An Autosegmental Analysis of Reproduction in Isnaq

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0. Introduction

Reduplication is as common as simple affixation in Philippine languages, yet it has received comparatively little attention from linguists. Where it has been dealt with, it has received a wide variety of different treatments. Healey (1960:7) considered reduplication as a simple morphological process. Hohulin and Kenstowicz (1979:247) treated it as a simple morphophonemic process. Allen (1977:280) saw reduplication as a morphological process related to morphophonemics, and Schachter and Otanes (1972:97) considered it as an intermixture of morphological and phonological processes.

In addition to the problem of disunity among linguists in their view of reduplication, Marantz (1982:435) noted a theoretical problem in the traditional treatment of reduplication; the proposed formalization has been too powerful, i.e., it allows rules that are not instantiated in natural language. He therefore proposed that an assumption be made, namely that reduplication is simply an affixation process. Based on this assumption he proposed a formalism for analyzing reduplication that makes use of the principles of autosegmental phonology.

The purpose of this paper is to demonstrate with Isnaq data the validity of the assumption set forth by Marantz (1982:436) and the adequacy of the formalism he proposed. This paper focuses on partial reduplication.

1.0 The Autosegmental Theory

The basic assumption of autosegmental theory is that phonological features or units whose relationship "is merely one of simultaneity in time" (Goldsmith 1976:33) can be separated into different levels, also called tiers, and their relationship indicated by association lines. Thus, the word àkálà, where (') is a low tone and (') is a high tone is represented as in (1):

\[(1) \quad \text{a k a l a} \quad \text{(segmental tier)} \]
\[
\quad \text{L H L} \quad \text{(association lines)}
\]
\[
\quad \text{(tone tier)}
\]
The units in each tier are segments in their own right, and they exhibit autonomous behavior, hence, the term 'autosegmental phonology'.

Autosegmental phonology was originally conceived to deal with problems peculiar to tonal languages. However, in recent years the principles of autosegmental phonology have been successfully applied to a variety of phonological processes, such as vowel harmony (Clements, 1980; Halle and Vergnaud, 1981; McCarthy, 1984) and vowel ephenthesis (Ito, 1989). In his analysis of Arabic verbal inflection and derivation, McCarthy (1981) convincingly demonstrated the applicability of autosegmental theory to morphology. It was from this work of McCarthy that Marantz developed his proposed formalism for reduplication.

The formalism requires that words should be represented as C-V (consonant-vowel) skeleta on one tier, associated to phonemic melodies on a separate tier in accordance with the principles of autosegmental theory (Marantz 1982:437), as shown in (2).

\[
\begin{align*}
(2) & \quad P_1 \quad P_2 \quad P_3 \quad P_4 \quad P_5 \quad P_6 \quad P_7 \quad \ldots \, \text{(phonemic melody)} \\
& \quad C \quad V \quad C \quad C \quad V \quad C \quad V \quad \ldots \, \text{(C-V skeleton)}
\end{align*}
\]

P = phoneme  
C = consonant  
V = vowel

The representation in (2) may be expanded into a multitiered representation as in (3).

\[
\begin{align*}
(3) & \quad P_1 \quad P_2 \quad P_3 \quad P_4 \quad P_5 \quad P_6 \quad P_7 \quad \ldots \, \text{(phonemic melody)} \\
& \quad C \quad V \quad C \quad C \quad V \quad C \quad V \quad \ldots \, \text{(C-V skeleton)} \\
& \quad s \quad s \quad s \\
& \quad \ldots \text{(syllabic skeleton)}
\end{align*}
\]

s = syllable

Thus, the Isnag root tol\-lay 'person' may be represented as in (4).

\[
\begin{align*}
(4) & \quad t \quad o \quad l \quad a \quad y \\
& \quad C \quad V \quad C \quad V \quad C \\
& \quad s \quad s
\end{align*}
\]
2.0 Operational Principles and Conditions

Autosegmental representations and operations are governed by principles and conditions. Through the development of the theory numerous principles and conditions have been posited. I will discuss here only those directly involved in reduplication, namely, the wellformedness condition, direction of association, and the notion of preassociated features. Where relevant, I will, however, make reference to other principles in the discussion.

2.1 The Wellformedness Condition

The inter-tier segmental relationship in the autosegmental representation is monitored by the wellformedness condition which specifies the manner of the association of the inter-tier segments. In general terms, the wellformedness condition states that segments on one tier must be associated to segments on the other tier, and no association lines may cross each other (Goldsmith, 1976:36). Thus example 5a below is not wellformed since one tone-bearing segment is not associated. Example 5b, on the other hand, is wellformed since all tone bearing segments are associated with the segments on the tone tier.

\[
\begin{array}{cc}
5a. & \text{r i k o o} \\
& H \quad L \\
5b. & \text{r i k o o} \\
& H \quad L \\
5c. & \text{r i k o o} \\
& H \quad L \\
5d. & \text{r i k o o} \\
& \quad \quad \quad H \quad L \quad H
\end{array}
\]

Similarly, 5c is not wellformed since two association lines cross each other. Example 5d is wellformed, however, since all tone-bearing segments are associated to the segments on the tone tier with no lines crossing each other.

2.2 Direction of Association

Association of inter-tier segments is not random. For a given construction it either proceeds from left-to-right or right-to-left starting from the leftmost or the rightmost segment. Further, it is either melody driven or skeleton driven; specifically, in reduplication, it is either phoneme driven or C-V skeleton driven. This is discussed further in section 3.1.

2.3 Preassociated Elements

Autosegmental representation allows for a situation in which a unit which is not part of the material directly involved in the process is preassociated in the template. Thus, in his analysis of Arabic verb morphology, McCarthy (1981:388) proposed 6a and 6b as templates for "derivational
classes" IV and V. The q and t have their own morphological status and are not part of the root involved in the morphological process.

\[\begin{align*}
\text{a. } & C V C C V C \\
\text{b. } & C V C V C C V C \\
\text{q} & \\
\text{t} & \\
\text{M} & \\
\text{M} &
\end{align*}\]

The preassociated unit is like a formulaic constant; it persists through the process involving different roots from the same "derivational class". Note that the wellformedness condition requires that association of the stem consonants begin with the second C position in such patterns because the first C position is already occupied.

3.0 Marantz Formalism

The diversity of treatments that reduplication has received is a result of varying assumptions on what reduplication is. As mentioned earlier, Marantz claims that making the assumption that reduplication is a normal affixation process will provide the best account (1982:436ff). Reduplication differs, however, from the common type of affixation in that the affixed material, which is also a morpheme in its own right, is limited to a C-V skeleton, which depends on the base to which it is attached for its phonemic shape. This, then, calls for a mechanism by which the C-V affix derives its phonemic shape from the base. Marantz proposed that the phonemic melody of the stem is copied over the reduplicating C-V affix on the same tier as the melody, as in (7a) where the diminutive morpheme CVC is prefixed to the Isnag root balay 'house' to obtain the form balbalay 'play house'.

\[\begin{align*}
\text{(7a)} & \quad b \ a \ l \ a \ y \\
& \quad + C V C \\
& \quad C V C + C V C V C
\end{align*}\]

At this point in the reduplication process, the operational principles of autosegmental theory apply, resulting in the association in (7b).

\[\begin{align*}
\text{(7b)} & \quad b \ a \ l \ a \ y \quad b \ a \ l \ a \ y \\
& \quad + C V C \quad + C V C V C \\
& \quad C V C \quad + C V C V C \quad = \text{balbalay}
\end{align*}\]

Reduplication can either be prefixing as in tultolay the plural form of tolay 'person' in Isnag, or suffixing as