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Nasal and prenasalized consonants in the evolution of phonological systems (1970)

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translated by Alexis Michaud

Abstract

[The purpose of this paper is to bring out the panchronic conditions governing the evolution from nasal consonants to oral consonants. In languages with nasal vowels, there can be (i) a carry-over of orality into a following consonant: ***am > abm** (and ***ãm > am**), or (ii) an anticipation of orality into a preceding consonant: ***ma > mba** (and **mã > ma**).]

[Introduction]

The purpose of this paper is to determine the panchronic conditions governing the evolution from nasal consonants to oral consonants. A case which is famous among sinologists is that of Kan-on, the Chinese dialect of ancient Japan, where all former nasal consonants became voiced stops: **m > b**, **n > d**, **ɲ > z**, **ŋ > g**, so that this dialect lacks initial nasal consonants altogether (Karlgren 1940:67).

In the language families that are best understood at present, namely, Indo-European, Semitic and Finno-Ugrian, nasal consonants are diachronically stable. These consonants are present in almost all languages. Under which exceptional conditions can they become altered? In the case

of Chinese, it has been hypothesized (for quite some time now) that there must have been an intermediate stage when these consonants were prenasalized: ^m**b**, ⁿ**d**, etc. Phonemic prenasalized stops are actually fairly widespread in Oceania and in Central and South America [so that relevant information about these phonemes and their evolutionary potential can be obtained by taking a close look at Oceanian and Amerindian languages; in turn, this information can shed light on the developments that took place in the history of the Kan-on dialect].

In Oceania, Jean-Claude Rivierre, in his study of the dialects of the Numea language (New Caledonia), found the correspondence shown in Table 1 between the conservative dialect of Goro and the evolved dialect of Unia.

Table 1. Examples illustrating consonant correspondences between the Numea dialects of Goro (conservative dialect) and Unia (advanced dialect).

gloss	Goro	Unia	path of evolution
earthworm	mbie	pie	mb > p
currency, money	mie	mbie	m > mb
wet	mĩẽ	mie	m [̃] > mV

In the Goro dialect nasal consonants can be followed by either oral vowels or nasal vowels. In the Unia dialect, there is no opposition of nasality among vowels after a nasal consonant: the presence or absence of nasality on the vowel is not phonologically relevant. The interpretation of these comparative data is that nasal consonants that used to be followed by an oral vowel became prenasalized stops in the Unia dialect. The distinctive feature which used to be carried by the vowel (oral vowel vs nasal) was transferred onto the second half of the preceding consonant.

[This sheds light on the conditioning of the sound change:] One of the conditions of the consonant shift whereby nasal stops become prenasalized stops is thus the presence of nasal vowels in the language. This condition is likewise fulfilled in the Otomi language of Mexico. Consider the dialectal data in Table 2 (from Bartholomew 1960: 327).

[Table 2. Examples illustrating consonant correspondences between the Otomi dialects of San Felipe (conservative dialect) and San Gregorio (advanced dialect).]

gloss	San Felipe (Mexico)	San Gregorio (Hidalgo)	path of evolution
heart	mui	mbui	m > mb
mouth	ne	nde	n > nd
lime	nāni	nāni	-
coyote	mĩʔno	mĩnʔyo	-

Nasal consonants followed by an oral vowel have been preserved in San Felipe, but have become prenasalized stops in San Gregorio.

A similar phenomenon took place in some Austroasiatic languages of the Indochinese peninsula. In Jeh (a language of Vietnam), there are nasal vowels in certain words with initial **h-** or **ʔ-**. In Halang, another language of Vietnam and a neighbour of the Jeh language, the final consonants **-m**, **-n**, **-ɲ** and **-ŋ** are only found after vowels which are themselves preceded by a nasal consonant; in other contexts, the final consonants are **-bm**, **-dn**, **-ɲn** and **-gŋ**, for example **naŋ** ‘to hear’ and **haŋŋ** ‘sensation of scalding’ (Gradin 1966: 46, Cooper & Cooper 1966: 94). Table 3 provides examples from Chewong, a Semang dialect spoken in Malaysia.

[Table 3. Examples from Chewong, showing the conditioning of prestopped variants of final nasal consonants. Unpublished data (Diffloth 1967).]

gloss	Chewong	gloss	Chewong
to urinate	knam	water	tabm
blood	mũhũm	foot	cadn
where	hon	four	padn
to sniff	ʔun	I, 1 st sg.	igŋ
dog	ʔeŋ	to see	da eŋŋ
cheek	meŋ		

From the data in Table 3, it can be concluded that **-m**, **-n**, **-ɲ** and **-ŋ** were preserved when they were preceded by a nasal vowel – whether the nasality of the vowel was due to the influence of a preceding nasal consonant, or to a feature of nasality that the vowel inherited from a former nasal initial when that nasal initial turned into a glottal **h-** or **ʔ-**. On the other hand,

when the vowel was oral, there was a carry-over¹ of orality [into the beginning of the following nasal consonant], yielding **-bm**, **-dn**, **-jn** and **-gn**.

Prenasalized consonants are not very common across languages; they can evolve rapidly into (oral) voiced stops. Such is the case in Siouan languages, where the correspondences in Table 4 are observed.

Table 4. Correspondences between Ponca and Santee (Boas and Swanton 1911).

gloss	Ponca	Santee
with the foot	nā-	na-
by cutting	ma-	ba-

The same process took place in the Chinese dialects of the Min group, such as the dialects of Amoy [Xiamen] 厦门 (Fujian 福建 province) and Chaozhou 潮州 (Guangdong 广东 province). The Amoy dialect contrasts oral vowels and nasal vowels, but **m-**, **n-** and **ŋ-** are only found before nasal vowels, and **b-**, **l-** and **g-** before oral vowels, e.g. **geʔnīū** ‘moon’, **mēnī** ‘next year’, and **bin nā lit** ‘tomorrow’ (Linguistics Centre 1964). The existence of the doublet **mē** - **bin** [‘bright, clear’, 明], corresponding to **miŋ** in the Beijing dialect, reveals what has happened. The nasal vowels belong to an old vernacular layer: the nasal vowels in that language variety originated in the elision of final nasal consonants. Then a learned pronunciation was introduced, with an oral vowel followed by a final nasal consonant [i.e. a more archaic state of affairs than in the vernacular]. It is in these learned words that [the conditions of change were met, as in the examples in Table 2, so that] the consonant shift from nasal consonants to oral consonants took place. This sheds light on the origin of the Kan-on dialect which was introduced into Japan, and which lacked initial nasal consonants: it was a learned pronunciation that had undergone a consonant shift caused by the influence of a vernacular pronunciation.

As for the languages that are reported to have lost nasal consonants altogether, as has been claimed for some Amerindian languages (Hockett 1955: 119), I wonder if this conclusion is not simply due to an incomplete inventory of the language’s lexicon. Supposing that nasal vowels in these languages are not widespread, the items that preserve nasals may be rare words which escaped the scrutiny of the investigators. On the basis of the examples of languages of Indochina, it would seem that what matters in the

1. [The original mistakenly indicates ‘anticipation’ instead of ‘carry-over’.]

consonant shifts at issue is not so much the frequency of nasal vowels as their presence in the system, and their occurrence in contact with nasal consonants.

Discussion

[This is a transcript of the discussion that followed Haudricourt's talk. It is part of the original publication.]

T. Akamatsu:

I understand that nasal consonants ([**m**] and [**n**]) in the Kan-on type of pronunciation have changed to [**b**] and [**d**], respectively, in Japanese. How do you account then for the presence in contemporary Japanese of [**ɲ**] (the so-called "Japanese syllabic 'n' ") which may seem due to a mutation different from that for [**m**] and [**n**]? And would you consider [**ɲ**] as in Kan-on as a nasal consonant or a sort of nasal vowel?

Answer by A.-G. Haudricourt:

No! The change from **m-** to **mb-**, and from **n-** to **nd-**, took place in China; thereafter, **mb-** changed to **b-**, and **nd-** to **d-**, when these sounds passed into Japanese. The finals **-m** and **-n** were pronounced in a vocalic way, because Japanese is a language that only allows open syllables.² The confusion of the two finals **-m** and **-n** results in a nasal vowel that has the vowel quality of the vowel that precedes: /**kan**/ is actually [**kaã**], /**hon**/ is [**hoõ**], etc.

R. Gsell:

Mr. Haudricourt's brilliant paper could lead to the recognition of three degrees of consonantal nasality (plus a zero degree corresponding to fully non-nasal consonants):

- zero degree: **b**, **d**, etc.; or **p**, **t**, etc.
- 1st degree/reduced degree: **^mb**, **ⁿd** (prenasalized stops)

2. [The original mistakenly indicates "open vowels" instead of "open syllables".]

- 2nd degree/full degree: **m**, **n**, etc. These are the ordinary nasals. When nasal vowels follow these nasal consonants, they are definitely nasal.
- 3rd degree/strong degree: this degree of nasality is both consonantal and vocalic. Following a 3rd-degree nasal consonant, the vowel has to be realized as nasal, so that nasality over the vowel is not distinctive. In fact, neither is there a contrast of nasality on the consonant as distinct from the vowel, since the **ČṼ** complex makes up an undecomposable whole.

Systems that have all three degrees appear to be rare; they are found in some Melanesian and Amerindian languages. When consonant shifts affect nasal consonants, it should be possible to explain them as transphonologizations whereby the degrees 0, 1 and 2 change to 1, 2, and 3, respectively (i.e. a reinforcement of nasality) or conversely 1, 2 and 3 change to 0, 1 and 2 (i.e. a reduction of nasality).

I would love to hear Mr. Haudricourt's opinion on this subject.

Answer by A.-G. Haudricourt:

Nasality being a marked feature, all the examples that I provided are instances of the latter process: a reduction of nasality. The opposite case, whereby **mb** would change to **m** and **nd** to **n**, only exists in some intervocalic positions in Indo-European languages (from the Romance and Germanic groups) that allow geminated consonants [i.e. the change is from **mb** to **m:**, and from **nd** to **n:**].

Comments

This short article brings attention to the wide range of transfers of nasality attested across languages, and illustrates the panchronic approach to historical phonology: building on observations about distributional constraints on nasal phonemes in order to understand their evolutionary potential.

Shortly after the publication of this conference paper, supporting evidence came from report of a change in progress from *CVNV to CNV and finally to C \tilde{V} in the Kwa branch of the Niger-Congo family. In Gwari, “*kNu and *gNu are already pronounced [k η ju] and [g η ju], where the nasal release is not particularly pronounced. (...) /sNi/ is pronounced [s η i]” (Hyman 1972: 176).

On the other hand, the reservations expressed in both studies (Haudricourt 1970 and Hyman 1972) about the possible range of historical evolutions have since been shown to be mistaken. Haudricourt was aware of the interest of Siouan languages for a panchronic study of nasality, but he voiced doubts about the possibility of a system that has no nasal consonants:

“As for the languages that are reported to have lost nasal consonants altogether, as has been claimed for some Amerindian languages (Hockett 1955: 119), I wonder if this conclusion is not simply due to an incomplete inventory of the language’s lexicon.” (last paragraph of the paper)

and Hyman considered that

“...it seems much more natural to speak of the nasality as having shifted from the consonant to the vowel, i.e. [CNV] becomes [C \tilde{V}]. The reverse (with denasalization of V) would be very strange indeed.” (Hyman 1972: 176)

Contrary to these views, it is now established that consonant nasalization from a following nasal vowel is an attested historical change in Siouan languages – and thus a panchronic possibility (seminal research on this topic includes Aubin 1975, Boyle 2007, and Carter et al. in preparation; on other Native American languages that are relevant to this topic, see Rose 2008, Wetzels 2009 and Epps 2008). A correspondence such as Winnebago /-p \tilde{a} n \tilde{a} / vs. Chiwere /-bl \tilde{a} / (‘ten’) looks like another case of transfer of nasality from a TN- onset, suggesting a reconstruction as *-pna. But

advances in the reconstruction of Proto-Siouan lead to the conclusion that the change was in fact the reverse. The word for ‘ten’ is to be reconstructed as **-wrã*, not **-pna* (Michaud, Jacques and Rankin 2012).

These findings allow for further progress towards the objective stated by Haudricourt: “to bring out the panchronic conditions governing the evolution from nasal consonants to oral consonants”. Transfers of nasality between a syllable-initial consonant cluster and the following vowel can go in both directions: from the consonantal onset to the following vowel in Tai-Kadai, Austroasiatic, Sino-Tibetan, Niger-Congo (Kwa) and Indo-European (Celtic), and from the vowel to the preceding consonant in Siouan.

Importantly, an examination of the conditions on these changes brings out an asymmetry. In most cases, transfers of nasality take place from a consonantal onset to a following vowel; instances of a regular change in the opposite direction all come from languages where there is one of the following restrictions on nasal sounds: (i) nasal consonants are nonphonemic (contextually predictable), or (ii) the opposition between nasal and oral vowels is neutralized after nasal consonants (in favour of nasal vowels).

In languages without phonemic nasal consonants, /C[̃]/ > [N[̃]] is a ubiquitous synchronic rule. In languages that have phonemic nasal consonants but no oppositions between /N[̃]/ and /NV/, the change from /C[̃]/ to /N[̃]/, despite resulting in the neutralization of some oppositions, is not unheard of; however, it is usually restricted to specific morphological contexts. Finally, no case of spreading of distinctive nasality from a vowel to a preceding consonant has been found so far in languages that have an opposition between /N[̃]/ and /NV/ (Michaud, Jacques and Rankin 2012).

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