Nasal cluster dissimilation in Ngarinyman

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1 Introduction

Ngarinyman is an Ngumbin (Pama-Nyungan) language spoken in the Northern Territory of Australia that exhibits a phenomenon known as nasal cluster dissimilation (NCD). Dixon (2002:265) describes this as the 'most pervasive type of dissimilation' found in Australian languages, e.g. Arabana (Hercus 1994:157), Gooniyandi (McGregor 1990:98) and Nhanda (Blevins 2001:32-4).

As shown in (1), NCD in Ngarinyman involves an underlying nasal-plosive cluster being reduced to a simple plosive when preceded by another nasal-plosive cluster.

(1) a. /jaɖi-ŋga/ → [jaɖi-ŋga] 'shade-LOC' (Jones 1994:12)
b. /gaɳdi-ŋga/ → [gaɳdi-ga] 'tree-LOC' (Jones 1994:20)

This is very similar to NCD found in the closely related Gurindji language (McConvell 1988, 1993). It is also reminiscent of Meinhof's Law and, even more so, of the Kwanyama Law which are both found in certain Bantu languages (Meeusen 1963, Johnson 1979, Herbert 1986, Kim 1999, inter alia). These are illustrated below in (2) and (3) with data from Herbert (1976) reproduced from Stanton (2015a).

(2) *Meinhof's Law in Kikuyu*
a. ro-reme → neme 'language(s)'
b. ro-ɣɛɛndɔ → ŋɛɛndɔ 'journey(s)'

(3) *The Kwanyama Law in Kwanyama*
a. oŋgandu → oŋgadu
b. ombambi → ombabi

The data used in preparing this poster were taken and adapted from one of four places: a corpus of fieldwork recordings (provided by Eva Schultze-Berndt), a draft dictionary (Jones et al. 2012), a sketch grammar (Jones 1994) or handouts describing grammatical information (compiled by Colleen Moerkerken).

2 Discussion

The behaviour of NCD in Ngarinyman is best explained using an equipollent [±nas] feature due to that fact that certain consonants block NCD while others do not. This view is also expressed by McConvell (1993; contra Steriade (1993)) in his analysis of NCD in Gurindji as the autosegmental spreading of [-nas] (followed by degemination).

Stanton (2015a) analyses this same process in Gurindji as contrast neutralisation but Stanton (2015b) states that in such an analysis it is 'not obvious to [her] how to account for the Gurindji pattern, where non-local effects only happen when certain consonants intervene.'

In this poster, I set out a constraint-based analysis of NCD in Ngarinyman in which nasal-plosive clusters are treated as incidental. This is able to explain the way in which NCD is implemented in Ngarinyman including, among other details, the behaviour of intervening consonants. This centres around the high-ranked anti-oscillation constraint *[NCNC]$_\omega$ which penalises the sequence [+nas][-nas][+nas][-nas] at the word level. As such, (4a) is in need of repair whereas (4b) is not.

(4) a. * g a ɳ d i - ŋ g a
[-nas] [+nas] [-nas] [+nas] [-nas]
b. j a ɖ i - ŋ g a
[-nas] [+nas] [-nas]

NCD also appears to be able to act at long distance. However, this is not permitted by all intervening consonants: stops (both oral and nasals) block NCD whereas continuants (i.e. liquids and glides) are transparent.

(5) a. /ɲamba-wu=nda/ → [ɲamba-wu=da] 'what-DAT=S:2PL' (Jones 1994:13)
b. /ɟaji-ŋga=ɟa=ŋgu/ → [ɟaji-ŋga=ɟa=ŋgu] 'give-FUT=S:1DU.EX=O:2SG' (Jones 1994:13)

Taking this into account, the distinctive feature assignments for consonants in Ngarinyman are given in Table 1.

	m	n	ŋ	ɲ	ŋ	b	d	ɖ	ɟ	g	l	ɭ	ʎ	ɾ	w	ɻ	j
Continuant	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+
Sonorant	+	+	+	+	+	-	-	-	-	-	+	+	+	+	+	+	+
Nasal	+	+	+	+	+	-	-	-	-	-							
Lateral	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-
Labial	+					+									+		
Coronal		+	+	+			+	+	+		+	+	+	+		+	+
Dorsal					+					+							
Apical		+	+	-	-		+	+	-	-	+	+	+	+	-	+	-
Anterior		+	-				+	-			+	-		+		-	

Table 1: Distinctive features of consonants in Ngarinyman

Those consonants specified as [-cont], which may block NCD, may distinguish oral or nasal stops in the same place of articulation and are overtly specified for [±nas]. Conversely, [+cont] consonants, which do not show contrastive nasality and do not block NCD, are unspecified. Therefore, although NCD can superficially occur at long distance, all such instances are in actuality local. This conclusion is also reached for Gurindji by McConvell (1988, 1993).

The precise resolution that wins out is explained by the relative ranking of the remaining relevant constraints:

1. ***[NCNC]$_\omega$:** penalise the sequence [+nas][-nas][+nas][-nas] at the word level
2. **IDENT(root):** penalise changes made to the root
3. **IDENT(onset):** penalise changes made to onsets
4. ***|CC|:** penalise morpheme-internal geminates
5. **MAX:** penalise deletion

Examples of the implementation of these constraints are provided in the tableaux below: (6) shows a situation in which NCD applies and (7) where it does not.

(6) /gaɳdi-ŋga/	*[NCNC]$_\omega$	IDENT(root)	IDENT(onset)	*|CC|	MAX
[gaddi-ŋga]		*!		*	
[gadi-ŋga]		*!			*
☞ [gaɳdi-ga]					*
[gaɳdi-gga]				*!	
[gaɳdi-ŋa]			*!		*
[gaɳdi-ŋga]	*!				
[gaɳdi-ŋŋa]	*!		*	*	
[gaɲi-ŋga]		*!	*		*
[gaɲɲi-ŋga]		*!	*	*	

(7) /jaɖi-ŋga/	*[NCNC]$_\omega$	IDENT(root)	IDENT(onset)	*|CC|	MAX
[jaɖi-ga]					*!
[jaɖi-gga]				*!	*
[jaɖi-ŋa]			*!		*
☞ [jaɖi-ŋga]					
[jaɖi-ŋŋa]			*!	*	

Restricting NCD to the level of the phonological word explains the variable behaviour regarding NCD of the auxiliary /ba/ which may behave either as a clitic or an independent word (Jones 1994:14).

(8) a. /ga-ɲaŋ=ba=ji=nda/ → [ga-ɲaŋ=ba=ji=da]$_\omega$ 'take-PST=AUX=O:1SG=S:2PL' (Jones 1994:13)
b. /ga-ɲaŋ ba=ji=nbula/ → [ga-ɲaŋ]$_\omega$[ba=ji=nbula]$_\omega$ 'take-PST AUX=O:1SG=S:2DU' (Jones 1994:13)

In instances of reduplication, the base and the reduplicant are bracketed separately and so NCD is not triggered in examples such as those in (9).

(9) a. [wangu]$_\omega$[wangu]$_\omega$ 'limestone country' (Jones et al. 2012:90)
b. [biliŋ]$_\omega$[biliŋ]$_\omega$ 'half-caste' (Jones et al. 2012:8)

What's more, if *[NCNC]$_\omega$ is expanded to include the avoidance of [-nas][+nas][-nas][+nas], the present analysis may also explain apparent nasal-plosive alternations found elsewhere, such as that in (10).

(10) a. /gara-jin/ → [gara-jin] 'higher.up-FROM' (Jones 1994:23)
b. /ganga-jin/ → [ganga-jid] 'east-FROM' (Jones 1994:23)

3 Remaining questions

1. Is nasal cluster dissimilation in Ngarinyman this truly dissimilation as we understand it?
2. If so, these data could be used to test hypotheses of the motivations of dissimilatory and assimilatory phonological processes, e.g. Ohala (1981), Garrett & Johnson (2013)?
3. If this originally came about due to phonetic factors do the examples of NCD occurring at superficially long distances show the complete phonologisation?

4 Selected references

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