bó fěn níni díyà*
 kà bó fěn níni díyà
 INF go.out thing look.for for
 to go and look for something.

(b) *àn téé ↑fěnfěn mà*
 ànu téé ↑fěnfěn má
 3PL POT.NEG thing.PI do
 They don’t do anything.

(c) *kàà ké fěn nà*
 kà à ké fěn^L là
 INF 3SG do thing.Q OBL
 ... and to transform it into what?



I will use here the notion ‘set of alternatives’ or ‘lattice of alternatives’ as in (Krifka 1995). In Krifka’s approach each utterance is a triplet of (1) foregrounded proposition, (2) contextual background and (3) the set of alternatives to the foregrounded proposition. As it is shown in the following examples, in irrealis contexts the set of alternatives is construed independently of the indefinite pronoun occurring in it. In contrast to that, the polarity items and the question words give rise to sets of alternatives against which the utterance is interpreted. The pronouns with the \uparrow HL tone pattern \uparrow *fɛnfɛn*, \uparrow *kóokò*, \uparrow *dóodò* are best described as polarity items. They are associated with a set of hierarchically ordered alternatives, and depending on the polarity environment all the alternatives hold true or rejected. They are used both in negative and affirmative contexts. The specificity of the polarity item is that it refers to an hierarchically ordered set of items, whereas the *wh*-word refers to an unordered set of propositions. The elements in the utterance which trigger a set of alternatives are in focus by definition (Krifka 2008; Rooth 1992).

Table 6.10 represents the relation between the three types of pronouns and the set of alternatives, constituting the background of the utterance in which they are used.

indefinite pronoun	Polarity item (negation/ free choice)	question word
H	↑HL	H ^L
does not trigger any of alternatives	triggers a set of alternatives organized on a scale	triggers an unordered set of alternatives (possible answers)

Table 6.10: The three series of pronouns and the set of alternatives

6.5.3.1 Distribution of indefinite pronouns

Figure 6.2 below represents the distribution of the two series of pronouns in Kakabe: the simple-root H pronouns and the ↑HL pronouns with the reduplicated root. As can be seen, ↑HL pronouns are used in comparative context and as free-choice pronouns, whereas in the remaining part of the map H pronouns are used.

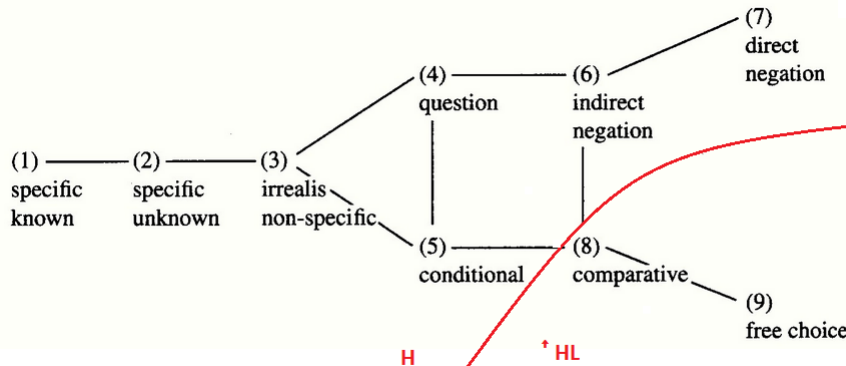


Figure 6.2: Indefinite pronouns in Kakabe on theHaspelmath (1997) schema

Specific known:

(6.110) *má gèrètà fɛ̃n sàbá lè kò(0.35) lúúmó kòè à*
mà gèrɛ-ta fɛ̃n sàba lè ko lúumɔ kó-È à
 1PL strive-PFV.INTR thing FOC three for market subject-ART 3SG

nín kè jáámúyè à nín ké lèkkólè
nín kè jáamuy-È à nín kè lèkkɔl-È
 and that mosque-ART 3SG and that school-ART

We've struggled [to have] three things: the market, the mosque, the school.

Specific unknown

- (6.111) *ǹ bì síkkéla dóó i bóɲè là*
ǹ bi síkke-la dóo bi bóɲ-È la
 1SG be think-GER PERS.one be house-ART OBL
 [I've heard a noise] I think there is somebody in the house.

Irrealis non-specific:

- (6.112) (a) *à sì fɛ́n nààtì mà náà dàmù*
à si fɛ́n nàati mà ni à dàmù
 3SG POT thing bring 1PL SBJV 3SG eat
 He will bring something for us to eat.
- (b) *mà nì dóó bó mín †sáà kàntàn háá sàgóè*
mà ni dóo bó mín^L si à kántan háa sàgu-È
 1PL SBJV PERS.one take REL POT 3SG guard until morning-ART
mà
ma
to
 We need to find somebody who would look after it until the morning.

Question

- (6.113) (a) *ènéè dóó báá fɛ̀ kà kè báára kè*
ènéè dóo bi à fɛ̀ kà kɛ báara-È ké
 INTERR PERS.one be 3SG with INF that work-ART do
 Is there anybody who wants to do this work?
- (b) *fɛ́n bí ɲó mà sì mín dàmù*
fɛ́n bi ɲó mà si mín^L dàmù
 thing be here 1PL POT REL eat
 Is there anything that we can eat?

Conditional

- (6.114) (a) *sì mà dóó sòtò mín sì tóórɔ́yà b̀ ómà yèn*
sì mà dóo sòtò mín^L si tóórɔ́ya-È bó ó-mà yen
 if 1PL PERS.one get REL POT problem-ART go.out 2PL-1PL BNF
háray wò ɲó dí mà yè
háray wo ɲó dí mà yen
 DISC that here good 1PL BNF
 If we get anybody who would help us to resolve our problems we will be very happy.

- (b) *sì fě̀n kẹ́tá ò nà ànù fọ́ sí fàgà dàlàbáà*
sì fě̀n kẹ́-ta ò la ànu fọ́ sí fàga Dàlabáà
 if thing do-PFV.INTR 1SG OBL 3PL all POT die Dalaba
 If something happens with me, all of them will die in Dalaba.

Indirect negation:

- (6.115) *ò bẹ́lẹ̀ síkkéndén sì dọ́o lándén †á lá nùn*
ò bẹ́lẹ̀ síkkε-nden sì dọ́o lá-nden à la nùn
 1SG be.NEG think-PC.ST if PERS.one suppose-PC.ST 3SG POSS PST
ò sì bálù
ò sì bálu
 1SG POT live
 I don't think that anybody would hope that I would recover.

Negation

- (6.116) *àn téé fě̀n tẹ̀rèn jóó là àn téé fě̀n †tẹ̀rèn yàn*
ànu téé fě̀n tẹ̀ren jóo la ànu téé fě̀n tẹ̀ren yàn
 3PL POT.NEG thing find there OBL 3PL POT.NEG thing find here
nà
la
 OBL
 They cannot find anything there, they cannot find anything here.

Comparative: pronoun †dọ́odò

- (6.117) *ń fisa †dọ́o†dọ́ kọ́ à lònna Fántà bì súúbágá lẹ̀*
ò fisa †dọ́odò kọ́ à lón-la Fántà bi súubaga lẹ̀
 1SG be.better PERS.PI about 3SG know-GER Fanta be sorcerer FOC
là
la
 OBL
 I know better than anybody that Fanta is a sorcerer.

Free choice: pronoun †fě̀nfě̀n

- (6.118) (a) *fě̀nfě̀n mín ì bón kónó àn náá làbò*
†fě̀nfě̀n mín^L bi bón kóno ànu ni à la-bó
 thing.PI REL be house inside 3PL SBJV 3SG CAUS-go.out
 Whatever there is in the house, they take everything away.

(b) *mà kà †fɛnfɛn sòtò mà lá kàyèènu bàrikè*
mà ka †fɛnfɛn sòtò mà la kàyi-È-nu bàriki-È
 1PL PFV.TR thing.PI get 1PL POSS husband-ART grace-ART
 Whatever we get, it's thanks to to our husbands.

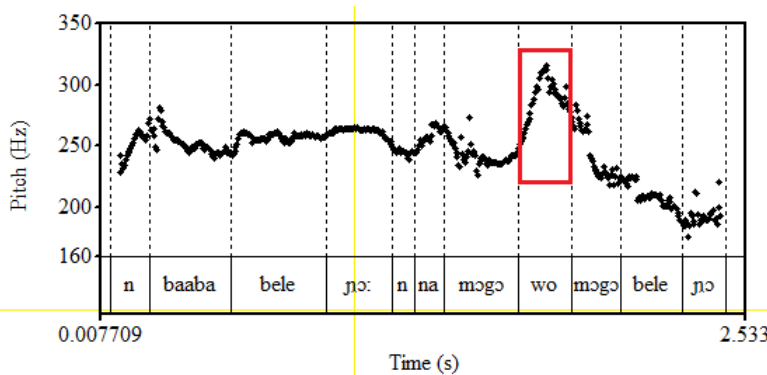
(c) *ì kà dóódò mín yèn sù máà kò ì*
ì ka †dóódò mín^L yén sù ì máà à kó ì
 2SG PFV.TR PERS.PI REL see if 2SG PFV.NEG 3SG give 2SG
máá dèèman ì kánáà kòn à mà
máa dèeman ì káni à kón à ma
 PFV.NEG help 2SG SUBJ.NEG 3SG despise 3SG to
 Whoever you see, even if you don't give them anything, if you don't help them, at least you shouldn't despise them.

(d) *̀n kà fɛnfɛn mà(0.56) à lè túgún à sàà mà*
̀n ka †fɛnfɛn má à lè túgun à si à má
 1SG PFV.TR thing.PI do 3SG LG again 3SG POT 3SG do
 Whatever I do, he will also do it.

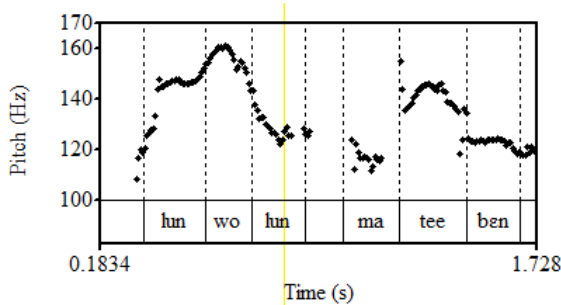
6.5.3.2 Construction “X †wó^L X”

Within the construction ‘X †wó^L X’, the determiner †wó^L plays the role of the polarity item. The construction is analogous similar in form the pronominal polarity items discussed above, since this construction also features a raised H followed by L. The place of “X” is most often occupied by a noun or an adverb (6.119), but can also be a verb form (6.121). The floating L links to the following element. Thus, in (6.120) *lún †wó^Llún* is realized as *lún †wó lún* with the floating L replacing the H of the second instance of the nominal root *lún* ‘day’ .

(6.119) *̀n báàbà bélé ɲóó ̀n ná m̀g̀g̀ †wó m̀g̀g̀ bèlè ɲò*
̀n bàaba béle ɲóó ̀n la m̀g̀g̀ †wó m̀g̀g̀ béle ɲò
 1SG father COP.NEG that 1SG POSS man PI man COP.NEG that
 My father wasn't there, none of my relatives were there.



- (6.120) *lún* ↑*wó* *lún* *mà* *tée* *bèn*
lún ↑*wó* *lún* *mà* *tée* *bèn*
 day PI day 1PL POT.NEG meet
 All the time, we were arguing.



- (6.121) *n* *ná* ↑*káyé* *sìgìndèn* ↑*wó* *sìgìndèn*
n *la* *kàyi-È* *sìgi-nden* ↑*wó* *sìgi-nden*
 1SG POSS man-ART sit-PC.STAT PI sit-PC.STAT
 My husband is sitting there all the time [selling cigarettes].

6.5.3.3 *H* and ↑*HL* pronouns in negative context

In this subsection I will describe the contrast between the simple *H* indefinite and the reduplicated ↑*HL* polarity items in the negative context.

In (6.116), the set of alternatives can be represented as ‘they find it here, they find it there, ...’, both of which are denied by the negation in the proposition. In contrast to that, in (6.122), where the *H* pronoun is used, the set of alternatives is construed around the time of eating, a variable which is not associated with the pronoun: ‘they ate in the morning, they ate in the evening, ...’, among which the first proposition ‘they ate in the morning’ is denied by the negation. See also (6.116), containing a contrasted pair of propositions.

- (6.122) *hári* *ànù* *máá* *fén* *dámú* *sàgòè* *mà* *náá* *àn*
hári *ànu* *máá* *fén* *dámu* *sàgu-È* *ma* *náa* *ànu*
 DISC 3PL PFV.NEG thing eat morning-ART on before 3PL
náà *wà*
ni *à* *wá*
 SBJV 3SG go

They didn’t eat in the morning, before going [to school].

See also (6.123 a) and (6.123 b), where the alternative to *fénfèn* is explicit in the preceding text.

- (6.123) (a) *à téé bó à téé kúma †fɛnfɛn*
à téé bó à téé kúma †fɛnfɛn
 3SG POT.NEG go.out 3SG POT.NEG speak thing.PI
 She cannot go out, she cannot speak, nothing at all.

- (b) *ì téé síúsé †fɛnfɛn fɔ́lá ì táà yità*
ì téé síúse †fɛnfɛn fɔ́-la ì téé à yità
 2SG POT.NEG dare thing.PI say-GER 2SG POT.NEG 3SG show
 †dóodò là
 dóodò la
 PERS.one OBL
 You don't dare to say anything, you cannot show it to anybody.

On the other hand, the two contrasting alternatives 'we' vs. 'him' in (6.124) do not involve the pronoun *fɛn*.

- (6.124) *mà téé fɛn fɔ́ à lè tógún téé fɛn fɔ́(0.15)*
mà téé fɛn fɔ́ à lè tugin téé fɛn fɔ́
 1PL POT.NET thing say 3SG LG again NEG.POT thing.one say
kàlà ní bìlà í là kílà gbàá là
kàla ni bila ì la kíl-a-È gbàa-È là
 every SBJV go.into 2SG POSS road-ART trace-ART OBL
 We wouldn't say anything and he didn't say anything either, everyone continued his way.

The difference in the role of the two pronouns in the construal of the set of alternatives is evident in how they are used in the exclusion construction. The heavy pronoun is used in the exclusion construction as a placeholder for the excluded element. Examples (6.125 a) and (6.125 b) represent the two exclusion constructions used in Kakabe: the prepositional construction with the preposition *fó* 'except' and the construction where the excluded part is expressed within a conditional clause. The light pronoun is impossible in this configuration.

- (6.125) (a) *à bélé mà bàlùlèn †fɛnfɛn nà fó kòrò*
à béle mà bálu-len †fɛnfɛn là fó kóro
 3SG be.NEG 1PL feed-PC.ST thing.PI OBL except rice
 He doesn't give us anything to eat except for rice.
- (b) *án dè bèlè †fɛnfɛn dàmùlà(0.31) sì túlú wúlénè náàn ná*
ànu lè béle †fɛnfɛn dámu-la sì túlu wúlen-È nín ànu la
 3PL LG be.NEG thing.PI eat-GER if oil red-ART and 3PL POSS
nìngè túlè máà
nìgi-È túlu-È máa
 cow-ART oil-ART PFV.NEG

They don't eat anything apart from the palm oil and butter from their cow.

The light pronoun can appear in the exclusion construction only if it is not associated with the excluded element:

- (6.126) *àn téé fěn wáli àn jètè yèn fó àlkámisà*
ànu téé fěn wáli ànu jètè yen fó àlkamisa
 3PL POT.NEG work thing 3PL self BNF except Thursday
 They could work for themselves only on Thursday.

Indefinite pronouns can be used with modifiers which is impossible for the reduplicated pronouns, whereas heavy pronouns are incompatible with modifiers, as in (6.127) below:

- (6.127) *fěn sééwá bì là*
fěn séewa bi i la
 thing joyful be 2SG OBL
 You are glad. Litt.: A joyful thing is on you.

6.5.3.4 Interrogatives

Just as negative utterances are construed against a relevant set of propositions which are denied, interrogatives are construed against a relevant set of propositions which are possible answers. In the Alternative Semantics approach to questions (Hamblin 1974; Karttunen 1977; Krifka 2008), the meaning of a question is the set of propositions that answer the question. The interrogative constituent in the question is characterized by a focus feature, and the set of answers correspond to this constituent, see discussion in (Krifka 2008: 141-142).

Crucially, the light pronoun used as wh-word is tonally different from the light pronoun used in irrealis or negative context: in the former case it is a H followed by a floating L, and in the latter case it is a simple H tone. In Kakabe the wh-word is often followed by the focus marker *lè*, so that the presence of focus in the wh-question is morphologically explicit:

- (6.128) *wò bì fěn dè wàlilà súúmáyè búútè tò wò lá*
wò bi fén^L lè wáli-la súumaye-È búuto-È tò wò la
 2PL be thing FOC work-GER fast-ART inside-ART in 2PL POSS
kàyèèni yèn
kàyi-È-nu yen
 man-ART-PL BNF
 What do you do for your husbands during the fast?

Yet, the interrogative pronoun may also be used without the focus marker:

- (6.129) (a) *fén* ⁺*yá*⁺*án* *fàtànnà*
fén^L *bi ànu* *fàtàn-la*
 thing.Q be 3PL divide-GER

What is the difference between them? Litt.: “What is dividing them?”

- (b) *séékú* *múmìnì* *kéyà* *à* *kà* *fén* *wàlì*
Séeku *Múmìni* *Kéyà* *à* *ka* *fén*^L *wàlì*
Sekou *Mumini* *Keyta* 3SG PFV.TR thing.one work
 Sekou Mumini Keyta, what did he do [in his life]?

So far, I have not found any systematic contrast between the cases when the interrogative pronoun is used with the focus marker and when it is used without the focus marker, cf. (6.128) and (6.129 b) where the context and the propositional meaning is almost identical, but the focus marker is present in the latter and absent in the former. For Maninka, where interrogative pronouns can also occur both with and without focus marker, Diané & Vydrin (2016: 110-113) show the focus marker is used when the open proposition contained in the interrogative utterance is implied to be true. Thus, the utterance “I didn’t buy anything” is acceptable as an answer to the question in (6.130a) but not in (6.130b) where the focus marker follows the interrogative phrase. The situation with the use of the focus marker might be similar in Kakabe, but so far there is not enough evidence to make any conclusions about it.

(6.130) Maninka (Diané & Vydrin 2016: 112)

- (a) *ì* *kà* *fén* *jùman* *sàn?*
 2SG AOR thing which buy

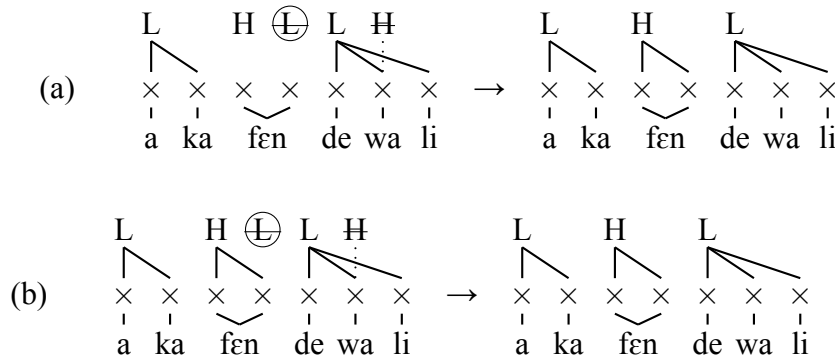
What did you buy? (Acceptable answer: “I didn’t buy anything”)

- (b) *ì* *kà* *fén* *jùman* *nè* *sàn?*
 2SG AOR thing which FOC buy

What (exactly) did you buy? (the speaker is sure that the addressee has bought something).

Crucially, the absence or presence of the focus marker does not change the resulting tonal pattern associated with the wh-constituent which is HL in either case. When the focus marker is present (6.131a), the floating L is deleted before the L of *lè*, and when it is absent (6.131b), the floating L links to the following element. So, what is constant is the HL tonal pattern.

(6.131)

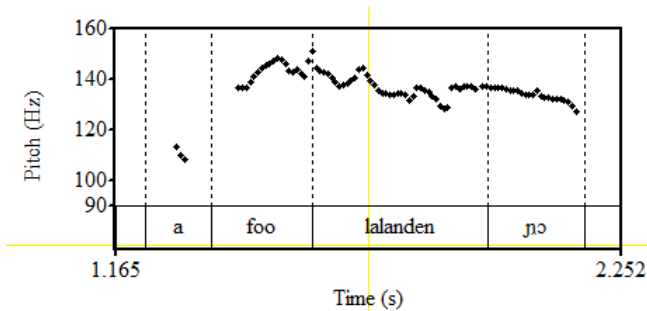


6.5.3.5 Determiners wó ‘any’ and fó ‘all’

The determiners wó ‘any’ and fó ‘all, every’ are realized with a $\uparrow H$ which, unlike the other PPLs with $\uparrow H$, is not followed by a L (with the exception of the distributive construction “X wó X” discussed in 6.5.3.2). Consequently, if wó or fó is followed by a H-toned or toneless morphemes the latter are realized at the same raised level, as in (6.132) below.

(6.132) à $\uparrow f\acute{o}o$ lálándén nó
 à $\uparrow f\acute{o}o$ la-lá-ndén n\acute{o}o
 3SG UNIV CAUS-put-PC.ST there

It all lies there.



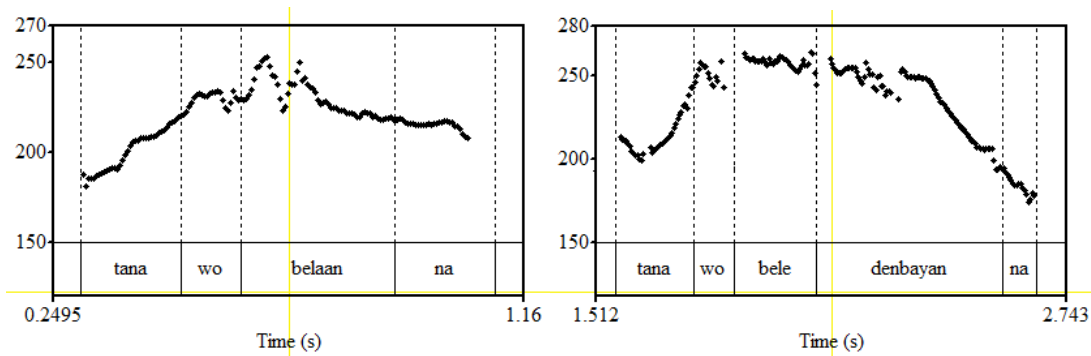
Importantly, the $\uparrow H$ of the determiner can block the L% boundary tone: if no underlying L which cannot be deleted, intervenes between the tone of the determiner and the end of IP, L% is never realized in this context, and $\uparrow H$ continues until the end of the IP, as in (6.138)-(6.141), opposed to (6.142).

Since the L of the pronoun can be deleted after a H-toned morpheme (see Section 5.7.3.2), the presence of a pronoun does not necessarily prevent the $\uparrow H$ from blocking the L%. Thus, $\uparrow H$ spreads until the end of IP despite the presence of the 3PL pronoun ànu in (6.133 a). Compare it to (6.133 b) containing a definite NP at the end of the IP which prevents the H

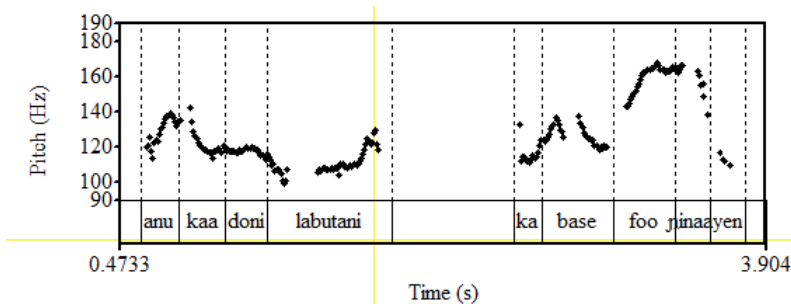
to spread until the end of the IP. Contrary to (6.133 b), in 6.134 the L of the pronoun is not deleted and the boundary L% is realized.

(6.133) (a) *tàna wó béla[†]án ná*
 tàna wó béle ànu la
 problem PI.DTM be.NEG 3PL OBL
 They don't have any problems.

(b) *tàna wó bélé démbáyàn nà*
 tàna wó béle dénbaya-È-nu la
 problem PI.DTM be.NEG family-ART-PL OBL
 The family is fine.



(6.134) *ànú káà dònì làbùtáánè(0.41) kà básí †fóó*
 ànu ka à dònì làbutaani-È kà básì-È †fó
 3PL PFV.TR 3SG send hospital-ART INF medicine-ART UNIV
ɲínáà yèn
ɲíni à yen
 look.for 3SG BNF
 They sent her to the hospital and found all the medicine for her.



Let's now look at the meaning of the †wó which is a polarity item and an adnominal equivalent of the pronominal PIs †fénfén, †dóodò, †kóokò discussed earlier in the section. It

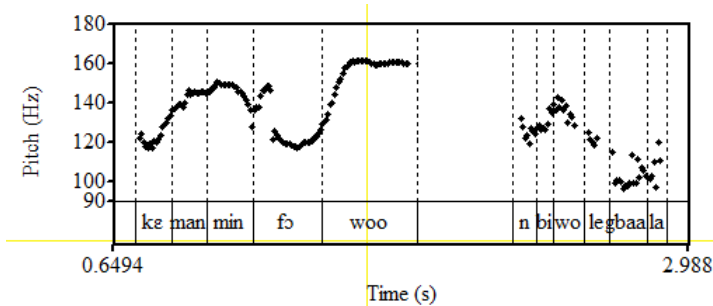
occurs most frequently in conditional protasis and in negative contexts, see Examples (6.135)-(6.137). In a conditional clause it can be used as an operator of a whole clause, see (6.135), (6.136) or as a determiner of an NP, 6.137 and (6.137).

- (6.135) *mà mání wúli ↑wó àn ní má gbàsi †mà mání wúli*
 mà mání wúli wó ànu ni mà gbàsi mà mání wúli
 1PL COND get.up PI.DTM 3PL SBJV 1PL beat 1PL COND get.up
 ↑wó àn ní má lásààgì kóòmà
 wó ànu ni mà la-sàagi kóòma
 PI.DTM 3PL SBJV 1PL CAUS-return back

Whenever we raise our heads, they beat us, whenever we advance, they make us step back.

- (6.136) *kè mán mín fɔ́ ↑wó(0.40) ò bì wó lè gbàà là*
 kè mání mín^L fɔ́ ↑wó ò bì wò lè gbàa la
 that COND REL say PI.DTM 1SG be that FOC trace OBL

Whatever she tells me, I follow her.



- (6.137) *ì mání ké gárú ↑wó lá jéè bì*
 ì mání ké gáru ↑wó la jíi-È bi
 2SG COND arrive train.station PI.DTM OBL water be

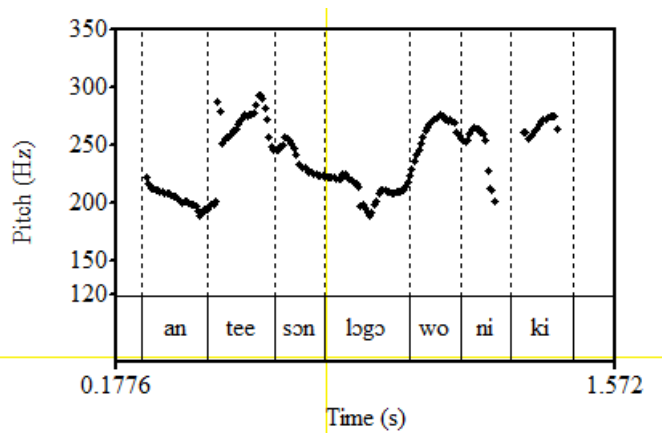
There is water at any station where you arrive.

- fěn fěn fěn ↑wó fìsà sènèkèè kò*
 fěn fěn fěn wó fisa sènè-ké-È ko
 thing thing thing PI.DTM better field-work-ART about
 Anything is better than work in the field.

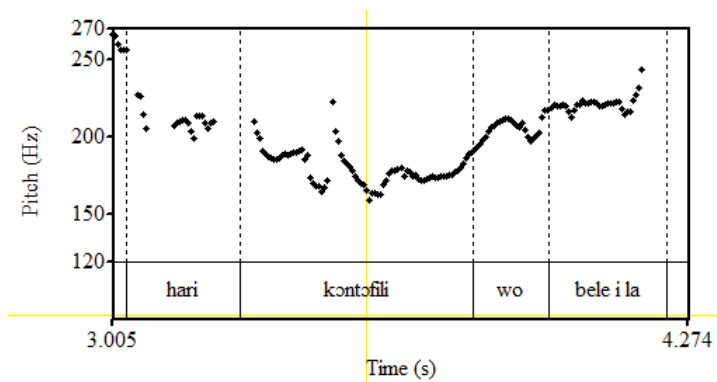
Examples (6.138) and (6.139) illustrate the usage of the determiner *wó* in negative context:

- (6.138) *àn téé sòn lógò ↑wó ní kí*
 ànu téé sòn lógò ↑wó ni kí
 3PL POT.NEG agree tree PI.DTM SBJV plant

They don't allow [us] to plant any tree.

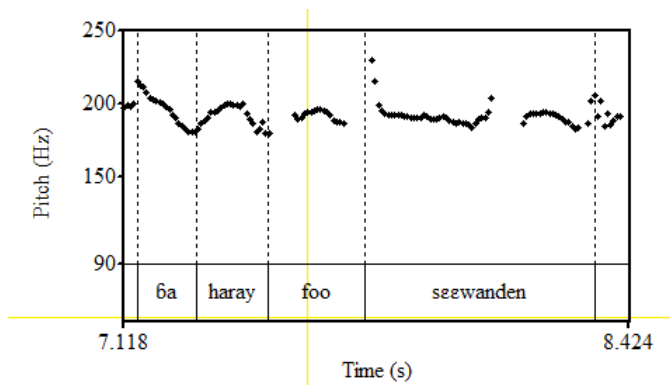


- (6.139) *hári kòntòfìlì ↑wó bélé é lá*
hári kòntòfìlì ↑wó béle ì la
 DISC problem PL.DTM be.NEG 2SG OBL
 You don't have any worries.



The determiner *fó(o)* (with variants *fóp*, *fópu*) is the universal quantifier, its tonal realization is illustrated in (6.140), see also (6.132) earlier.

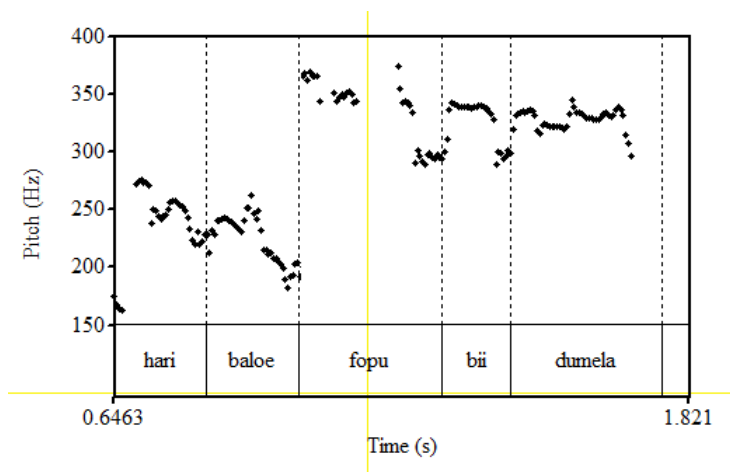
- (6.140) *bâ háray fòó sééwándén*
bâ háray fòó sééwa-nden
 so DISC 2PL UNIV
 So, you all are glad.



In (6.141) below the realization of the quantifier is accompanied by a very important rise, from 200Hz to 350Hz, at which level all the subsequent syllables are pronounced.

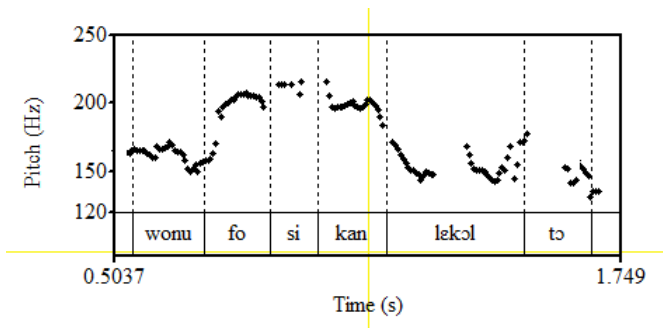
- (6.141) *hári i bálòè ↑fópú bíi dúmélá*
hári i bálu-È ↑fópu bi i dúme-la
 DISC 2SG body-ART all be 2SG hurt-GER

All your body hurts.



The utterance in (6.142) below ends with a lexical adverbial IO and therefore L% is realized on it.

- (6.142) *wònù fòó sí kán lèkòl tò*
wò-nu fó sí kán lèkòl tò
 that-PL UNIV POT ought school in
 All of them can go to school.



6.6 Whole-utterance prosodic patterns

In the previous sections we have discussed prosodic phenomena involving tone and intonation, localized at the IP right boundary or associated with lexemes characterized by various types of focus-related meanings. Here I will present two tonal-intonational patterns realized on a whole utterance: the intonation of negative continuation (6.6.1) and the listing intonation (6.6.2). Of course, many more whole-utterance prosodic patterns are to be found in Kakabe, but further research is needed to systematically describe them.

6.6.1 Intonation in negative continuation construction

The construction discussed in this section consists of two or more negative clauses. Prosodically the clauses of this construction are joined in one PhP phrase and the final clause is realized at a register, lower than non-final clauses. I will refer to this construction as “negative continuation construction” (abbreviated as NCC). It is analogous in meaning to the “neither ... nor” construction. In Kakabe it is expressed not with conjunctions, but uniquely through tone and intonation.

Kakabe has only sentential negation, consequently, the elements joined within the double negation construction are always negative clauses. At the syntactic level the joined elements are negative clauses differing in only one element.

The tonal outline of the constructions is defined primarily by the fact that, as has been said, the clauses are united in PhP. As argued in 5.3.4.2, in all other cases finite clauses form a separate PhP. The prosodic merger of clauses in this construction is a particular stylistic device which represents negative propositions as units of one list.

Apart from the unification of clauses into one PhP, the non-final clauses are realized in a higher tone register compared to the register of the final clause.

Register: Final clause is pronounced in lowered pitch register and the non-final clause is pronounced in higher pitch register.

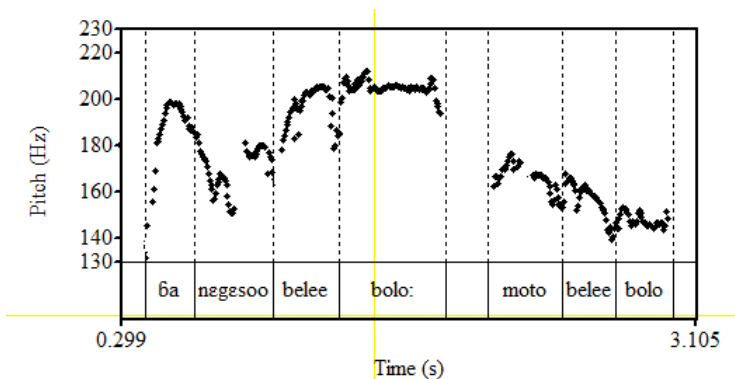
Absence of internal PhP boundary: The clauses are joined into one PhP clause, therefore:

- 1) no Tone Leveling takes place at the end of non-final clauses,
- 2) HS is inserted at the end of non-final clause with last lexical tone followed by L at the beginning of the next clause.

The clauses can be separated by a short pause, and the last vowel of non-final clause(s) can be lengthened.

Let’s look at the examples. In (6.143) below the final element of the construction, the clause *mótó béléè bólo* ‘you don’t have a motor bike’ ends with a H even tone and the final vowel is lengthened. The final clause is preceded by the lowering of the register ↓. In (6.143), the lowering of the register of the final clause is clearly seen from the fact that the H-toned noun *móto* ‘motorbike’ is pronounced with a much lower pitch than the negative existential copula *bélé* just before it. The L of the pronoun is deleted in the first clause but not in the second clause. This difference is explained by the fact that in the final clause L of the pronoun *ì* is the last L of the PhP, and, therefore, it has to spread until the end of PhP (see 5.6.1.4). By contrast, in the initial clause, L of the pronoun can be deleted, since it is followed by a PhP-internal H tone (see 5.7.3.2).

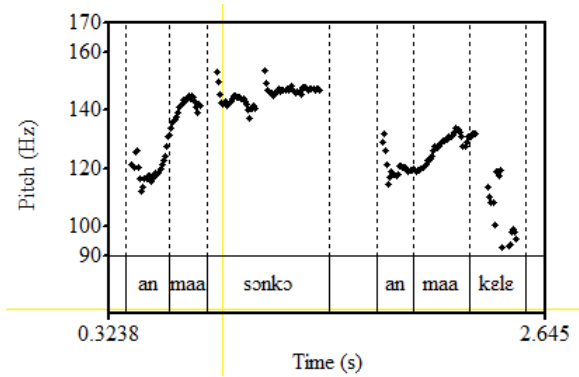
(6.143) *báà nègèsóó béléé bólo:(0.2) ↓mótó béléè bòlò*
ḃáyì nègesoo béle ì bólo mótó béle ì bólo
 DISC bicycle be.NEG 2SG hand motorbike be.NEG 2SG hand
 Well, you don’t have either a bicycle or a motor bike.



Contrary to the pronoun internal to a non-initial clause of the construction, the L tone of a personal pronoun at the beginning of the final clause of the construction cannot be deleted, since it is preceded by the register lowering operation.

(6.144) *àn maaá sónkó ðàn maaá kèlè*
 ànu maa sónkò ànu maa kèlè
 3PL PFV.NEG cry 3PL PFV.NEG fight

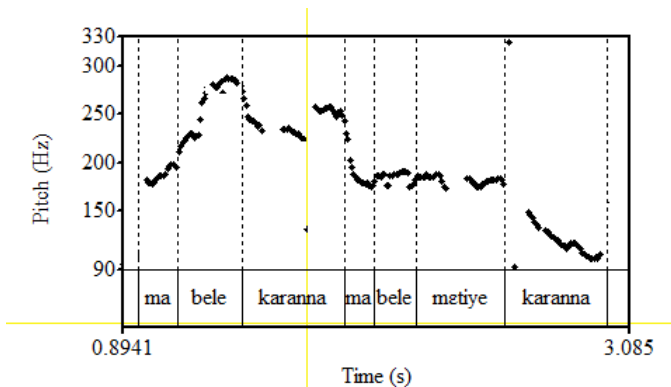
They didn't argue with each other, they didn't fight.



Examples (6.145)-(6.147) below illustrate the realization of HS inserted at the boundary between two negative clauses, the first of which ends with a L-toned verb and the second starts with a L-toned pronoun. As can be seen, the tone of the pronoun is realized as floating, as a result of H-spread from the right (see 5.6). Note also the rise of tone towards the end of the first clause in (6.147).

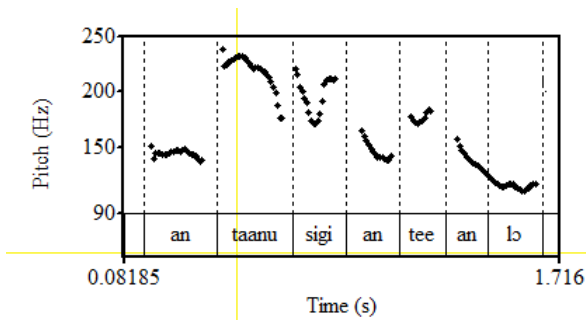
(6.145) *mà bélé kàrànná †má bélé mètíyè kàrànnà*
 mà béle kàran-la mà béle mètíyè-È kàran-la
 1PL be.NEG study-GER 1PL be.NEG profession study-GER

We haven't studies at school and we haven't learned any trade.

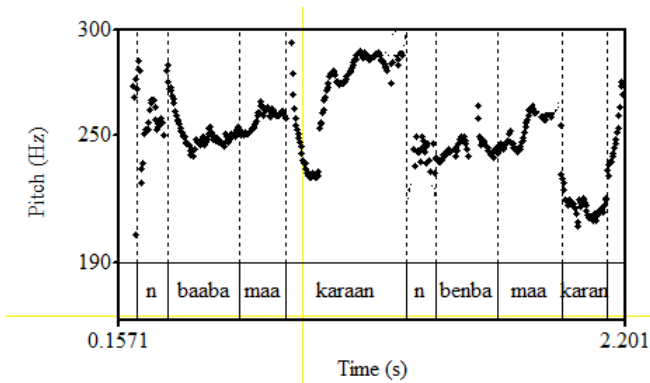


(6.146) *àn tá†ánú sǐgí àn tée àn lò*
 ànu tée ànu sǐgí ànu tée ànu lò
 3PL POT.NEG 3PL sit 3PL POT.NEG 3PL stand

They cannot sit and they cannot stand.

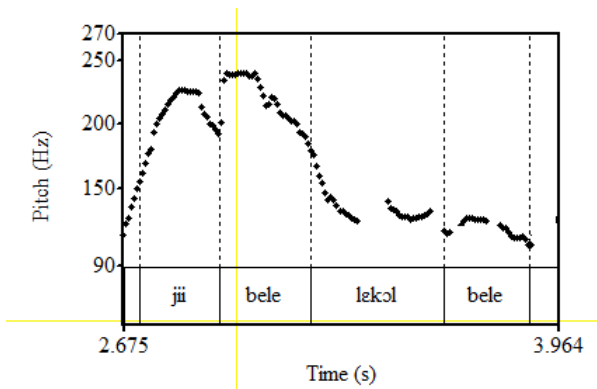


- (6.147) *n̄ báàbà maa kàrá:n †n̄ bɛ́nbá maa kàrà̀n↑*
n̄ baaba maa kàran n̄ bɛ́nba maa kàran-↑%
 1SG father PFV.NEG study 1SG grandfather PFV.NEG study-R%
 Neither my father nor my grandfather studied.



The pitch contrast between the two register levels may be very important, as in (6.148) and (6.147), where it exceeds 100Hz, or moderate, as, for example, in (6.149). As said above, in the final clause the terminal H tones are deleted under Final Tone Leveling, contrary to the terminal Hs in non-finals clauses. See the deletion of H on *bélé* in the second clause of (6.148) below, and likewise the final clause in (6.149).

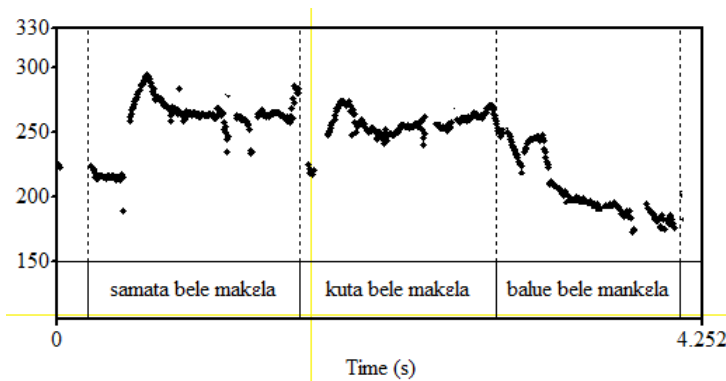
- (6.148) *jíí bélé lèkòl bèlè*
jíi béle lèkòl béle
 water be.NEG school be.NEG
 There is neither water, nor a school [in the village].



NCC may contain more than two parts: see (6.149) and (6.150) below. Note also the downstepped realization of ⁺*bélé mánkélá* in the first and second clauses as opposed to *bèlè mánkèlà* with deleted H in the final clause.

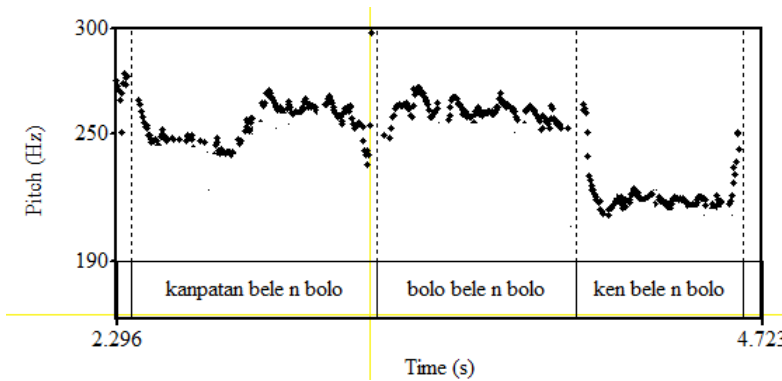
- (6.149) *sàmátá* ⁺*bélé* *mánkélá* *kùtá* ⁺*bélé* *mánkélá* ↓*bálòè*
 sàmata-È béle mánkε-la kùta-È béle mánkε-la bálu-È
 shoes-ART be.NEG miss-GER clothes-ART be.NEG miss-GER food-ART
bèlè *mánkèlà*
 béle mánkε-la
 be.NEG miss-GER

There is no shortage neither of shoes, nor of clothes, nor of food.



- (6.150) *kànpàtàn* *bélé* *ń* *bólo* *bólo* *bélé* *ń* *bólo* *kèn* *bèlè* *ń*
 kànpatan béle ñ bólo bólo béle ñ bólo kèn béle ñ
 wing be.NEG 1SG hand hand be.NEG 1SG hand foot be.NEG 1SG
bòlò
bólo
hand

I don't have any wings, I don't have any arms, I don't have any feet [from a fairy tale].



To sum up, NCC construction is another example of tone-intonation cooperation in which the lowering of the tone register of the last clause is combined with the merger of clauses into one PhP which is manifest on how the lexical tones within the clauses are realized.

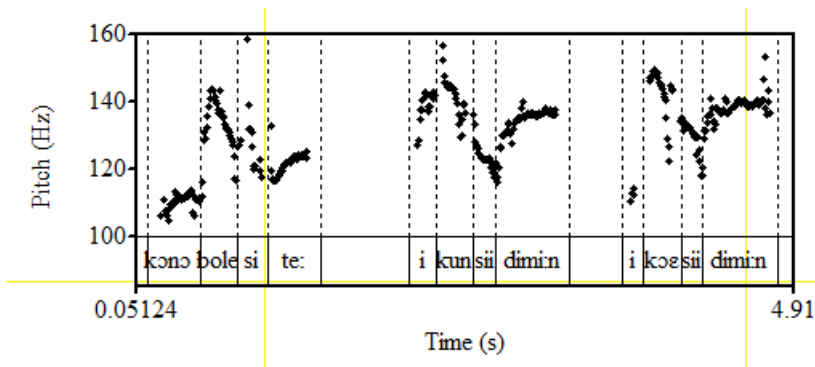
6.6.2 Listing intonation

Listing intonation is manifested in the lengthening of the last syllable of each of the listed items and by the absence of Final Tone Leveling (FTL).

The three clauses in (6.151) correspond to three listed items. As can be seen the clause-final verbs end with a lengthened syllable and their H tone does not undergo the deletion through FTL which is otherwise obligatory at the end of a PhP.

- (6.151) *kònò ì bó⁺lé sí tèè(0.62) í kùn sí dími:n(0.52) ì*
kònò ì bólo-È sí tè ì kùn sí dímin ì
 but 2SG arm-ART POT split 2SG head POT hurt 2SG
kóè sí dími:n
kóo-È sí dímin
 back-ART POT hurt

But your hands would hurt, your head would ache, your back would ache.



Analogously, in (6.152) the first and the second clauses, *mà sí sènéné[↑]ké:* ‘we work a field’ and *mà sì náá[↑]kóé lá:* ‘we set up a kitchen garden’ are in the scope of the listing intonation. Consequently, their last respective syllables are lengthened and final Hs are preserved.

(6.152) *mà sí sènéné[↑]ké: mà sì náá[↑]kóé lá:*
 mà si sènɛ-È ké mà si náakɔ-È lá
 1PL POT field-ART do 1PL POT garden-ART lie

We work a field, we have a garden with tomatoes.

6.7 Summary

In this Chapter, I have analyzed tonal and intonational prosodic patterns realized in three structural positions: on the right boundary of IP, on a lexical item, and finally, on the whole utterance.

Kakabe uses intonational operations on pitch level which are distinct from tone in its phonological realization. The register raising, the intonational operation which was in the focus of the investigation in the present chapter, is superimposed on tones. Importantly, register raising is found in one paradigm of IP-final prosodic operations with boundary tones. Four IP-final prosodic operations were analyzed: low boundary tone L%; final H tone with optional register raising (↑)H%; final stand-alone pitch rise ↑; and the ↑HL% boundary fall rise with obligatory register raising. Three of these operations, L%, (↑)H% and ↑HL% are associated with floating moras which can be manifest in the moraic lengthening of the final syllable of the utterance.

The tonal part of this prosodic patterns interacts with the lexical tones at the end of the same IP. At the same time, boundary tones are not subject to PhP level tonal processes, such as tone leveling which is due to the fact that they are associated at the level of IP. The realization of ↑HL% final pattern is particularly complex. This complexity is due to the fact that the two floating moras associated with each of the tones are deleted or associated with the final moras of the IP depending on the exact position of the last lexical tone of the utterance. Thus, ↑HL% is sensitive not only to the position of the last lexical tone, but also to the grouping of the last moras into syllables.

Apart from being part of IP-final prosodic patterns, the intonational register raising can be associated with a category of lexemes containing polarity items and words associated with assertion focus. Polarity items form a paradigm with two other series of pronouns in which the opposition between the polarity items, indefinite pronoun and interrogative pronouns is

expressed by the contrast \uparrow HL vs. H vs. H^L (in case of the polarity item the tonal pattern is combined with the operation of reduplication).

In the final section I described two prosodic patterns associated with a whole utterance: negative continuation intonation and the listing intonation. The prosody of the negative continuation construction includes, first, the intonational lowering of the final clause, and, second, the unification of clauses into one prosodic phrase which creates a specific pattern of tone realization within the clauses. Listing intonation is manifested in two processes: first, the lengthening of the final syllable of each sequence corresponding to a listed item, second, in the preservation of the PhP-final H tone(s) which is otherwise obligatorily deleted through Final Tone Lowering.

Chapter 7

Conclusion

This thesis has investigated the segmental and the suprasegmental levels of the Kakabe phonology, and has provided a short grammar sketch of this language, undescribed until recently.

Kakabe grammar

The grammar sketch chapter mostly focused on topics which are relatively new for Mande studies. One of the central problems in Chapter 2 was the choice between different referential devices conditioned by the organization of discourse. The demonstrative/personal pronoun opposition in discourse is one of the central issues in the study of referential devices in discourse (Gundel et al. 1993; Himmelmann 1996; Diessel 1999). It was shown that the choice between a demonstrative and a personal pronoun is defined, first, by the order of appearance in the discourse of different referents, second, by the ontological properties of the antecedent. Concerning the first parameter, the pronoun/demonstrative opposition serves for reference tracking, when two or more highly prominent referents are found in the discourse with a similar role. Second, the personal/demonstrative opposition proved to be sensitive to the ontological type of its antecedent, namely, to whether it is a proposition or an individual referent. I argued that, with a propositional antecedent, the personal pronoun is used as a dummy pronoun, or as an expletive. A particularity of Kakabe syntax shared with many Mande languages is the impossibility of discursive object omission (Lüpke 2007; Creissels 2014) which is at the same time not that common cross-linguistically. This circumstance necessitates the use of dummy object pronoun which seems to be rather uncommon in languages freely omitting an object with redundant or non-salient referent.

Focus is often expressed morphologically in African languages. Apart from that, it is commonly involved with the TAM categories expressed by verbal morphology or auxiliary

systems. The conjoint/disjoint opposition of verbal markers which is typical of Bantu languages is analyzed through information structure categories, in particular, in more recent studies (Hyman & Watters 1984; Güldemann 2003; Van der Wal & Hyman 2017). The disjoint, or short form of the verb, marks operator focus, according to this analysis. The phenomenon is reported to occur outside of Bantu as well. I argue that Kakabe opposes an operator-focus perfective, where the focus is on the aspectual value itself, and a perfective, where the aspectual value is out of focus. Such analysis accounts for the distribution of the two forms with respect to constituent focus, subordinate clauses, and question words. Without displaying a consistent focus/non-focus dichotomy for the auxiliary system, as is found in many Bantu languages, Kakabe is doubtlessly a language whose verbal morphology is sensitive to information structure. The Kakabe example, thus, broadens the empirical basis in the question of the involvement of focus in the verb from morphology. It may also be the case that this phenomenon is to be found in other Mande languages as well.

Whereas in verbal predication an auxiliary can contain operator focus which implies its complementarity with constituent focus marker *lè*, in the identificational construction the constituent focus particle *lè* must follow the semantic predicate. The high frequency or even obligatoriness of focus marker in identificational constructions is commonly found across languages (Stassen 1997). An interesting pattern of distribution is attested between this focus marker *lè* and the existential copula *bi*. The possibility to omit *bi* which occurs in post-subject position, depends on the the presence of the post-subject *lè*.

Finally, *lè* displays special behavior with respect to personal pronouns. Across many Western Mande languages, *lè* has fused with personal pronouns in a form which does not mark the focus, and is usually referred to as emphatic pronoun, whereas focalization for personal pronouns is marked by a form with a double focus marker, originally. As I argue, in Kakabe the single *lè* form of the personal pronoun is opposed to a simple personal pronoun as a topic with a lowed degree of saliency and accessibility.

Kakabe has a specialized reflexive pronoun *ì* which corefers exclusively with subjects of a dependent clauses, such as the covert subject of infinitive and gerund clauses, and is excluded from main clauses. A comparative survey of the use of cognate specialized reflexive pronouns in a number of closely related languages has shown that they recurrently display interchangeability with personal pronouns. In Koranko, a language of the same group as Kakabe, it is also limited to dependent clauses. Dependent clauses are reported to be a more conservative environment, compared to main clauses: innovations tend to be first introduced in the main clause, whereas the dependent clause can continue using an old form (Bybee 2002). Thus, the reflexive pronoun in Kakabe and Kakabe, most probably, been retained only

in dependent clauses, whereas in the other discussed languages it is still possible in main clauses also, but might be replaced by the non-specialized personal pronouns.

Segmental phonology

The chapters on segmental phonology described how segmental forms unfold in the real speech and what are the mechanisms of interaction between the phonotactic and segmental elements. In several cases, I analyzed the variation in the segmental realizations of certain forms in its cross-dialectal and, sometimes, cross-Mande dimension which often made it possible to propose diachronic scenario leading to the attested variation.

The allomorphy patterns of many of the functional morphemes display sensitiveness to the features of the adjacent segment which may fail to surface on the segment itself. Many of these processes cannot be described in terms of any categorical rules, but gives a robust statistical distribution. For example, the deletion of the initial consonant of the copula *bi* proves to be sensitive to whether the preceding phoneme is a syllabic N, lexical N in the coda position or coda N resulting from vowel elision.

Tones and tonal processes

Kakabe distinguishes between H and L and has a limited number of allowed tonal patterns. This simple organization is accompanied by an elaborate system of tonal processes which results in a considerable distance between the underlying tonal representation and the tonal curve attested in realization.

A tonal process occupying a central place in the realization of tones in Kakabe is tone leveling. I represented it as a further phonologization of downdrift. Among the types of downtrends attested across tonal languages, downdrift can be seen as phonologization of declination, a process of phonetic order. Downdrift is more phonological since it is triggered by a specific tonal context, namely, alternating HLH (Gussenhoven 2004; Snider 1998; Hyman 1993). At the same time, downdrift belongs to the level of intonation, different from tone, since it is manifest in the modification of pitch register. Downstep is a further step in the phonologization of a downtrend, since it is no more automatically conditioned by its phonological context.

As I argue, the tonal leveling in Kakabe which is manifested either as HLH → HL or as HLH → ⁺HL is another type of the phonologization of downdrift, different from downstep. Tone leveling might be seen as resulting from the narrowing down of the domain of downdrift

(from IP to PhP) which is accompanied by the shift from cumulative lowering of H tones alternating with L tones to tone delinking. The domain of tone leveling is PhP.

Kakabe has H tone insertion conditioned by OCP. The alignment of this H can be sensitive to phonotactic or morphological grouping of the segments associated with the tonal domain.

The analysis of the tonal realization of the referential article is intended as a contribution to the debate about the possible scenarios of the genesis of floating tones. One of the most often cited examples, when the phenomenon of floating tone is mentioned, is the referential article in Bamana which is realized as the downstep of the following H. In Kakabe the referential article, displaying a semantic and pragmatic pattern of use very similar to that in Bamana, can be realized either as the downstep of the following H, the same ways as in Bamana, or can link to the NP. I have shown that L has the tendency to shift to the right from a syllable which already hosts and underlying H or a H separator tone. A similar effect of H on the same syllable is found in other Western Mande languages. Thus, the genesis of a floating tone may be stimulated by the avoidance of complex tones on one syllable.

Tone and intonation

I followed the approach where tone and intonation are phonologically different, and boundary tones belong to the tonal level.

The IP-final prosodic operations found in Kakabe have mixed nature: they feature both tone and intonation. It has both IP-final tones (boundary tones), interacting with lexical tones, and intonational operations which are superimposed on tone. It was shown that boundary tones and intonation are closely linked in function and in realization. There are four IP-final prosodic patterns, part of which are associated with floating moras: final L%, H% with optional register raising, HL% preceded by obligatory register raising and a standing alone pitch rise.

Apart from being part of IP-final prosodic patterns, the intonational pitch rise can be associated with a category of lexemes, containing polarity items and words associated with assertion focus. Polarity items form a paradigm with two other series of pronouns in which the opposition between the polarity items, indefinite pronoun and interrogative pronouns is expressed by the contrast \uparrow HL vs. H vs. H^L (in case of the polarity item the tonal pattern is combined with the operation of reduplication).

Finally, a prosodic pattern can be associated with a whole utterance. Kakabe has a construction consisting of two or more negative clauses. At the level of prosody it includes, first, the intonational lowering of the final clause, and, second, the unification of clauses into one

prosodic phrase which creates a specific pattern of tone realization within the clauses.

Appendix A

Kakabe villages

The list below represents the names of villages with Kakabe-speaking population. At the end is also provided the list of villages where Ouré Kaba and Kuru-Maninka are spoken. These are two undescribed linguistic varieties close to Kakabe. The information was collected mostly during my fieldwork in 2013, when I visited a number of villages in the Kankalabe, Poredaka, Gongore, Mafara, Samamoussaya, Ouré Kaba, Dogomet. The villages where I have made recordings and worked are signaled by underlining in the list below. In each of the villages where I stayed I worked with the village elders and the members of local administration noting the names of the villages where Kakabe is spoken and the approximate number of inhabitants. In some cases the number of inhabitants was given only for the district in total. If the consultants couldn't give any estimations, the cell is left blank.

The list also includes villages where Pular is the dominant language, but Kakabe is spoken by at least part of the population, such cases are signaled in the column “dominant language” by putting Pular in the first position.

Where the information is available, the names of the villages are given in the official transcription, based of the reference maps of the prefectures of Guinea¹, created by UNMEER (United Nations Mission Emergency for Ebola Response) in collaboration with the Guinean National Institute of Statistics of Guinea (Institut National de la Statistique de la Guinée).

1. <https://www.humanitarianresponse.info/system/files/documents/files/cataloguecartereferenceguinee.pdf>

Central Kakabe²

Name of the village	Sub-prefecture	Prefecture	Dominant language(s)	number of inhabitants
Dogomet district				
<u>Dogomet-centre</u>	Dogomet	Dabola	Pular, Kakabe, Maninka	29 000
Ndjenjoudaala	Dogomet	Dabola	Kakabe	
Teliyagato ~ Teliyaga	Dogomet	Dabola	Kakabe	
Seegaya district				3 000
Seegaya-centre	Dogomet	Dabola	Kakabe	
Margabaato	Dogomet	Dabola	Kakabe	
Noumoula	Dogomet	Dabola	Kakabe	
Kebeya	Dogomet	Dabola	Kakabe	
Folowoulen	Dogomet	Dabola	Kakabe	
Hinnako	Dogomet	Dabola	Kakabe	
Kamareya	Dogomet	Dabola	Kakabe	
Saaroudia	Dogomet	Dabola	Kakabe	
Talikelen	Dogomet	Dabola	Pular, Kakabe	
Kolo district				2 500
Nafaya	Dogomet	Dabola	Kakabe	
Tourabaya	Dogomet	Dabola	Kakabe	
Damantan	Dogomet	Dabola	Kakabe	
Diaalibanden ~ Diaalibalen ~	Dogomet	Dabola	Kakabe	
Bankoya	Dogomet	Dabola	Kakabe	
Koloya	Dogomet	Dabola	Kakabe	

2. Main consultants:

- El-Haj Mammadou Saliou Bari, ex-mayor of Dogomet;
- Sory Keita, sub-prefect of Saramoussaya;
- Ibrahima Kamara, Mammadou Traore and Saydou Mansare, elders of Bantanfereya.

Name of the village	Sub-prefecture	Prefecture	Dominant language(s)	number of inhabitants
Fello-Njandi district	Dogomet	Dabola		3 000
<u>Thiernoya</u>	Dogomet	Dabola	Kakabe	
Fello-Njandi (centre)	Dogomet	Dabola	Kakabe	
Neeneya	Dogomet	Dabola	Kakabe	
Kindouya	Dogomet	Dabola	Kakabe	
Lappi	Dogomet	Dabola	Kakabe	
Botokoto	Dogomet	Dabola	Kakabe	
Kengiliya	Dogomet	Dabola	Kakabe	
Boukaria	Dogomet	Dabola	Kakabe	
Nolanta	Dogomet	Dabola	Kakabe	
Djappoullere	Dogomet	Dabola	Kakabe	
Koboloniya district	Dogomet	Dabola	Kakabe	1 500
Nafadji	Dogomet	Dabola	Kakabe	
Kokobaya	Dogomet	Dabola	Kakabe	
Doubbel	Dogomet	Dabola	Kakabe	
Bounbounkoto	Dogomet	Dabola	Kakabe	
Sitakoto district				
Denbadianna	Dogomet	Dabola	Kakabe	
Kotema	Dogomet	Dabola	Kakabe	
Nyenouya district				
Nienouya-centre	Saramoussaya	Mamou	Pular, Kakabe	4 000
<u>Sokotoro</u>	Saramoussaya	Mamou	Pular, Kakabe	1 200
Satamodiya	Saramoussaya	Mamou	Pular, Kakabe	500
Yoroya	Saramoussaya	Mamou	Pular, Kakabe	1 500
Hakkounde-Thiandi	Saramoussaya	Mamou	Pular, Kakabe	1 500

Name of the village	Sub-prefecture	Prefecture	Dominant language(s)	number of inhabitants
Kourouya district				
<u>Nyamayara</u>	Saramoussaya	Mamou	Kakabe	3 000
<u>Madina</u>	Saramoussaya	Mamou	Kakabe	5 000
Saarebowal district				
Saréboval-centre	Saramoussaya	Mamou	Kakabe	
Kombaya	Saramoussaya	Mamou	Kakabe	1 700
Diatako	Saramoussaya	Mamou	Kakabe	250
Tenkolo	Saramoussaya	Mamou	Kakabe	
<u>Saramoussaya</u>	Saramoussaya	Mamou	Pular, Maninka, Kakabe	20 000
Marela district				
Marela-centre	Ouré-Kaba	Mamou	Pular, Maninka, Kakabe	32 000
<u>Banta(n)fereya</u>	Ouré-Kaba	Mamou	Kakabe	800
Douketo	Ouré-Kaba	Mamou	Kakabe	200
Kansabanga	Ouré-Kaba	Mamou	Kakabe	100
Morikoya	Ouré-Kaba	Mamou	Kakabe	500

Western Kakabe³

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
Kourou				
<u>Kourou Pampa</u>	Gongore	Mamou	Kakabe	700
Kourou Hollande	Gongore	Mamou	Pular, Kakabe	300
Baady	Gongore	Mamou	Pular, Kakabe	300
<u>Labiko</u>	Gongore	Mamou	Kakabe	400
Sarakatiya	Gongore	Mamou	Kakabe	1 000
Baakariya	Gongore	Mamou	Kakabe	300
Lappi	Gongore	Mamou	Kakabe	200
Oumariya	Gongore	Mamou	Kakabe	200
Mafara				
Wouriya	Mafara	Dalaba	Kakabe	400
<u>Djinkoya</u>	Mafara	Dalaba	Kakabe	600
Telekourou	Mafara	Dalaba	Kakabe	200
Dounet				
Ndindo	Dounet	Mamou	Pular, Kakabe	
Alfaya	Dounet	Mamou	Pular, Kakabe	

Northern Kakabe⁴

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
<u>Mansaya</u>	Kankalabé	Faranah	Kakabe	2 000

3. Main consultants:

- Amadou Maka, the representative of the youth (représentant de la jeunesse) of Kourou Pampa;
- Béla Sadio Doumbouya, Souleymane Camara elders of Labiko.

4. Main consultant: Samba Nyouma Keïta, the representative of the youth (représentant de la jeunesse) of Mansaya.

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
Sedibaya ~ Selibaya	Kankalabé	Faranah	Kakabe	2 000
<u>Wansan</u>	Kankalabé	Faranah	Kakabe	300
<u>Mingiya</u>	Kankalabé	Faranah	Kakabe	1 200
<u>Boriya</u>	Kankalabé	Faranah	Kakabe	400
Fitadala	Kankalabé	Faranah	Kakabe	1 500
<u>Saadioya</u>	Kankalabé	Faranah	Kakabe	1 000
<u>Dantiliya</u> (= Nas-souroullayi)	Kankalabé	Faranah	Kakabe	300
Sangararé	Kankalabé	Faranah	Kakabe	200
Birfi	Kankalabé	Faranah	Kakabe	100
Karungaya	Kankalabé	Faranah	Kakabe	70
Moodiya	Kankalabé	Faranah	Pular, Kakabe	150

Kuru-Maninka⁵

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
<u>Kourou Maninka</u>	Ditinn	Dalaba	Kuru-Maninka	1000
Maafara	Mafara	Dalaba	Kuru-Maninka	500
<u>Djoulala</u>	Mafara	Dalaba	Kuru-Maninka	
Télé Kourou	Mafara	Dalaba	Kuru-Maninka	200
Tanbikouré	Mafara	Dalaba	Kuru-Maninka	300

5. Main consultant: Ba Sidi Djabi, president of the district of the Kuru-Maninka district.

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
Digui	Ditinn	Dalaba	Kuru-Maninka	200
Dalato	Mafara	Dalaba	Kuru-Maninka or Kakabe	150
Madina	Mafara	Dalaba	Kuru-Maninka or Kakabe	300

Wure-Kaba⁶

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
Kaba	Ouré Kaba	Mamou	Pular, Wure-Kaba	3 000
Portofita	Ouré Kaba	Mamou	Wure-Kaba	1 100
Doullemba	Ouré Kaba	Mamou	Wure-Kaba	1 100
Ngilleya	Ouré Kaba	Mamou	Wure-Kaba	150
Sogoroya ~ Sokoreya	Ouré Kaba	Mamou	Wure-Kaba	1 500
Bokouréto ~ Bogoréto	Ouré Kaba	Mamou	Wure-Kaba	500
Mansara-kourou	Ouré Kaba	Mamou	Wure-Kaba	50
Diandian	Ouré Kaba	Mamou	Wure-Kaba	1 000
Fodedougou	Ouré Kaba	Mamou	Wure-Kaba	300

6. Main consultants:

- Djedi Diallo, secretary of the Portofita district;
- Kadé Ali Mansaré, chief of Sogoroya;
- Mammadu Savane and Sékou Sissé, inhabitants of the Ouré Kaba village.

Name of the village	Sub-prefecture	Prefecture	Dominant language	number of inhabitants
Saganagola ~ Cakanokola	Ouré Kaba	Mamou	Wure-Kaba	700
Waledian	Ouré Kaba	Mamou	Wure-Kaba	100
Mansadaka	Ouré Kaba	Mamou	Wure-Kaba	300
Sanbaflaya	Ouré Kaba	Mamou	Wure-Kaba	< 100
Baalen	Ouré Kaba	Mamou	Wure-Kaba	< 100
Koulounda	Ouré Kaba	Mamou	Wure-Kaba	< 100
Sitakoto	Ouré Kaba	Mamou	Wure-Kaba	< 100
Sébékoto	Ouré Kaba	Mamou	Wure-Kaba	< 100
Tonfili	Ouré Kaba	Mamou	Wure-Kaba	< 100
Kouloumou	Ouré Kaba	Mamou	Wure-Kaba	< 100
Dionson	Ouré Kaba	Mamou	Wure-Kaba	< 100
Banekoto	Ouré Kaba	Mamou	Wure-Kaba	< 100
Faaboliya	Ouré Kaba	Mamou	Wure-Kaba	
Ninagbé	Ouré Kaba	Mamou	Wure-Kaba	
Seeliya	Ouré Kaba	Mamou	Wure-Kaba	

Appendix B

Speakers and consultants

The list below (not exhaustive) contains the names of consultants and the speakers most present in records included in the corpus. The village corresponds to the native village of the person in question. Other information include the languages other than Kakabe spoken, the year of birth and the year(s) when the recordings with the person were made. The names are given by dialect. The initials allow to look up the speech events included in the Kakabe corpus, listed in Appendix C, in which speaker participated.

Name	Initials	Village	Sex	Languages spoken apart from Kakabe	Year of birth	Year of record
Central Kakabe						
Ansoumane Camara	AC	Dogomet	m	Pular, Susu, Maninka, French	1988	2013, 2015
Bintou Camara	BK	Dogomet	f	Pular, Maninka	1985	2013
Samba Tédouné	ST	Dogomet	m	Pular, French	1971	2013
Ibrahima Camara	Ibr.C	Banta-ferenya	m	Pular, Susu, Maninka, French	1986	2013
Alfa Bakar Doumbouya	ABD	Sokotoro	m	Pular, Susu, Maninka, French	1989	2008

Name	Initials	Village	Sex	Languages spoken apart from Kakabe	Year of birth	Year of record
Oumou Doubouya	UD	Sokotoro	f	Pular, Maninka	1969	2008
Mamadou Camara	Mam.C	Nyamayara	m	Pular	1986	2013
Bilalé Condé	Bil.C	Nyamayara	m	Pular, French	1996	2013
Mammadou Toukara	Mam.T	Nyamayara	m	Pular, French	1995	2013
Babandour Keïta	Bab.K	Nyamayara	m	Pular	1985	2013
Ousmane Camara	Ou.C	Nyamayara	m	Pular	1948	2013
Binta Sidibé	Bin.S	Nyamayara	f	Pular	1996	2013
Fatoumata Camara	Fat.C	Nyamayara	f	Pular	1988	2013
Hawa Sidibé	Haw.S	Nyamayara	f	Pular	2002	2013
Kadjel Keïta	Kad.K	Nyamayara	f	Pular	1996	2013
Boubakar Condé	Bb.C	Nyamayara	m	Pular	2001	2013
Noumoula Keïta	Nm.K	Nyamayara	f	Pular	1992	2013
Boubakar Titi Keïta	Tt.K	Nyamayara	m	Pular	1995	2013
Alfa Amadou Keïta	Al.K	Nyamayara	m	Pular		2013
Solo Mammadou Camara	Sol.M	Nyamayara	m	Pular	2004	2013
Alpha Mamadou Bary	Alf.M	Nyamayara	m	Pular	2001	2013
Kerno Siré Camara	Ker.S	Nyamayara	m	Pular, French	1996	2013
Mammadou Doubouya	Mam.D	Nyamayara	m	Pular	1934	2013

Western Kakabe

Name	Initials	Village	Sex	Languages spoken apart from Kakabe	Year of birth	Year of record
Amadou Maka	Am.M	Kourou P. ¹	m	Pular, French	1975	2013
Nbemba Keïta	Nb.K	Kourou P.	m	Pular	1970	2013
Djouma Keïta	DjK	Kourou P.	m	Pular		2013
Mammadou Djouldé	MDj	Kourou P.	m	Pular	1942	2013
Doumbouya						
Fatoumata Binta Camara	FBK	Kourou P.	f	Pular	1948	2013
Mariama Djouldé Camara	MDC	Kourou P.	f	Pular	1950	2013
Noumou Camara	NouC	Kourou P.	f	Pular	1952	2013
Sira Simiti Sidibé	SSS	Kourou P.	f	Pular	1948	2013
Batouli Camara	Bat.C	Kourou P.	f	Pular	1969	2013
Aysata Sidibé	Ays.S	Kourou P.	f	Pular	1962	2013
Djaréou Camara	Dj.C	Kourou P.	f	Pular	1970	2013
Maryama Keita	Mar.K	Kourou P.	f	Pular	1959	2013
Béla Sadio Doumbouya	BSD	Labiko	m	Pular	1952	2013
Mammadi Yéro Doumbouya	MYD	Labiko	m	Pular	1953	2013
Souleymane Camara	SC	Labiko	m	Pular	1960	2013
Saraboyé Camara	Sar.C	Labiko	m	Pular	1959	2013
Abdoul Carim Camara	Abd.C	Djinkoya	m	Pular		2013
Amadou Saydou Camara	ASK	Djinkoya	m	Pular		2013
Hadia Aysata Camara	HAC	Djinkoya	f	Pular	1958	2013
Idrisa Keïta	Idr.K	Djinkoya	m	Pular		2013

1. Kouroupampa

Name	Initials	Village	Sex	Languages spoken apart from Kakabe	Year of birth	Year of record
Djériké Keïta	DjerK	Djinkoya	m	Pular		2013
Mammadou	MSK	Djinkoya	m	Pular		2013
Samba Camara						
Marouana	Mar.C	Djinkoya	f	Pular	1932	2013
Camara						
Moussa Keïta	Mou.K	Djinkoya	m	Pular	1965	2013
Foula Keïta	FK	Popodara	m	Pular, French	1965	2013

Northern Kakabe

Samba Nyouma Keïta	SNK	Mansaya	m	Pular, Susu, Maninka, French	1958	2009, 2011, 2012, 2013
Mammadou Condé	MC	Mansaya	m	Pular, French	1987	2011, 2012
Adama Sidibé	Ad.S	Mansaya	m	Pular	1991	2011
Mohammed Camara	Mh.C	Mansaya	m	Pular	1972	2011
Maliké Sidibé	Mal.S	Mansaya	m	Pular		2011
Mamadou Boyi Condé	MBC	Mansaya	m	Pular		2011
Mamadou Boyi Condé	MBC	Mansaya	m	Pular		2011
Ansoumane Keita	Ans.K	Nassouroullayi	m	Pular		2012
Mammadou Camara	Mam.C	Nassouroullayi	m	Pular		2012
Mohammed Keita	Moh.K	Mingiya	m	Pular		2012
Alarba Canté	Al.K	Mansaya	f	Pular	1956	2013
Penda Camara	Pen.C	Mansaya	f	Pular	1953	2013

Appendix C

Structure of the Kakabe corpus

The list below represents the texts included in the Kakabe corpus that were the main data source for the current study. The list provides the genre of the verbal event, the dialect and the village of the speakers, the abbreviated names of the speakers (for information about speakers see Appendix B), the year of record, the topic of the conversation or monologue and its duration. All the represented texts are transcribed and glossed. The texts recorded in 2013 and 2015 are time-aligned with audio and video via ELAN. They are available online at the website of Endangered Languages Archive as SOAS: <https://elar.soas.ac.uk/Collection/MPI43300>. The texts recorded from 2008 to 2011 are glossed in Toolbox and have audio files corresponding to them, but are not yet available online. The texts are grouped by dialects and, within the dialect areas, they are sorted by genre.

Abbreviations used for the names of villages: Nym. – Nyamayara; Skt – Sokotoro; Dgm – Dogomet; Krp – Kourou Pampa; Lbk – Labiko; Jnk – Jinkoya; Ppd – Popdara; Mns – Mansaya; Nsr – Nasouroulayi.

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
1	conversation	CK	Nym.	Mam.C; Bil.C; Mam.T; Bab.K; Ou.C	2013	About the everyday life of school children	00:23:08
2	conversation	CK	Nym.	Mam.C; Bin.S; Fat.C; Haw.S; Kad.K	2013	About the everyday life of women	00:15:38

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
3	conversation	CK	Nym.	Mam.C; Bb.C; Nm.K; Tt.K;	2013	About the everyday life during Ramadan	00:15:41
4	conversation	CK	Nym.	Mam.C; Bil.C; Mam.T	2013	About going to the market in the neighboring town	00:12:32
5	story	CK	Skt.	ABD	2008	About the devils living in the bush	00:05:07
6	story	CK	Skt.	ABD	2008	How chimpanzees were created	00:04:07
7	story	CK	Skt.	ABD	2008	About a thief who stole meat from his friends	00:10:27
8	story	CK	Skt.	Ou.D	2008	story about two men competing for a woman	00:04:06
9	procedural	CK	Skt.	ABD	2008	About marriage procedures	00:04:25
10	procedural	CK	Skt.	ABD	2008	Description of the rite of giving name	00:04:30
11	procedural	CK	Skt.	ABD	2008	About the rite of alms-giving	00:02:50
12	procedural	CK	Skt.	ABD	2008	About a holiday in the Sokotoro village	00:07:50
13	procedural	CK	Skt.	ABD	2008	About the burial procedures	00:08:49
14	procedural	CK	Skt.	ABD	2008	About fishing	00:01:30
15	procedural	CK	Nym.	Mam.C	2013	How sweet potato is prepared and eaten	00:05:11
16	procedural	CK	Skt.	ABD	2008	About hunting a hippo	00:01:50

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
17	story	CK	Nym.	Mam.C; Al.K; Sol.M; Alf.M	2013	Conversation with children about their games in the bush	00:16:52
18	story	CK	Nym.	Mam.C; Alf.M	2013	About an orphan and a fig tree	00:19:11
19	story	CK	Nym.	Mam.C; Ker.S	2013	Short stories and riddles	00:08:17
20	personal	CK	Skt.	ABD	2008	About the narrator's trip from Sokotoro to the Nzerekore	00:05:15
21	personal	CK	Dgm.	BK	2013	How the narrator went to Faranah to study medicine	00:05:30
22	personal	CK	Dgm.	ST	2013	About the narrator's work at the radio station	00:01:33
23	personal	CK	Dgm.	AC	2013	How two sorcerers ate their relatives	00:11:20
24	personal	CK	Dgm.	AC	2013	About an old sorcerer, narrator's neighbor	00:11:59
25	personal	CK	Dgm.	AC	2013	About the narrator's mother-in-law	00:20:57
26	personal	CK	Dgm.	AC	2015	How the narrator worked in a company selling medical appliances	00:26:39

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
27	personal	CK	Dgm.	AC	2015	How teenagers took off rails to sell them in the village of the narrator	00:10:49
28	personal	CK	Dgm.	AC	2015	How the narrator saw Mami Wata, the water spirit, in his dream	00:06:02
29	personal	CK	Dgm.	AC	2015	How the narrator and his friend went to live on a isolated farm in the bush	00:10:22
30	personal	CK	Dgm.	AC	2015	About a train accident which occurred close to the narrator's village	00:05:40
31	personal	CK	Dgm.	AC	2015	How the grandmother of the narrator got foot burnt when she was a baby	00:03:25
Total CK corpus							4:51:32
Western Kakabe							
32	conversation	WK	Krp.	Am.M; Nb.K et al.	2013	Carpenters show their work and talk about it	00:09:11
33	conversation	WK	Krp.	Am.M; Dj.K;	2013	Old women talk about their everyday life	00:09:47

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
34	conversation	WK	Krp.	Am.M; MDj; Dj.K	2013	About the life in the past and about the relations between Kakabe and Fulbe	00:12:25
35	conversation	WK	Krp.	Am.M; Ibr.S; Nb.K et al.	2013	Smiths work and talk about their work	00:12:06
36	conversation, story		Krp.	Bat.C; Ays.S; Dj.C; Mar.K	2013	Women telling stories to each other at a night gathering	00:24:30
37	conversation	WK	Lbk.	Am.M; BSD; MYD; SC	2013	About the life in the past and about the relations between Kakabe and Fulbe	00:14:46
38	conversation	WK	Lbk.	BSD; Sar.C	2013	Conversation in the smithy between the smith and his clients who want to buy hoes	00:12:56
39	conversation	WK	Jnk.	Am.M; Abd.C; ASK; HAC; Idr.K; Djer.K; MSK; Mar.C; Mou.K	2013	About the life in the past and about the relations between Kakabe and Fulbe	00:48:34
40	hist. narrative	WK	Ppd.	FK	2013	About the settlement of Kakabe in Poredaka	00:22:23
						Total WK subcorpus	02:46:38
Northern Kakabe							

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
41	story	NK	Mns.	SNK	2009	Story about a goat, a hyena and a smith	00:18:38
42	story	NK	Mns.	SNK	2009	Story about a boy and a crocodile	00:12:40
43	personal	NK	Mns.	SNK	2009	About the narrator's trip from Sokotoro to the Nzerekore	00:06:48
44	story	NK	Mns.	SNK	2009	Why cats and mice don't like each other	00:08:26
45	story	NK	Mns.	SNK	2010	Varied	00:26:15
46	hist. narrative	NK	Mns.	SNK	2010	How the family of Bayima settled in the area	00:05:07
47	story	NK	Mns.	Mam.C	2010	Story about the cursed child	00:08:39
48	story	NK	Mns.	Mam.C	2010	Story about the hawk and the turtle	00:05:27
49	story	NK	Mns.	Ad.S	2011	How a woman found again her child	00:05:28
50	story, conversation	NK	Mns.	SNK et al.	2011	About the spirit of the river	00:19:57
51	conversation	NK	Mns.	SNK et al.	2011	Varied	00:14:09
52	procedural	NK	Mns.	Mm.C	2011	About marriage procedures	00:04:55
53	story	NK	Mns.	Moh.C	2011	How a man fell in love hunter's wife	00:18:22
54	story, conversation	NK	Mns.	Mal.S	2011	Varied	00:04:23

Nr.	Genre	Dial.	Village	Main speakers	Year	Topic	Duration
Central Kakabe							
55	story	NK	Mns.	Mam.BC	2011	How two co-wives quarreled	00:16:30
56	story	NK	Mns.	Mam.BC	2011	About three men who took as wives their close relatives	00:14:45
57	personal	NK	Mns.	Mam.C	2011	How the narrator hunted birds	00:03:14
58	conversation	NK	Nsr.	Ans.K, Mam.C et al.	2011	Varied	00:49:13
59	conversation	NK	Mns.	SNK; Al.K; Pen.C	2013	About the difficulties in farmer's life	00:27:53
Total NK subcorpus							4:30:49
Grand Total Kakabe corpus							12:08:59

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Alexandra VYDRINA

A corpus-based description of Kakabe, a Western Mande language: prosody in grammar

Résumé

Cette thèse fournit une description du kakabé, une langue mandée parlée en Guinée, basée sur un corpus et avec un focus sur le système phonologique. Elle contient une brève esquisse grammaticale et deux parties qui portent sur l'analyse phonologique : la phonologie segmentale et la phonologie suprasegmentale. Les processus concernant les segments phonologiques peuvent être conditionnés par des contraintes métriques, par l'interdiction du hiatus, par le découpage de l'énoncé en phrases prosodiques et par le contexte morphologique. Le kakabé applique diverses stratégies d'adaptation des emprunts (principalement, du poular et du français), telles que l'épenthèse vocalique, la simplification d'agglomérations consonantiques. Le kakabé est une langue à ton (H vs. L), avec downdrift, relèvement du ton H, un ton flottant L, et un certain nombre de processus tonals, tels que l'insertion du ton H, la propagation du ton, l'aplatissement du contour HLH. En conséquence, la distance entre les tons lexicaux sous-jacents et leur réalisation de surface peut être assez importante. Chacun des processus tonals est appliqué dans une unité prosodique particulière. Par conséquent, les processus tonals participent au découpage du discours en unités prosodiques. Le kakabé comporte des tons de frontière qui servent à signaler la force illocutoire de l'énoncé. Les tons lexicaux et les tons de frontière coexistent avec des opérations intonatives sur la courbe F0. Les appendices comprennent un dictionnaire kakabé-français, composé de 3400 entrées, et le corpus de 12 heures de textes en kakabé, transcrits, glosés, traduits et accompagnés des fichiers vidéos et audios.

Mot-clés

mandé, langues africaines, prosodie, syllabe, tonologie, processus tonal, downdrift, ton flottant, intonation

Résumé en anglais

This thesis provides a corpus-based description of Kakabe, a Mande language spoken in Guinea, with a focus on phonology. It consists of a short grammatical sketch and two parts dedicated to the analysis of the segmental and the suprasegmental phonology. Segmental phonological processes can be conditioned by metrical constraints, the ban on hiatus, prosodic phrasing and morphological context. Vowel deletion and vowel assimilation which serve to resolve hiatus, apply clause-internally, as well as across clause boundaries. I also describe various strategies of loanword adaptation used in Kakabe, such as vowel epenthesis and consonant cluster simplification. Kakabe is a terraced-level tone language (H vs. L), featuring downdrift, downstep, H raising, floating L, and a number of tonal processes, such as OCP style H-insertion between two L domains, tone spread and leveling of HLH contour. As a result, the distance between the underlying lexical tones and their surface realization can be rather important. Each tonal process is applied within one particular prosodic unit. Therefore, tonal processes participate in phrasing the speech into prosodic units. Kakabe uses a number of boundary tones to signal illocutionary force of the utterance. Lexical tones and boundary tones coexists with intonational operations on the F0 curve. Intonational tone raising is associated with the H% and HL% boundary tones. Apart from that, it affects polarity items, the universal quantifier, and other pragmatically prominent lexemes, such as ideophones and intensifiers. The appendices include a Kakabe-French dictionary, comprising 3400 entries, and an oral corpus of 12 hours of various genres, transcribed, glossed and time-aligned with audio and video.

Keywords

Mande, African languages, prosody, syllable, tone, downdrift, intonation, floating tone, tone spread