BLOCKING NASAL SPREAD IN BONGGI
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1 Introduction

Bonggi is a Western Malayo-Polynesian language spoken in Sabah, Malaysia. Word-final nasals are either simple [m], [n] and [ŋ], or preploded [m̱], [ṉ] and [ŋ̱] depending upon the nasalization of the preceding vowel. Word-final nasals are simple if the preceding vowel is nasalized as in (1).

\[(1) \text{ onom} \ /\text{ɔ.nom}/ \ [\text{n̪n̪}m] \ 'six' \]
\[\text{mien} \ /\text{mi.oŋ}/ \ [\text{m̱iū}ŋ] \ 'aunt' \]
\[\text{tingaang} \ /\text{ti.na.aŋ}/ \ [\text{tiŋŋaŋ}] \ 'scorpion' \]

Final nasals are preploded if the preceding vowel is non-nasalized as in (2).

\[(2) \text{ agumb} \ /\text{a.gum}/ \ [\text{aŋʷu̯m}] \ 'type of shellfish' \]
\[\text{Sandahadn} \ /\text{san.да.kan}/ \ [\text{sən̪ḏahkan}] \ 'Sandakan’ (city) \]
\[\text{adakng} \ /\text{a.dan}/ \ [\text{aŋ̱k}] \ 'charcoal' \]

Nasality is initiated by the articulation of a nasal consonant and continues irrespective of syllable boundaries until checked (Robins 1957:90). Nasality (Robins 1957), nasal harmony (Court 1970) and nasal spread (Walker & Pullum 1999) refer to the spread of the feature [+nasal] to underlying non-nasal segments. As seen in (3), nasal spread persists from a nasal consonant through the word until it is blocked by a word boundary or a non-nasal consonant. Thus, nasal spread nasalizes vowels across syllables. Semivowels, for example, /j/ in (3c) and /w/ in (3d), do not block nasal spread.

\[(3) \text{ a. naga’} \ /\text{na.gə}/ \ [\text{nəŋgə}] \ 'dragon' \]
\[\text{ b. nana’} \ /\text{na.na’}/ \ [\text{nəŋnə}] \ 'pus' \]
\[\text{ c. minyen} \ /\text{min.jəŋ}/ \ [\text{məŋjəŋ}] \ 'son/daughter-in-law' \]
\[\text{ d. nyawa} \ /\text{nya.wa}/ \ [\text{nəŋwə}] \ 'life; soul' \]

Nasal spread and nasal preplosion occur when affixation takes place as seen in (4) and (5). Nasal spread is illustrated in (4a), (4b), (4c) and (5a), whereas nasal preplosion is illustrated in (4b), (5b) and (5c). The final nasal is not preploded in (4a) and (5a) since the preceding vowel is nasalized.

\[(4) \text{ a. naan} \ /ŋ/ + /saan/ \ [ŋn̪n] \ 'ACT.IND.SOACARRY.on.shoulder' \]
\[\text{ b. ngorikng} \ /ŋ/ + /kərin/ \ [ŋ\text{ng̱ṟk}] \ 'ACT.IND.SOA-dry’ \]
\[\text{ c. masa’} \ /ŋ/ + /basə]/ \ [məsə?] \ 'ACT.IND.SOA-wash’ \]
(5) a. *inumun* /inum/ + /ɔn/ [i'nʊm̥ɔn] ‘drink-UND.IND.SOAA’
b. *lebohodn* /leboh/ + /ɔn/ [lə'bʊhɔdɔn] ‘pound.with.pestle-UND.IND.SOAA’
c. *atadañ* /atad/ + /ɔn/ [ə'taðɔdɔn] ‘bring-UND.IND.SOAA’

Nasal spread (e.g. (6a)) and nasal prepositional (e.g. (6b) and (6c)) also occur in monosyllabic words.

(6) a. *man* /man/ [mɔn] ‘why’
b. *bakng* /baŋ/ [bɔŋŋ] ‘if’
c. *fudn* /pun/ [ˈfʊdən] ‘also’

Since the nasality of the preceding vowel determines whether or not final consonants are simple or prepropelled, an important question is, what blocks nasal spread? Different linguists including Robins (1957), Scott (1964), Court (1970), Blust (1997) and Walker & Pullum (1999) have pointed out various phonetic features which block nasal spread. This paper offers an explanation for the occurrence of prepropelled nasals in certain Bonggi words. To my knowledge, the explanation offered here has not been previously proposed for any other language. I show that some Bonggi words have an underlying /l/ which blocks nasal spread; the /l/ then metathesizes and palatalizes resulting in forms as in (7).

(7) *noidn* /ŋi/ + /tɔlɔn/ [nɔidɔn] ‘ACT.IND.SOAA-swallow’
    *moidn* /ŋi/ + /bɔlun/ [mɔdɔn] ‘ACT.IND.SOAA-fold.clothes’
    *neidn* /ŋi/ + /salin/ [nɛidɔn] ‘ACT.IND.SOAA-change.clothes’

In (7), nasal spread is initiated by the word-initial nasal (cf. (4)). The word-final nasals in (7) are prepropelled despite the fact that there are no surface phonetic consonants to block nasal spread. Since only vowels occur between word-initial and word-final nasals in (7), one would expect both vowels to be nasalized and the final nasal to be simple as in *naan* [nān] ‘ACT.IND.SOAA-carry.on.shoulder’ in (4a). Instead, prepositional occurs in *noidn* [nɔiɔn] ‘ACT.IND.SOAA-swallow.something’ and the other forms in (7) just as it does in *toidn* [tɔidn] ‘jungle’.

This paper accounts for ‘apparent’ exceptions like those in (7) by showing how an underlying /l/ blocks nasal spread in these forms. Subsequently, the /l/ is metathesized and then palatalized to [i]. This non-nasalized [i] then provides the proper environment for nasal prepropelation.

Bonggi has sixteen underlying consonants /p t k ʔ b d g s dʒ m n l r w j/, one of which is borrowed (/dʒ/), and five underlying vowels /i u ɔ a/. Stress is predictable; it falls on the penultimate syllable of multisyllabic words as in (8).
(8) onsi /ɔn.si/ ['onsi] ‘contents; flesh’
took /tɔ.ɔk/ ['tɔɔk] ‘ripe’
sulufi' /su.lu.piʔ/ ['su.lu.ʔiʔ] ‘small locally-made purse’

2 Elements which block or trigger nasal spread

2.1 Robins (1957)

Nasality in Sundanese is blocked by a word boundary (Robins 1957:90). If word boundaries did not block nasal spread in Bonggi, the vowels in iudn ‘hammock’ in (9) would be nasalized and the final nasal would not be preploded.

(9) Sia m-asakng iudn.^[8]
sia ɲ-pasaj iun
3SG.NOM.ACT.IND.SOAINSTALL hammock
‘He will install a hammock.’

Nasality in Sundanese is blocked by consonants other than /h/ and /ʔ/ (Robins 1957:90). In Bonggi, glottal stop /ʔ/ is restricted to word-final coda position (e.g. /su.lu.piʔ/ ‘small locally-made purse’ in (8)); thus, it is irrelevant for blocking word-medial nasal spread. /k/ weakens to [h] intervocally in unstressed syllables as in (10).

(10) fakahas /pakakas/ [φo'kahas] ‘tools; equipment’
tikuhr /tikukur/ [t̚i'k̚uhur] ‘spotted dove’
lebohodn /lɔbɔk/+ /ɔn/ [l̚o'b̚ohɔd̚n] ‘pound.with.pestle-UND.IND.SOAI’
ngelobok /ŋ/+ /lɔbɔk/ [ŋo'lo'b̚ɔk] ‘ACT.IND.SOAI-pound.with.pestle’

In Bonggi, [h] blocks nasal spread as in (11).

(11) manahadn /manakan/ [m̚ɔnɑhɔd̚n] ‘nephew; niece’
ngahudn /ŋ/+ /akun/ [ŋɑhʊd̚n] ‘ACT.IND.SOAI-admit’

Nasal prefixes and infixes trigger nasality in Sundanese (Robbins 1957:93) and in Bonggi. In (12a) and (12d) the final nasal is preploded since the preceding vowel is non-nasalized, whereas the affixes in (12b), (12c), (12e) and (12f) trigger nasal spread which results in the final nasal being simple since the preceding vowel is nasalized.[12]

(12) a. iudn /iun/ [i'ud̚n] ‘hammock’
b. ngiun /ŋ/+ /iun/ [ŋjɪʊn] ‘ACT.IND.SOAI-swing.in.
hammock’
c. iniun /in/+ /iun/ [i'nɪʊn] ‘REALIS-swing.in.hammock-
UND.IND.SOAI’
d. igbiakng /iq/ + /bian/ [iq'biəkŋ] ‘RECIPROCAL-separated’
e. miang /ŋ/ + /bian/ [mĩəŋ] ‘ACT.IND.SOA-separate’
f. biniang /in/ + /bian/ [bi'nĩəŋ] ‘REALIS-separate-UND.IND.SOA’

2.2 Scott (1964)

A number of Bukar-Sadong forms have word-final preplo- ded nasals even though they are preceded by a nasal consonant with no intervening consonant to block nasal spread. Such forms often correspond to a Malay or Sea Dayak word which contains a word-medial consonant cluster consisting of a nasal followed by a homorganic stop as in (13). “The presence of a stopped final nasal in a word that has a medial nasal consonant always indicates that this medial nasal is not simple” (Scott 1964:434).

(13) Bukar-Sadong Malay Sea Dayak
a. [emudn] ‘dew’ embun embun
b. [ena:ugŋ] ‘prawn’ udang undang

c. [banugŋ] ‘tapioca’

Bonggi has a few forms, including those in (14), which can only be accounted for in terms of Malay correspondences. On the one hand, as we would expect from what has been said thus far, the final nasal in (14a) is preploed since the preceding vowel is non-nasalized. On the other hand, we do not expect the final nasal in (14b) and (14c) to be preploed since the affixes -ŋ- and -in- trigger nasal spread (cf. (12)). (14b) contrasts with the regular forms in (4a), (12b) and (12e), while (14c) contrasts with the regular forms in (12c) and (12f). Malay /h/ > Ø in Bonggi; e.g., Malay haram ‘forbidden’ is realized as [arə̃m] in Bonggi. The irregular forms in (14b) and (14c) are accounted for by reference to history because there is no surface consonant to block the nasal spread triggered by the affixes. The presence of /h/ in the protoform blocks nasalization in the following vowel, which in turn provides the proper environment for nasal preplosion.

(14) a. taadn /taan/ ['taadʒən] ‘endure’ (Malay tahan)
b. naadn /ŋ/ + /taan/ [nādŋ] ‘ACT.IND.SOA-endure’
c. tinaadn /in/ + /taan/ [tĩnādŋ] ‘REALIS-endure-UND.IND.SOA’

Glottal stop [?] does not block nasality in Bukar-Sadong, but in some cases [h], [j] and [w] do block nasality (Scott 1964:435). (11) shows that [h] blocks nasal spread in Bonggi, whereas (15) shows that [j] and [w] do not block nasal spread.