Reduplication and affixation in Indonesian

Norie Sanchez
The Graduate Center, CUNY
Alan M. Stevens
Queens College and The Graduate Center, CUNY

0. Introduction[1]

Reduplication of part or all of a stem as a morphological process is quite common in many of the world's languages, particularly those of Southeast Asia. Indonesian has nasalization processes which interact with reduplication, resulting in apparent overapplication of nasalization rules in reduplicated environments which do not meet the input specifications. This paper will briefly discuss some of the various theories of reduplication which have been put forth and examine the nasalization processes present. An account of Indonesian reduplication which incorporates a three-dimensional framework and prosodic structures will be developed, allowing a clearcut analysis of the reduplication found in this language.

I. Background

Marantz (1982) suggested a model in which reduplication is analyzed as the affixation of a CV skeleton to a stem. The phonemic melody of the stem is then copied onto the affixed CV skeleton and linked to its C and V slots by association rules. Marantz's main points were that reduplication is an affix, the reduplicative affix is represented as a CV-skeleton, the affix is assigned its melody through a process of copying and association, and affixation and copying constitute a single step.

A simple example is found in the Philippine language Agta. The stem **takki** 'leg' is reduplicated to **taktakki** 'legs' in (1).

```
(1)    takki      takki  takki
       |||||  -> |||||   |||||
cvc+cvccv       cvc   + cvccv  =  taktakki
```

Note that the affixed morpheme appears to the left of and on the same tier as the stem, and the unattached melodic units go unrealized.

Marantz's analysis was widely accepted because it handled reduplication like any other affix, and it also automatically ruled out types of reduplication which are imaginable but which do not actually occur in human languages.

Marantz's treatment of reduplication could not account for the apparent over-application of some phonological rules, where a rule appears to apply to both copies of the reduplicated material, although the proper environment is met in only one of the two copies. A case often mentioned in the literature (e.g. Carrier-Duncan (1984)) is found in Tagalog, which contains a rule of Nasal Substitution. A prefix-final nasal combines with the onset obstruent of the stem, resulting in a single nasal segment homorganic with the onset of the stem. For example, when **sayaw** 'dance', is combined with the prefix **maN** (**N** will be used throughout to indicate the presence of a nasal segment with various surface representations) and what Carrier-Duncan calls R1 reduplication, **maN+R1+sayaw** becomes **ma-na-nayaw** 'dancer.' The Nasal Substitution rule has applied twice -- once where the nasal directly precedes /s/, the correct environment, and once where no nasal precedes the /s/, but **n** appears on the surface.

Using Marantz's model, the derivation would look like (2):

```
(2)maN-sayaw    ->   maNsayawsayaw       ->
       |||||             \||||||||||
  cv+  cvcvc              cv+   cvcvc

ma    na  sayaw      ->  *ma-na-sayaw
      ||  |||||
      cv+cvcvc
```

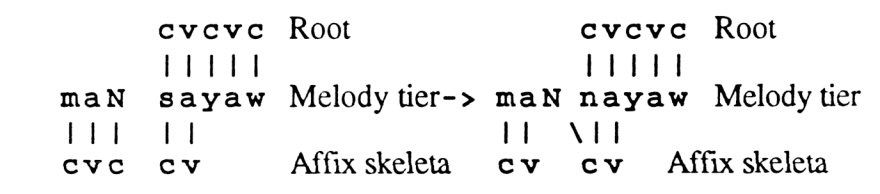
Marantz's solution proposed that nasal substitution in Tagalog is not phonological but morpholexical. The forms **sayaw** and **nayaw** must both be listed in the lexicon; **sayaw** is chosen in certain environments and **nayaw** in other environments, when a "nasal substitution trigger" is present.

Reduplication was further explored in Carrier-Duncan (1984), Clements (1985), Kiparsky (1987), and Mester (1988). Mester's dissertation accounts for reduplication processes in several languages in a three-dimensional framework. Mester's three central hypotheses are that reduplicative templates are morphemes synchronous with the base skeleton, reduplicative templates are directly associated with the base melody (reduplicated forms are thus characterized by a single melody associated with two skeleta), and the linearization of these representations is an instance of Tier Conflation, which takes place at the end of each level. The affix is lined up with the root material according to language- or morpheme-specific rules.

In a three-dimensional framework, any prosodic element may reduplicate, with the reduplicating material on a separate plane from the corresponding plane of the input. This predicts that any phonological rules applying during the cycle in which the reduplicating material is introduced will apply to the string before tier conflation, resulting in an apparent over-application of the rule. Our Tagalog example is repeated in (3), using Mester's framework, with the correct output.

(3) Root: **sayaw** Affix: **maN** + R1, where R1 is **cv**

Cycle 1: Introduction of affix and association to melody:



Tier conflation: **ma-na-nayaw**

II. Indonesian Nasalization Processes

Indonesian is an Austronesian language closely related to Tagalog. Like most of the related languages spoken in the Philippines and the western part of Indonesia, it has a process of nasal substitution, which in this case surfaces uniquely with two prefixes, both of which may combine with reduplication, resulting in apparent rule over-application. Standard Indonesian is referred to throughout.

The two prefixes which show nasalization effects between the morpheme-final nasal of the prefix and the initial segment of the root are the verbal prefix **meN-**, and the nominalizing prefix **peN-**, (where **N** stands for five alternants: all four Indonesian nasals and zero, i.e. /m, n, ~n/ (written **ny**, except before /c, j/), /ŋ/ (written **ng**) and ø). The reduplication facts which combine with these prefixes will be discussed in section III. The nasalization effects for **meN-** are demonstrated in (4) (the facts for **peN-** are the same).

(4)	stem	meN-form	gloss
A.1. vowel-stem			
	ajar	**mengajar**	teach
2. h-stem			
	hapuskan	**menghapuskan**	erase
B. sonorant-stem			
	lalui	**melalui**	pass by
	rumuskan	**merumuskan**	formulate
	yakinkan	**meyakinkan**	convince
	wakili	**mewakili**	represent
	malukan	**memalukan**	shame
	nodai	**menodai**	stain
	nyatakan	**menyatakan**	state
	ngerikan	**mengerikan**	blood-curdling
C. obstruent-stems			
1. voiced			
	beli	**membeli**	buy
	duga	**menduga**	guess
	jaga	**menjaga**	guard
	gali	**menggali**	dig
2. voiceless			
	pukul	**memukul**	hit