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The morphosyntax of reported speech and reported thought: A preliminary survey

Abstract: This study addresses the relationship between the reporting of speech and the reporting of thought based on a set of annotated data from several typologically diverse languages. The context-based approach we adopt allows us to explore the relationship between reported speech and reported thought without relying on specific lexical or constructional cues.

We identify three types of relationship between reported speech and reported thought. First, in all our languages, reported speech constructions can be *recruited* for the expression of reported thought; such uses can only be identified based on context. Second, in some of the languages, we find expressions that are best described in terms of *speech-to-thought coercion*: in a construction normally associated with reported speech, a verb of thinking or another lexical marker triggers a reported thought interpretation. Such an interpretation is sometimes at odds with the construction's original properties, since situations of thinking and speaking differ in a number of linguistically relevant ways. For example, situations of thinking do not involve an addressee, and that difference accounts for the seemingly superfluous use, in some languages, of expressions such as “think inside one's head” or “think to oneself”, which serve to reconcile the construction's argument properties (an implied addressee) with its coerced interpretation. Speech-to-thought coercion also explains why, despite the absence of an addressee in the verb's argument structure, it is possible to refer to addressees within thought reports. Finally, in some languages, reported thought constructions are attested that have no equivalent among expressions of reported speech.

We conclude, based on the structural diversity of reported thought expressions, that reported thought cannot be treated as a uniform cross-linguistic concept in a way similar to reported speech (Spronck & Nikitina 2019), and that conceptualization of thought processes varies across languages in ways that make direct comparison impossible.

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1 Introduction

Recent years have seen an upsurge of interest in the properties of speech reports, yet it remains an open question whether and to what degree the findings extend to attitude reports, and in particular to reported thought. In this study we neither assume reported thought to be a subtype of reported speech nor approach it as an a priori unrelated phenomenon (see Introduction to this volume); rather, we adopt a data-driven comparative approach and explore correspondences in the ways different types of reported content are encoded cross-linguistically.

To address the relationship between the expression of speech and the expression of thought, we survey a set of annotated data from several typologically diverse languages, extracted from the multilingual SpeechReporting corpus of traditional storytelling (Nikitina et al. 2022). The corpus consists of traditional narratives annotated for instances of reported speech and reported thought using the ELAN-CorpA software and tools (Chanard 2019); the same annotation principles are applied across the datasets, making it easy to extract and directly compare the relevant data from different languages. Although the survey is based on a small convenience sample that is not intended to be representative of cross-linguistic diversity, the same approach can be applied, in future studies, to an extended sample of languages, to test the suggested typology against data from more languages in a rather precise way.

Table 1 lists the languages explored systematically in this study based on corpus data. In addition, we use occasional examples from the Bambara Reference Corpus (Vydrin et al. 2011–2018), without exploring systematically the encoding of reported thought in that language.

Table 1: Our dataset.

Language	Genetic affiliation	Country	References
Bashkir	Turkic	Russia	Aplonova (2021)
Ben Tey	Dogon	Mali	Hantgan-Sonko (in prep.)
Chuvash	Turkic	Russia	Nikitina (2022)
Gizey	Chadic	Cameroon	Guitang (2022)
Joola Eegimaa	Atlantic	Senegal	Hantgan-Sonko (2021)
Mwan	Mande	Côte d’Ivoire	Perekhvalskaya (in prep.)
Udihe	Tungusic	Russia	Perekhvalskaya (2020; 2021)
Wan	Mande	Côte d’Ivoire	Nikitina (2012; in prep.)

The database of traditional storytelling has been manually annotated for instances of reported speech and thought. The annotation was done independently of this study (Nikitina et al. 2019). The distinction between reported speech and reported thought was based on the natural reading of the report in the context of a particular story, according to native speaker interpretation. The annotation was therefore not tied to particular lexical or morphosyntactic markers, and we were able to identify instances of reported thought without reference to specific words or constructions. This approach distinguishes our study from previous studies that focus on specific lexical expressions and translational equivalents of English mental activity verbs (Fortescue 1990; Persson 1993; Onishi 1997; Stanwood 1997; Viberg 2004, *inter alia*) or on specific construction types (cf. the survey of thought complements in Australian languages by McGregor 2021). One of our findings follows directly from the lack of assumption that the notion of thinking must be expressed in any particular way: we find that a significant proportion of instances of reported thought do not involve any specialized lexical items, and they instantiate a variety of construction types beyond what could be observed if data were searched for specific words or syntactic relations.

Methodologically, our approach departs from the tradition of building a typology by comparing individual languages or defining idealized language profiles. We aim instead at classifying the entire set of strategies used across languages to encode the same two functions: reported speech and reported thought. In doing so we assume that the notions of reported speech and reported thought are universal, even though they need not be universally distinguishable at the level of grammar or lexicon (Spronck and Nikitina 2019, Goddard and Wierzbicka 2019). Consistent with this assumption, in all our datasets we find extensive examples of reported speech and sporadic examples of reported thought (though as we discuss in the conclusion, languages may be found where reporting of thought is subject to cultural restrictions).

Instead of attempting to classify the languages, we explore our data through a typology of morphosyntactic *strategies* available to speakers for the encoding of reported thought. The strategies are defined in terms of their availability, in the same language, for the encoding of reported speech. They fall into three major types. A strategy that is attested in all of the languages and is likely universal involves encoding reported thought by unaltered expressions associated with reported speech (Sections 2). The opposite strategy involves using constructions that are specialized for the encoding of reported thought, and unattested in speech reports (Section 3). Finally, the third strategy involves using expressions normally associated with reported speech but with modifications, such as after substituting a verb of thinking for the verb of speaking. This third strategy is only attested in some of the languages, and it is the one that we find most interesting from a grammatical point of view, as it creates a partial overlap in the morphosyntactic properties of reported speech and reported thought. We propose to analyze this strategy as an instance of *coercion*, and we believe that it may explain a number of attested asymmetries between reported speech and reported thought as well as a number of

otherwise puzzling characteristics of reported thought expressions (Section 4).

It has become customary in certain traditions of research on reported discourse to classify strategies in terms of their degree of “(in)directness”, attributing a central role to the use of indexical elements and other shifters. We do not pay much attention to this parameter in this study, because we believe that a Eurocentric direct/indirect distinction – either binary or gradual – does not apply to some of our languages (Nikitina and Bugaeva 2021). We adopt instead a stratified typology, as sketched out in (Nikitina and Vydrina 2020): the construction’s syntax is considered independently of the use of indexical expressions. The behavior of indexical expressions is assumed to depend on language-specific lexical properties of the words involved (pronouns, adverbs, etc.), and not on syntactic configurations in which they appear.

We also do not treat here extended uses of verbs of speaking and verbs of thinking, or of constructions in which such verbs appear (Spronck & Casartelli 2021). It is sometimes difficult, for example, to draw a strict boundary between the notions of thinking and intention or between thinking and perception, and the same expressions are commonly used across languages to encode these and other kinds of inner states. We restrict ourselves to expression types used to describe mental activity in general, without additional entailments of emotions and desire (as in English constructions with ‘want’), a specific degree of conviction (as in English constructions with ‘believe’) or the presence of a perceptual stimulus (as in English constructions with ‘feel’).

Although our study is based on corpus data, it is limited to general observations and does not explore the frequencies of different strategies. Notwithstanding the large number of clear cases, some reports are ambiguous between reported speech and reported thought, and they are distributed unevenly across languages and speakers. This complication prevents us, at this point, from relying on quantitative information, which may be misleading in the case of individual languages and may also not be directly comparable across the languages.

In sum, despite all these limitations, the approach we adopt allows us to explore the relationship between reported speech and reported thought without relying on specific lexical or constructional cues. We find that in all languages in our sample, speakers have access to multiple morphosyntactic strategies for the encoding of reported thought, ranging from the use of unaltered expressions for reported speech to highly specialized constructions associated with reported thought and coerced expressions combining reported thought interpretation with inherited properties of reported speech constructions.

2 Reported speech expressions *recruited* for reported thought

In all of our languages reported thought can be encoded *as if* it were speech, i.e. with verbs of speaking or other markers of speech and by constructions normally associated with speaking. In such uses, a dedicated speech reporting expression is *recruited* for the expression of “inner speech”

(Vygotsky 1987), and it is only the broader context that makes it clear that the words were thought rather than uttered.

Examples (1a-c) illustrate the recruitment of reported speech constructions for the expression of mental activity in Udihe, Wan, and Bashkir. We have chosen these examples because it is relatively uncontroversial, in context, that the reported thoughts were not spoken aloud or at least not intended to be heard by anyone around. In (1a), a character named Old Kanda is considering his chances against a competitor, planning an adversary act unbeknownst to the protagonist; the report is followed by a matrix clause with the verb *guŋ* ‘say’. In (1b), the character is reflecting upon a troubling issue while staying on her own in the savannah; the report is introduced by a matrix clause with a morphologically defective verb *gé* ‘say’. In (1c), the protagonist is preparing for a meeting with the local ruler; the report is followed by a general-purpose quotative verb (*ti*) and a full-fledged lexical verb *äjt* ‘say’. In all these contexts, the reports are clearly meant to describe mental activity rather than acts of communication, but the constructions and the choice of verbs are typical of speech reports. In isolation, the examples would be interpreted as describing the characters’ speech, and it is only due to contextual clues that the quoted portions (in brackets) are understood not to be uttered aloud.

- (1) a. [nii baja-ni wac'a bihi-ni baja-we-ni kieu
 person property-P.3 a.little be-3sg property-ACC-P.3 all
 zawa-zeŋe-i] Kand'a mafa **guŋ-ki-ni** [Udihe; Tungusic]
 take-FUT-1SG Kanda old.man say-PST-3SG
 ‘He has few things, I will take all the goods, - thought (= said) Old Kanda.’
- b. bé è **gé** [dè]bī pō é bā gēē
 then 3SG.SUBJ say remainder thing DEF LOG here.3SG
 wò lé sīēŋ yā bé zà gó] [Wan; Mande]
 make PROG stick with that matter in
 ‘And she thought (= said): As for why that thing does not leave me, it's because I keep hitting it with a stick.’
- c. nimä ti-p äjt-er-men [nimä ti-p tanəš-tər-ər-mən]
 what say-CV tell-CAUS-1SG what say-CV know-CAUS-POT-1SG
 ti-p **äjtä** inde [Bashkir; Turkic]
 say-CV tell-IPFV FOC
 ‘‘What would I say, how will I present myself?’’, – he thinks (= says)’.

Not only are the examples clearly understood in context as encoding thought rather than speech, but the relevant verbs of speaking are also normally not ambiguous between speech and thought (for example, the verbs in 1a-c are not used in elicitation to translate expressions with reported thought). The phenomenon of recruiting reported speech expressions for expressing reported thought may be more difficult to assess for languages with systematic lexical ambiguity between ‘say’ and ‘think’ (as reported, for example, for a number of Australian languages; Spronck 2015, McGregor 2021).

Besides verbs of speaking, other speech-introducing elements can be used to introduce reported thought. In examples (2a-c) from Gizey, Bashkir, and Chuvash, thought is reported by means of a construction with a (non-verbal) quotative marker (in the case of Gizey) or by a highly grammaticalized quotative verb, without the support of a full-fledged lexical verb of speaking (in the case of Bashkir and Chuvash). The quotative marker always precedes the report in Gizey (2a), but follows it in Bashkir (2b). The two instances of the quotative verb in Chuvash (2c) illustrate the pattern of multiple marking of the same clause, widely attested with reported speech in some languages (such as Chuvash and Wan). Note also that example (2a) describes ‘mistaken belief’; such descriptions are particularly common among contexts favoring reported thought interpretations (see Introduction).

(2) a. **ʔal** naʔ ʃɪ l=ām hān vet=tā dulej ʃɪ l=ām
 QUOT 3SF bite.PFV=3SM DEM hare=DEF CNJ bite.PFV=3SM

hān gōōrī=nā [Gizey; Chadic]

DEM stone=DEF

‘While she thought she bit the hare, it was instead the stone she bit.’

b. [quj it-e-n aša-j-əm] **ti-p** [Bashkir; Turkic]
 lamb meat-P.3-ACC eat-HORT-1SG QV-CV

‘He thought (= said): I will eat the meat.’

c. [jomax ei-n-te-i] **t-et** [asam-lə starik]
 fairy.tale top-P.3-LOC-MNLZ say-CV magic-PROPR old.man

pol-ma-r-ë=ši ku] **t-et** [Chuvash; Turkic]

be-NEG-PST-3 Q say-CV

‘Isn’t this magical old man, [he] thinks (= says), from a fairy tale? [he] thinks (= says).’

Another illustration of universal flexibility in the interpretation of reported speech as reported thought comes from examples where the report is not introduced by anything. Across languages, speech

reports appear in discourse without any overt matrix clause, especially in the context of vivid oral narration (cf. Spronck 2017 on “defenestration”). In examples (3a,b), from Ben Tey and Mwan, reports that are not introduced by any overt matrix clause are interpreted, in context, as expressing thought rather than speech: they are not addressed to anyone and not intended to be heard.

- (3) a. $\text{ɔ}^{\text{h}}\text{hó}$ í dòó-rè dè [Ben Tey; Dogon]
 INTJ 1SG arrive-PFV when
 (thinking) ‘Uhhuh, when I have arrived (there) < . . . >’
- b. sètrá pēgégé yāā ùzù-nε^{\prime} mū wlá-à
 Satan and 3SG.POSS spirit-DIM=PL enter-PRS
- yéē yrē wén é nóò àmā-à [Mwan; Mande]
 3SG place honest ART place for.sure-Q
 (thinking) ‘Has Satan and his spirits entered the holy place?’

In sum, we observe that all expression types available for the encoding of reported speech can also be used, in discourse, to encode reported thought, including secret thoughts that are clearly understood as unspoken. It is important to remember, however, that while in many cases the context helps distinguish speech from thought, some reports remain vague as to whether or not speaking was actually involved. Such is, for example, the report in (4), where the context provides no clue as to whether it represents a phrase the characters uttered while crying or rather describes their confused internal state that caused the crying.

- (4) aşşē-pe aməşē makər-sa jol-tε-ē-ε vot
 father.P.3-INSTR mother.P.3 cry-CV.COORD remain-PST-3-PL so
- xajxi-sker mēlle kom pek [Chuvash; Turkic]
 that-NMLZ what.ADVZ this:OBL like
- ‘The father and the mother remained, crying: Here, what, how come [it is] like that?’

The widespread flexibility in the interpretation of such examples suggests to us that the use of reported speech expressions for the encoding of characters’ inner states is a matter of a universally available rhetorical strategy and should not depend much on the grammar of a particular language.

3 *Exclusive thought-reporting strategies*

This strategy is the opposite of the one discussed above, i.e. the opposite of *recruitment* of reported speech constructions for the expression of thought. Across languages, construction types are used to report mental activity that have no equivalent among expressions of reported speech. In fact, expressions of reported thought show an extraordinary degree of structural diversity, both within our sample languages and cross-linguistically.

In Wan, for example, all types of reported speech expressions can be recruited to express thought, but in addition, a number of structures are associated with thought reports that cannot be used to report speech. In (5a) the content of thinking is cross-referenced in the thought-introducing clause by an oblique argument: “their belly is on (it)”. In (5b), it is cross-referenced by the subject: “it occurs to him that. . .”. There are no equivalents to such expressions among those used to report speech.

- (5) a. àmáŋ k̄ā á mì mōō gōŋā má [Wan; Mande]
 3PL.INDP belly COP side LOG.PL.POSS hut+def it.is
 ‘They thought the hut was for them.’ (Literally, ‘Their belly is on [it]: It is our hut.’)
- b. è wò á leŋ dóō k̄ā ñ gà [Wan; Mande]
 3SG.SUBJ make RSLT to QUOT 1PL.EXCL PRF go
 ‘She thought that we left.’ (Literally, ‘It happened to [her] that we left.’)

In Chuvash, too, all expressions for reporting speech can be used to report thought, but additional construction types are attested exclusively with reported thought. The examples in (6a,b) illustrate the use of future participles with the noun for mental activity ‘thought’ (the noun is represented by two different dialectal variants, and it is marked for possession in one example but not in the other).

- (6) a. akəş-ën katete-a kaj-as şokkəş kër-se
 sister.P.3-GEN fiance-ACC/DAT go-PC.FUT thought enter-CV.COORD
 kaj-atʃ [Chuvash; Turkic]
 go-PRS.3SG
 ‘The sister becomes possessed by the idea of getting married.’ (Literally, ‘His sister’s thought of getting married enters [her].’)
- b. eij-as şokəş-ë te eokkə on-a [Chuvash; Turkic]
 eat-PC.FUT thought-P.3 PRT EX.NEG 3SG.OBL-ACC/DAT
 ‘She is not even thinking of eating him.’ (Literally, ‘The thought of eating him does

not even exist [to her].')

Summing up, we have seen that in representing reported thought, speakers can use expressions normally associated with reported speech, leaving it to the listener to figure out that the thought was never actually spoken (Section 2), or they can use expression types that have little or nothing in common with reported speech constructions, including nominal predicates with body part nouns ('head', 'belly', 'inside') or existential predicates with nouns for mental activity ('thought').

4 Coercion between speech and thought

4.1 Lexically specialized expressions

We now turn to a strategy that we believe explains some seemingly unmotivated properties of reported thought constructions in some of the languages. Like the recruitment strategy, it involves the use of the same morphosyntactic construction type as in speech reports, but the report is now *lexically specified* to represent thought rather than speech. This is commonly done through substitution of a verb of thinking for the verb of speaking (in languages that have such specialized verbs), but we will see that there are other strategies widely available across languages. Due to the substitution there is also no ambiguity as to whether the report represents speech or thought. We propose to treat such examples as instances of *speech-to-thought coercion*: in a construction normally associated with reported speech, a lexical element associated with thinking triggers a reported thought interpretation.

As commonly observed for other instances of coercion (Lauwers & Willems 2011), the examples form a continuum stretching from cases where the speech reporting construction easily accommodates the new reading, to cases of a serious mismatch between the construction's properties and the resulting interpretation. The coercion analysis, accordingly, may seem unnecessary for the former but proves essential for the latter.

In the simplest case of speech-to-thought coercion, coercion is triggered by a verb of thinking, substituted for the verb of speaking most commonly associated with the reporting construction. The resulting examples could be alternatively analyzed as involving a construction underspecified for a speech vs. thought interpretation, where the interpretation depends directly on the choice of the verb. In Udihe, for example, a number of different structures can introduce reported speech, and a mental activity verb can be substituted for the verb of speaking in all of them. Examples (7a-c) illustrate the most typical reported speech constructions, here featuring a verb of thinking. In (7a), the content of the report follows the matrix clause; in (7b), the same two parts occur in the reverse order; and (7c) is a typologically rare framing construction where exactly the same verb appears both before and after the report (this construction is used to report either speech or thought, cf. the example with reported speech in 8) (Perekhval'skaya 2020).

- (7) a. zuu b'ata-ziga meisi-li-he-ti [ebede bi-mi ono
two boy-PL think-INC-PST-3PL like.this be-GER how
bagdi-za-fi minti] [Udihe; Tungusic]
live-OPT-1PL 1PL.INCL
'Two boys thought: Given how we are now, how will we live (in the future)?'
- b. [timanaji xeŋde-ze-mi bi] meisi-he-ni zuktigi ŋen-ie-ni
tomorrow go-OPT-1SG 1SG think-PST-3SG house-DIR go-IMP-3SG
'I will go tomorrow – he thought and went home.'
- c. jagdig'a meisi-he-ni [aziga-ŋi-i mene die-le-i
hero think-PST-3SG girl-POSS-P.1 REFL place.further-LOC-P.1
ambugi-zeŋe-i] meisi-he-ni
put-FUT-1SG think-PST-3SG
'The guy thought: I shall put my daughter further from the fire – he thought.'
- (8) jagdig'a xauntasi-hə-ni [aja si əmus'ə bi-hi-jəu] xauntasi-hə-ni
hero ask-PST-3SG well 2SG one be-2SG-Q ask-PST-3SG
'The guy asked: Well, are you living alone? – he asked.'

An important question that the coercion analysis raises concerns the direction of coercion. In many examples, such as (7a-c), it is natural to assume that the construction is primarily associated with speaking but the use of a verb of thinking can trigger coercion to a reported thought interpretation. It is also theoretically possible that a construction specialized for reporting thought might be able to accommodate speech verbs, resulting in a coerced reported speech interpretation. Particularly promising in this respect are constructions that are disproportionately frequent with thought reports. In Chuvash, for example, combinations of a matrix clause with a report not followed by a quotative verb (9a) are overall rather rare (Nikitina et al. 2023), yet they are disproportionately frequent with verbs of thinking (9b).

- (9) a. snateteēt Ivan kal-at kil-e il-se
it.means Ivan speak-PRS.3SG home-aACC/DAT take-CV.COORD
kaj-ər mən. . . mən kirlë, pötöm-pe il-se
go-IMP.2PL what what needed all-INSTR take-CV.COORD

kaj-ər kil-e [Chuvash; Turkic]
 go-IMP.2PL home-ACC/DAT

‘That’s it, Ivan says: Take [it] home, take home all you need. . .’

b. nu vot ɛak jəməkk-i ëntë ʂot-l-atʃ
 well so this little.sister-P.3 PRT thought-VBLZ.PRS.3SG

mëlle kaj-sa kor-as=pətʃ on-ta
 what.ADVBL go-CV.COORD see-PC.FUT=is.needed 3SG.OBL-LOC

‘And now, that little sister is already thinking how to reach there, to take a look [at how they live].’

Similarly, nominalized reports are disproportionately associated in Chuvash with reported thought, even though reported speech is also attested with nominalizations. In (10a), a future participle clause appears as a nominalized argument of the verb ‘think’, with the accusative/dative case marker. In (10b), a nominalization serves as an argument of the verb ‘speak’. (The examples differ in the order of the two parts of the construction, but given the relatively free word order of Chuvash, this difference is irrelevant.)

(10) a. patʂa pol-ass-a ʂot-la-ma-n ta [Chuvash; Turkic]
 tsar be-PC.FUT-ACC/DAT thought-VBLZ-NEG-PC.PST PRT

‘We did not even think that you would become a tsar.’

b. nu ʂar-la-mac xaj völ akkəʂn-e
 well IDPH-VBLZ-NEG.PRS.3SG that.one s/he elder.sister.P.3-ACC/DAT

ɛöl-n-in-e
 save-PC.PST-NMLZ-ACC/DAT

‘Well, he does not tell (= does not make noise), that one, that he had saved her sister.’

Such asymmetries in the distribution could correspond to the possibility of coercion from thought to speech but they could also be a result of competition between several reported speech constructions, some of which favor coercion to reported thought to a greater degree than others. Examples of constructions that are disproportionately associated with reported thought while also admitting verbs of speaking are in fact very rare in our data. We cannot address the question of directionality of coercion based on such limited evidence and we leave it to future studies.

The coercion strategy does not imply the use of specialized verbs of mental activity. The same interpretation can be triggered by lexical items other than verbs, such as nouns and adverbs. For example, in (11a), from Gizey, the verb is a general verb of speaking but a body part term is substituted for its normally agentive subject, to designate the internalized nature of “speaking”. The most typical body parts referred to in such expressions are head, liver, heart, as well as abstract organs of cognition such as mind and soul. Another common strategy is modifying the speech verb by a locative adjunct, again to specify that “speaking” takes place inside one’s mind or body, as in (11b) from Mwan.

- (11) a. nàm ʔàr=àm d=ūm là nàm búr gàngā
 3SM eye-3SM tell.PFV=3SM QUOT2 3SM lie.IMP down
- nō lì=t gɛʔ [Gizey; Chadic]
 DEM do.PFV=how Q
- ‘He thought he should lie down.’ (Literally, ‘His mind/eye told him that why would he not lie down.’)
- b. mú yáà pē-lē mā mú kpéé yē
 3PL.EMPH RETR say-GER surface 3PL in there
- mēē é dèlè bɛ́ ja é wó-zíí gèé [Mwan; Mande]
 person ART who 3SG word ART do-PROG like.this
- ‘People said inside themselves: Who is saying these words?’

Unlike the recruitment strategy discussed in Section 1, the coercion strategy is not universal. For example, it is not attested in Wan, where a verb of thinking cannot be substituted for the verb of speaking, and no other lexical coercion triggers are attested with reported speech constructions.

4.2 Addressee-related phenomena explained by coercion

A coercion analysis actually predicts some of the characteristics of reported thought that may otherwise seem puzzling. The coerced interpretation is at odds with the construction’s formal properties, since situations of thinking and speaking differ in a number of linguistically relevant ways (see Teptiuk 2022, *inter alia*, for a recent discussion). The conflict between meaning and grammar sometimes results in seemingly inconsistent or superfluous expressions. To illustrate this point, we sketch here three types of phenomena related to the non-communicative nature of thinking. Such

phenomena call for explanation, and an explanation is suggested by the coercion analysis: while lexically specified as referring to thinking, the examples inherit certain properties from expressions of reported speech on which they are modelled.

4.2.1 Addressee of the report appears in the report but not in the matrix clause

In language after language, we encounter examples of unambiguous thought reports referring to an imaginary addressee, by means of second person pronouns and address terms (12a,b).

- (12) a. *min hine ſul ſeſqolaq-tar-ə-ndan höjrä-p < . . > ti-p*
 1SG 2SG.ACC that ear-PL-P.3-ABL catch-CV QV-CV

ujla-yan ikän [Bashkir; Turkic]

think-PC.PST be.PC.PST

‘And I will catch you by your ears < . . > – that is what she was thinking.’

- b. *mën=ke=xa es=ke kom pek ſot-l-atı* [Chuvash; Turkic]
 what=PRT=PRT 2SG=PRT this:OBL like thought-VBLZ-PRS.3SG

‘How [come] you [are] like that? - he is thinking.’

In (12a,b), we have deliberately chosen examples that represent regular statements not addressed to anyone in the conventional sense of the term. The reports, in particular, do not feature imperatives; that is important because reported imperatives could perhaps be dismissed as part of a performative act intended to influence the behavior of an imaginary interlocutor. In (13), the verb of thinking is in the imperative (here, an unmarked form of the verb), and the report is addressed to a second person (as evidenced by a second person marker on the verb ‘beat’), as if the character were addressing himself in the second person.

- (13) *mëlle ɛap-an=xa ëntë, ſot-la-sa*
 what.ADV BZ beat-PRS.2SG=PRT PRT thought-VBLZ-CV.COORD

pəx=xa [Chuvash; Turkic]

look=PRT

‘How will you beat [him], think [for yourself]!’

In example (14), we see an interesting combination of third person and second person reference. The

remark comes from the bear who discovers that he has been cheated upon by the fox. The first clause refers to the fox in the third person, while the second clause – promising to find and kill her – is seemingly addressed to the fox (by that time long gone). The optative form of the verb is used within the speech report in the meaning of proximate future (‘you will [soon] be killed by me’).

- (14) tukca site-ni sul'ai mine-we ebede camna-a-**ni**
 hare child-3SG fox 1SG-ACC so cheat-PST-3SG
- alide bagi-e min-du uu-ze-**hi** [Udihe; Tungusic]
 somewhere live-PRS 1SG-DAT be.killed-OPT-2SG
- ‘The bastard (literally, “child of a hare”) fox has cheated me so. No matter where [you] live, you will be killed by me.’

Surprisingly, such examples never refer to the same addressee within the matrix clause, and such reference is in general not allowed. Characters are never described as “thinking *to*” hares or foxes, even though they refer to them freely as interlocutors in their thoughts. In Udihe, in particular, addressees are encoded by a directional case (more recently, under the influence of Russian, by the dative, Elena Perekhvalskaya pers. comm.). Neither directional nor dative arguments combine with verbs of mental activity (the topic of thinking – in expressions ‘think *about* x’ – is only very rarely expressed, and is marked by the accusative).

The restriction may seem trivial given that conceptually, thinking does not involve an interlocutor: unlike speaking, it is an inherently solitary activity. Yet we see clearly in the examples above that an interlocutor *can* be present, hence the restriction cannot be explained by considerations of conceptual nature. Neither can it be explained by peculiarities of the argument structure of verbs of thinking. It could be hypothesized, for example, that verbs of mental activity do not license an addressee for lexical reasons. That supposition, however, is not supported by the data: some languages allow the role of addressee to be encoded with verbs of thinking, yet require that addressee to be reflexive. If one can ‘think to oneself’ and at the same time refer to an addressee within the thought report, why should it not be possible to “think *to a fox*”?

Reference to addressees in thought reports illustrates a mismatch between the presence of a pragmatic role and the impossibility to express that role outside the report, with a verb of thinking. The coercion account explains this mismatch: second person reference is possible within the report because of the construction’s association with the pragmatic role of addressee, inherited from speech reports. Since the verb of thinking is not associated with a semantic role of addressee, it does not allow the same referent to be encoded in the matrix clause introducing the report. As a result of the mismatch, the fictive interlocutor of a mental activity can be expressed as addressee within thought reports but

not in matrix clauses that introduce them.

4.2.2 Superfluous arguments

A similar explanation accounts for cases of seemingly superfluous reference to an addressee in the matrix clause of coerced thought reports. While we do not have clear examples in our data, they are attested in well-studied languages in expressions such as English *think to oneself*. From a purely semantic point of view, the presence of an overt addressee in the matrix clause of a thought report is superfluous, since mental activity involves no addressee, and the addressee, if expressed, can only be co-referential with the subject. Such uses can be explained by a discrepancy between the construction’s coerced interpretation and its retained “speech-like” morphosyntax.

By the same logic, locative adverbials may appear in thought reports to specify, superfluously, that the activity is taking place entirely in one’s mind (head, heart, stomach...), rather than between two interlocutors. Locative expressions such as ‘in one’s head’ and ‘inside oneself’ (15a,b) serve as substitutes for addressee phrases, and again, serve to reconcile the construction’s argument properties (an implied addressee) with its coerced interpretation.

4.2.3 Unusual interpretation of addressee marking

Our last example of unusual treatment of addressees that can be explained by coercion comes from Bambara (Vydrin et al. 2011–2018). With speech reports, the addressee argument of the verb *fɔ* ‘say’ can be introduced by two postpositions: *ye* and *ma*.

(16) a. *ce* *be* *a* *fɔ* ***muso*** ***ma*** *e* *kelen* *te*
 man IPFV 3SG say woman PP 2SG one NEG

muso *ye* [Bambara; Mande]
 woman PP

‘A man says to a woman: You are not the only woman here.’

b. *sa* *de* *ye* *a* *fɔ* ***muso*** ***ye*** *ko* <...>
 snake FOC PFV.TR 3SG say woman PP QUOT

‘The snake said this to a woman: ...’.

Since mental activity does not involve an addressee in the usual sense, we would not expect addressee-introducing postpositions to be found with the verb ‘think’ (or if they are, their arguments

should be restricted to reflexive pronouns). In fact, however, the addressee-introducing postposition *ma* does appear with the verb *miiri* ‘think’, but on a very different reading: it is interpreted, in a rather exceptional way, as introducing the topic of thinking (‘think about x’), i.e. the postposition is used to express an aboutness relation (17). The other addressee-introducing postposition, *ye*, does not seem to be allowed in the same role with mental activity verbs, as far as we can tell based on consultations with native speakers. This suggests that the two roles are distinct, and the fact that the two different interpretations are available with *ma* ‘to, about’ (depending on the verb) is likely due to a semantic change.

- (17) ni i ye i miiri sanu girinya **ma** [Bambara; Mande]
 if 2SG PFV.TR REFL think gold weight PP
 ‘If you thought **about** the weight of gold. . .’

With the verb *fɔ* ‘say’, the topic of conversation is usually introduced by a different postposition, *la*, while the direct object (the third singular pronoun *a* in 18a) refers to what was actually said. The same postposition can introduce the topic of thinking but in that case no direct object is required (18b).

- (18) a. *dɔ=w* *bɛ* *a* *fɔ* *aw* *la* *ko: <. . .>*
 some=PL IPFV 3SG say 2PL PP QUOT
 ‘Some people say this about you:’
- b. *n* *bɛ* *miiri* *matigi* *la*
 1SG IPFV think lord PP
 ‘I think about God.’

The difference in the interpretation of Bambara postpositions with verbs of thinking and speaking is summarized in Table 2. The difference that is crucial for us concerns the interpretation of *ma*.

Table 2: Postpositions introducing addressees and topics in Bambara.

	<i>ye</i>	<i>ma</i>	<i>la</i>
<i>miiri</i> ‘think’	n/a	topic of conversation (‘about x’)	
<i>fɔ</i> ‘say’	addressee		topic of conversation (‘about x’)

Examples where the indirect object of ‘think’ is introduced by an addressee postposition, but interpreted as a topic of thinking, are exceptional from a language-internal point of view. They can be

explained, on the other hand, if the presence of the postposition is treated as a “legacy” of constructions with a speech verb.

A similar phenomenon is reported by McGregor (2021) for an Australian language Warrwa, where the generic verb ‘say, do, think’ hosts an oblique pronominal marker that can cross-reference either the addressee of a speech event or the topic spoken about (see also Spronck 2015 on Ngarinyin). With expressions of reported thought, however, it can only cross-reference the topic, and corpus data suggests that such interpretation is dispreferred with reported speech. The fact that the same marking is available for the encoding of addressees and topics, and the two interpretations are unevenly distributed between readings involving speech and readings involving thinking suggests how the curious split in the interpretation of *ma* ‘to, about’ may have developed in Bambara.

4.3 Structural consequences of coercion

We have argued that the speech-to-thought coercion account sheds light on a number of phenomena involving unexpected behavior of addressees, superfluous use of reflexive addressees and locative adverbials, and unusual interpretations of addressee-encoding markers. Such phenomena have not, to the best of our knowledge, been previously discussed in typological literature, and we believe they should be treated together as instantiations of a general tendency.

The coercion account also helps reconcile existing evidence on the relationship between reported speech and reported thought. If the account is on the right track, we should expect speech-to-thought coercion strategies to result in slight differences between reported speech and reported thought with respect to a number of content-related phenomena. Mental activity differs from typical acts of communication in a number of ways other than the set of participants involved; for example, they tend to differ in aspectual characteristics and volitionality, and the content of thinking differs epistemologically from the content of speaking. Hence, the coerced expressions may show a reduced set of possibilities, as compared to reported speech, in the expression of categories such as tense-aspect-mood, evidentiality, factivity, as well as categories related to information structuring. A number of such phenomena are discussed in this volume (see the chapters by Remberger and Grzech).

One difference along these lines that we already mentioned concerns the weaker tendency to use quotative verbs in thought reports than in speech reports in Chuvash. The low-frequency construction without a quotative verb is strongly associated with thought reports, even though it is occasionally also attested with speech reports (ex. 9a vs. 9b). The distribution asymmetry is probably related to the fact that quotative verbs are grammaticalized from verbs of speaking, and as such are associated primarily with speech situations. Expressions of mental activity are not subject to the same constraints, or do not become subject to them at the same time as speech reports.

Our limited data does not allow us to perform a full-scale analysis of the suggested differences, but the case of overt reference to addressees suggests that they should be mostly of a statistical nature.

Even though the role of addressee is absent from the argument structure of verbs of thinking, the coerced nature of the expression may lead speakers to refer overtly to an “addressee” of the mental activity. We believe that other conceptual differences between thinking and speaking, too, need not always be directly reflected in the behavior of the coerced constructions, and properties may emerge in such constructions that cannot be accounted for by the grammar of mental activity verbs alone.

Further differences, not discussed in this paper, may be related to the way expressions with verbs of speaking and verbs of thinking develop additional uses. Verbs of speaking, for example, regularly grammaticalize into specialized quotative markers and markers of intentionality (Güldemann 2008, Matic' and Pakendorf 2013, inter alia), while expressions with verbs of thinking seem more likely to develop into epistemic markers (see Aimer 2005 for a literature review). When both types of expression give rise to discourse markers, they tend to be associated with rather different meanings (cf., for example, the difference between the responsibility-diminishing function of *I think* and the responsibility-enhancing effect of *I say* in English). Our approach allows for treating such diachronic asymmetries along with synchronic ones, without assuming too categorical a difference between reported speech and reported thought.

5 Conclusion

In our attempt at a constructional typology of reported thought expressions, we have reached the following tentative conclusions.

Reported speech and reported thought are intimately related, in a way that can be described by an *implicational statement*: constructions available in a given language for the expression of reported speech are also universally available for the expression of reported thought, but not vice versa. In other words, languages seem to allow their speakers to represent thought *as if it were* speech. Our sub-corpora differ in the frequency of such representations, but these differences are likely a matter of rhetorical preference rather than grammar (for example, we note considerable variation among narratives by different speakers of the same language).

At the same time some languages have highly specialized constructions for encoding reported thought which cannot be used to encode reported speech or constructions that are derived from reported speech constructions. So overall, we have identified three strategies used by speakers in our data to report thought:

- Reported speech constructions are *recruited wholesale* for the expression of thought; this strategy is attested in all of our languages and may be universal.
- Languages use specialized reported thought constructions that have no equivalent among expressions of reported speech; this strategy of using *exclusive* morphosyntax is attested in all of our languages, and it may be universal.

- Reported speech and reported thought can be related through coercion: a construction normally associated with reported speech can change its interpretation in the presence of a lexical trigger (a verb of thinking, a body part term, an adverbial). This strategy is not universal, and the details of its use vary across languages (just like the lexical means used as the triggers also vary). We have evoked the theoretical possibility of coercing specialized reported thought constructions to a reported speech interpretation but we currently have no data that would allow us to explore it.

All languages in our sample use *more than one* morphosyntactic strategy to express reported thought, and some use all three. The co-existence of multiple strategies points, on the one hand, to a universal connection between the concepts of thinking and speaking, and on the other hand, to their universal distinguishability. In the same language, reported speech can either be represented as speech or encoded by very different morphosyntactic means; in addition, it can be represented as speech at the morphosyntactic level yet specified to describe “inner speech” by additional lexical means.

This complexity corresponds well with the heterogeneity of mental processes commonly subsumed under “thinking”. Lexical studies often assume that expressions of mental activity belong to a universal semantic domain built around a crosslinguistically comparable core notion (Fortescue 1990; Goddard 2003, *inter alia*). Our constructional approach reveals considerable heterogeneity not only across languages, but also in the range of available options in a given language. This heterogeneity is perhaps not surprising given that “thinking” subsumes a variety of phenomena ranging from unintentional information processing to deliberate planning and organized problem solving, and some of these mental activities can be facilitated by strategic language use in the form of “self-talk” or private speech (Vygotsky 1934). It seems natural that languages offer their speakers a variety of tools for referring to different kinds of mental processes, in ways that sometimes conflate thought with speech and sometimes treat it in a radically different way. Future typologies will need to address the ways mental activities are categorized across languages and the ways such categorization corresponds to morphosyntactic expression.

These conclusions can only be regarded as tentative, however, due to the nature of our data. Our convenience sample is far from representative, both in terms of linguistic families and geographic areas. For example, as noted by a reviewer, the sample does not include languages from the Pacific, and a systematic study of such languages would be essential to testing our predictions because of their tendency to avoid reporting people’s thoughts, due to the cultural belief in the “opacity of other minds” (Robbins & Rumsey 2008; Rumsey 2008, 2013). Would such languages still conform to our generalizations in the rare cases when speakers do report thoughts? We cannot answer this question, because we do not have comparable annotated data for languages of this type. We speculate, however, that even speakers of languages where reporting others’ thoughts is avoided may still have at their disposal some thought reporting strategies analogous to the ones we explored in this paper.

For example, in Schieffelin (2007) the Papua New Guinean language Bosavi is described as lacking resources for reporting private thoughts, leading to innovation and calquing from Tok Pisin during Bible translation. Such resources are present, however, in traditional story genres where the reported thoughts belong to fictional characters; they were just not used in Bible translation because of their association with “genres of the past”, which pastors sought to avoid (Schieffelin 2007: 150). The textual examples analyzed by Schieffelin, moreover, show that the expressions used to translate reports of private thoughts from Tok Pisin were ultimately very similar to the ones we find in our corpus: ‘be thinking one’s thoughts’, ‘be thinking in one’s heart’, and ‘thoughts came’; translators are also reported often to hesitate between the verbs ‘think’ and ‘say’.

Similarly, as discussed by Rumsey (2013), speakers of the Papua New Guinean language Ku Waru avoid attributing thoughts to others, but the language still provides them with resources to attribute thoughts to themselves (the examples analyzed by Rumsey involve a serial verb construction consisting of the verb *nyi-* ‘say’ and the verb *pilyi-* ‘hear, sense’; this construction seems to be specialized for reporting thoughts as opposed to speech). And the tendency to report thoughts by means of expressions normally associated with reported speech is discussed, for Papuan languages, by Himmelmann & Riesberg (forthc.); these are the expressions that we suggest represent universal rhetorical strategies. These observations lead us to expect that our generalizations should hold across a more representative sample of languages, including languages from areas known for special cultural attitude to talking about other people’s mind.

To conclude, the dual status of reported thought – the fact that it can be represented, within the same language, exactly like speech or much unlike speech – suggests that reported thought should not be treated as a cross-linguistic syntactic category in a way similar to reported speech (Spronck and Nikitina 2019). Conceptualization of thought processes varies across languages in ways that make direct comparison difficult, and we have not been able to pin down any formal universals pertaining to the morphosyntactic expression of reported thought. Our only universal claims describe the relationship of expressions of reported thought to expressions of reported speech, more specifically: thought reports are universally encoded in discourse as if they were speech reports (but not vice versa). We hope that further research into the grammar of thinking will shed more light on this relationship in a larger set of languages.

Abbreviations

ABL – ablative case

ABSTR – abstract noun

ACC – accusative case

ADVBL - adverbializer

ART – article

CAUS – causative

CNJ – conjunction

COP – copula

CV – converb

COORD – coordinative

DAT – dative case

DEF – definite

DEM - demonstrative

DIM – diminutive

DIR – directional

EMPH – emphatic

EMPHADD – emphatic additive

EX.NEG – negative existential

FOC – focus

FUT – future

GEN – genitive

GER – gerund

HORT - hortative

IDPH - ideophone

IMP – imperative

INC – inchoative

INCL – inclusive

INDP – independent series of pronouns

INF - infinitive

INSTR – instrumental case

INTJ – interjection

IPFV –imperfective auxiliary

LOC – locative case
LOG – logaphoric pronoun
NEG – negation
NMLZ – nominalization
OBL – oblique case
OPT – optative
P.1 – possessive marker of first person
P.3 – possessive marker of third person
PFV – perfective
PL – plural
POSS – possessive
POT – potential
PP – postposition
PPV – prepausal vowel
PREP – preposition
PRF – perfect
PROG – progressive
PROPR – property marker
PROS – prospective
PRS – present tense
PRT – particle
PST – past
Q – question
QUOT – quotative particle
QV – quotative verb
REFL – reflexive
RETR – retrospective
RSLT – resultative
SF – singular feminine
SG – singular
SM – singular masculine
SUBJ – subject pronoun
VBLZ – verbalization

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