Reduplication in Yape: A case of syllable copying

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"Reduplication is a productive process in Yape. It requires a great deal more study than has been made so far" (Jensen 1977:110). Jensen observes three different phonological reflexes of reduplication in Yape (CV-, CVC-, -CVC). The present work holds that a single generalisation describes reduplication in Yape; namely that the reduplicating affix in Yape copies the first or last syllable of the stem.

Hung (1989:49) asserts that "syllables [in Yape] must be closed in word-final position; otherwise they must be open". The above description of reduplication directly contradicts this position, and it will be argued, using evidence from reduplication, that closed syllables are permitted in non-final position in Yape.

After outlining the salient features of tier-based approaches to morphology, McCarthy & Prince's (1995) theory of prosodic circumscription is invoked to describe Yape reduplication. McCarthy & Prince's Minimality Hypothesis predicts that the circumscribed element is at least a minimal word in a given language. Evidence from Yape shows this hypothesis to be false.

Yape is spoken in Yap state, in Micronesia. Yape is the language of Yap Proper, which is made up of the islands of Yap, Map, and Tomil-Gagil. These islands are close together and connected by bridges. Rumung is also a part of Yap Proper, but is only accessible by boat (Bendure & Friary 1995). According to the 1987 Yap census, reported in Ethnologue, the population of Yape speakers is 6,592.

Although Yap is politically and geographically part of Micronesia, Yape does not fall into the Micronesian language family. It is a member of the Western Malayo Polynesian sub-group of Austronesian (Grimes 1992).

Typologically, Yape is a VSO language. The most comprehensive study of Yape is the work of John T. Jensen, who published the 1977 Yape reference grammar and Yape-English dictionary. Other works include two pieces by Robert Hsu; ‘Apocope and Umlaut in Yape’ (1969a) and a doctoral thesis entitled ‘Phonology and Morphophonemics of Yape’ (1969b). Henrietta Hung’s 1989 paper ‘Harmony in Yape’ deals with some aspects of the vowel phonology.

The present study was a part of the author's 1997 B.A. Honours thesis (Ballantyne 1997). The data was collected at the University of Western Australia, from Josephine Giltug, a twenty-one year old native speaker of Yape living in Perth, Western Australia. Although Yape has a standardised spelling system,
which is used throughout Jensen’s grammar, my consultant used a non-standard spelling which crucially omitted glottal stops. In order to preserve these my data is presented here as it was collected, in IPA.

1.0 Prosody of Reduplication

1.1 Jensen’s description of Yapese reduplication

Jensen describes three forms of reduplication in Yapese. The first two of these involve leftward reduplication; that is, where the reduplicant attaches to the left edge of the stem. He outlines two types of leftward moving reduplication; CV- and CVC-. 

1. Leftward moving reduplication
   CV-stem
   CVC-stem

The third type of reduplication is rightward reduplication of the form -CVC.

2. Rightward reduplication
   stem-CVC

Jensen notes that rightward reduplication is very rare (Jensen 1977a:110-111), an observation backed up by my findings.

1.2 Syllable copying in Yapese

In the present study, I collected eighty instances of reduplication in Yapese. Two of these tokens were nouns; the other seventy eight were verbs. The canonical semantic function of reduplication is intensification of a state or repetition of an action. Note that I depart somewhat from Jensen who posits a category of adjectives for Yapese; state-denoting items which typically translate as adjectives in English take verbal morphology in Yapese, a familiar system in Austronesian languages. Thus, my classification ‘verb’ subsumes Jensen’s classification of both ‘verb’ and ‘adjective’. Of the seventy eight verbs, seven were only well formed when the diminutive sa- ‘a little, somewhat’ prefixed the reduplicated form. For example, one can say k’ery ‘to put fuel on’ and salk’eryk’ery ‘to put a little fuel on’, but not *k’eryk’ery.

The data also includes six fossilised reduplicated forms which never appear unrepeated.

The two classes of leftward moving reduplication described by Jensen (namely CV- and CVC-) can be reduced to a single class under the generalisation that the first syllable of the base reduplicates in Yapese. If the stem is of the shape CV.CVC, the reduplicant is CV-.
3. a. τυς.γυρ
   to stare
b. δι.δι.φι
   to cut

   τυς.τυς.γυρ
   to stare repeatedly
d. δι.δι.φι
   to slice

If the stem is CVC or CVC.CVC, the reduplicant is CVC-.

4. a. τομ
   to slap
b. βυγ
   to be bent
c. συγ.συγ
   to be physically slow
d. βαλ.βαλ.λεισ
   to be crazy

   τομ.τομ
   to slap hard
βυγ.βυγ
   to be very bent
συγ.συγ.συγ
   to be very physically slow
βαλ.βαλ.λεισ
   to lose one's mind

-CVC reduplication is also reduplication of an entire syllable. In this case, the rightmost reduplicated syllable affixes to the right edge of the base. As noted above, this type of reduplication is rare, and I have only five tokens of rightward moving reduplication (two of which involve the same stem).

5. a. ζα.δικ
   to be mixed
b. α.ψι
   to become skinny

   ζα.ζα.δικ.δικ
   to be very mixed
α.ψι.ψι
   to be skinny

The corresponding rightward open syllable reduplication (-CV) is not found, because open syllables are not permitted in word final position in Yapese, except for some loan words (Jensen 1977a:47).

It should be noted that when a monosyllabic word (CVC) is reduplicated, the output is C1V2C3.C1V2C3. Taken in isolation, there is no reason to analyse this as being leftward reduplication (CVC-); it could just as easily be rightward reduplication (-CVC). It has been analysed as leftward reduplication on the basis of rarity of rightward reduplication in bisyllabic words. However, the choice of analysis is not germane to the next point under consideration: the evidence reduplication provides for the prosody of Yapese syllables.

2.0 The status of the syllable in Yapese.

The evidence from reduplication has implications for the nature of syllable structure in Yapese. It predicts that Yapese allows both CV and CVC syllables, at least in medial or initial position. This analysis of Yapese syllable structure is consistent with Jensen’s position:

In summary, we have seen that the following types of morphemes occur in Yapese:
Those of one syllable: CV(ː)C; and those of two syllables; CV(ː)CV(ː)C; CV(ː)CCV(ː)C. (Jensen 1977a:479)

However, it is contradicted by the position put by Hung (1989:49) that "syllables [in Yapese] must be closed in word-final position; otherwise they must be open... only word-initial homorganic clusters are allowed; otherwise no clusters are permitted."

At first glance, it would seem that Hung's analysis is immediately falsified by a word like moyts20 'to tear' or sy2:ad 'to be physically slow'. However, the situation is not quite so simple. Yapese exhibits a schwa-zero alternation in the environment of a consonant cluster.

6. a. t crus(ə)ny
   to fly repeatedly, to flit
b. m u (ə) s m
   to be a gigglepot

This alternation appears to be a case of free variation; sometimes a word is produced with a schwa, sometimes with a consonant cluster. There is no explanation of this alternation to be formulated from the data that I have available. It is unclear whether this alternation is a result of deletion or epenthesis; the most likely scenario is that in some words this is a reduced or deleted vowel, and in others it is epenthetic.

The contention that closed syllables are prohibited in non-final position is contradicted by the generalisation over reduplication. The pattern of (leftward) reduplication is only explained by reference to both closed and open syllables in initial position. The only input which allows the speaker to construct either a CV- or a CVC- reduplicant is the structure of the stem. (Note that my study clearly shows that the difference is not semantic in nature.) If stems did not allow non-final CVC syllables, the distinction between CV- and CVC- reduplication would be that some stems reduplicate the first syllable, and some stems repeat the first syllable plus onset consonant of the second syllable; there would be an unprincipled disjunction. For a unified analysis, it is necessary that there be both closed and open syllables in initial position at some level of representation.

Given the schwa-zero alternation described above, it seems that Hung's contention must be the result of working with speakers who never produce consonant clusters across syllable boundaries. Tokens like twusquy and mmlmn, lead to the conclusion that this is not true of all speakers. In order to successfully produce reduplications, all speakers, even those who do not produce surface level closed initial syllables, must allow for initial closed syllables at some level of representation.

Unless the distribution of CV- and CVC- is entirely random, the only possible contender for this distribution is the syllable type of the stem. Reduplication in Yapese cannot be explained systematically unless one allows non-final CVC syllables.
3.0 Descriptions of reduplication in tier-based morphology

Formalisms which account for the nature of reduplication have undergone successive refinements over the past decades. Marantz (1982:435) points out that early formulations invoked transformational rules of the following type:

\[
\text{REDUP} + \text{C1 V1 C2 V2 C3 } \Rightarrow \text{C1 V1 -C1 V1 C2 V2 C3}
\]

(see for examples Carrier 1979; Munro & Bensen 1973).

Marantz argues that there is nothing inherent to this transformational approach that disallows sequences like:

\[
\text{C1 V1 C2 V2 C3 } \Rightarrow \text{C3 V2 C2 V1 C1}.
\]

This is problematic, because processes of this ilk never occur in the world's languages.

From this unsatisfactory state of affairs was developed the morphemic tier approach. This theory appeals to the notion of a morphemic template. The morpheme which surfaces as a reduplant is conceived of as an ordered C/V string or skeleton. The segments which constitute the stem are linked systematically to the skeleton, unused segments are discarded and then the skeleton is attached to the stem. An example from Marantz's analysis of Agta (spoken in the Philippines) illustrates this process;

7. takki 'leg' undergoes reduplication to form the plural taktakki 'legs'

\[
\begin{align*}
\text{t a k k i} & \quad \text{t a k k i} \\
\text{C V C+ C V C V} & \quad \text{CVC} \\
\Rightarrow & \quad + C V C V
\end{align*}
\]

(morphemic template) (Marantz 1982:446).

For further exposition of morphemic tier theory, see also McCarthy (1982); McCarthy & Prince (1995).

Subsequent refinements of this model have concentrated on the nature of the morphemic template. In the form proposed by Marantz above, the morphemic template is required to be an invariant C/V string. This has two theoretical implications. Firstly, it does not account for the facts in Yapese, where the form of the C/V string of the affix differs according to the form of the stem. The Yapese pattern of CV- or CVC- reduplication is inconsistent with the requirement that the morphemic template for a reduplicant be an invariant C/V string.

Secondly, it implies that the form of the reduplicative affix is never based on the prosodic shape of the stem. A prosodic constituent, such as a syllable, is likely in any given language to be associated with a number of possible C/V strings. The stipulation that the template for the reduplicative affix must be one particular C/V string explicitly prohibits a syllable of variable shape from acting as the morphemic template.

Marantz does, however, make reference to the system of reduplication in YidinY, an Australian Aboriginal language spoken North East Queensland.
8. a. ɗi.mu.rU ɗi.mu-ɗi.mu.rU
    'house' 'houses'
b. gin.dal.ba gin.dal-gin.dal.ba
    'lizard sp.' 'lizards'


Noting that reduplication in YidinY requires that the first two syllables of the stem (that is, a foot) are reduplicated, Marantz concludes that YidinY reduplicants copy firstly a C/V skeleton from the base, and then copy a string of segments (Marantz 1982:453-5). This ad hoc formulation requires a superfluous level of representation, in that two processes are invoked (namely the copying of the C/V structure of the syllable(s) and then the copying of the corresponding section of the segmental string) where only a single process, the copying of the foot in its entirety, is necessary. It is only the implicit rejection of a prosodic constituent as a possible template that makes this problematic analysis necessary.

In later work by McCarthy and Prince (1995) prosody does play a role in the morphemic template. However, their analysis is explicit in not allowing the prosodic structure of the base to determine the structure of the reduplicative affix.

Whether the initial syllable of the base is closed or open has no effect on the affix; rather, the prosodic shape of the affix remains constant throughout a particular morphological category. Thus, it is the morphology -via the template- and not the syllabification of the base that is the determinant of the outcome.

(McCarthy & Prince 1995:333)

The essential difference between their approach and Marantz’s previous work is that the C/V strings have been reanalysed as prosodic constituents. Instead of copying, say, a CVC string, one copies a closed syllable, regardless of the syllable types which exist in the base.

3.1 Prosodic circumscription

In order to deal with a case like YidinY, McCarthy and Prince (1995) invoke the procedure of ‘prosodic circumscription’. Briefly, this theory allows a prosodic unit of the base to undergo morphological operations in lieu of the entire base. Thus in the YidinY case, the leftmost foot is circumscribed, and reduplication operates over the foot, thus accounting for the initial bisyllabic reduplication. Only prosodic constituents- syllables, feet, prosodic words- may undergo prosodic circumscription.

In the prosodic circumscription model, two parameters require language specific data in order to parse the base: the prosodic constituent to be circumscribed (C), and the edge from which one circumscribes (E) (McCarthy and Prince, 1995:342). Thus in the case of Yapese, one isolates a syllable from the left edge of the word, and then reduplicates this as a de facto base. The entire string of reduplicant and circumscribed base stands in the same relationship to the ‘residue’ of the base as does the
circumscribed base; in this case a left to right concatenation. Figure 1. illustrates this process in action.

<table>
<thead>
<tr>
<th>Figure 1. input</th>
<th>tsu.gur</th>
<th>βad.jan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'to stare'</td>
<td>'to be crazy'</td>
</tr>
<tr>
<td>circumscribed</td>
<td>residue</td>
<td>circumscribed</td>
</tr>
<tr>
<td>element</td>
<td>element</td>
<td>residue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>isolate lefmost syllable</th>
<th>tsu</th>
<th>gur</th>
<th>βad</th>
<th>jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>reduplicate circumscribed element</td>
<td>tsu.tsu</td>
<td>gur</td>
<td>βad.βad</td>
<td>jan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>output</th>
<th>tsu.tsu.gur</th>
<th>βad.βad.jan</th>
</tr>
</thead>
<tbody>
<tr>
<td>'to stare'</td>
<td>'to lose one's mind'</td>
<td></td>
</tr>
<tr>
<td>repeatedly</td>
<td></td>
<td></td>
</tr>
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Yapese prosodic circumscription.

So far, the best model to account for the facts of Yapese reduplication is the prosodic circumscription model. Nevertheless there is one, albeit minor, problem with this model. McCarthy and Prince propose the following constraint, put as the 'Minimality Hypothesis':

morphological operations, ..... will always apply to word like entities, either to an actual word itself or to a prosodically-delimited minimal word within some larger word. Thus, the prosodic base, as a stem-substitute, must itself meet the Min Wd requirement that holds of stems in general.
(McCarthy and Prince 1995:334)

We have seen that the prosodic base in Yapese may be a CV- or a CVC- syllable. However, the minimal word in Yapese is of the shape CV(c)C (Jensen 1977a:47). Thus, although McCarthy and Prince's prosodic circumscription successfully describes the facts of Yapese reduplication, the accompanying Minimalist Hypothesis is falsified by these facts.

4.0 Concluding remarks

In sum, this paper has shown that reduplication in Yapese can be captured under a single generalisation which states that the first syllable in the stem undergoes reduplication. Evidence from reduplication is used to outline possible syllable types in Yapese, concluding that both closed and open syllables may occur in either word initial or medial positions. The syllabic pattern of reduplication in Yapese, considered together with the bisyllabic pattern in Yidiny, demands that theories of
prosodic morphology must account for reduplication of variable syllable shapes from
the base. The prosodic circumscription model most effectively handles the data in
this case. However, the Yapese data does not conform to the predictions of the
Minimality Hypothesis.

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