Abstract: This paper outlines the phonological patterns of verb reduplication in Paraguayan Guarani and discusses the challenges it poses for crosslinguistic generalizations about reduplication and prosody. The basic pattern is to copy the last two verb syllables of the verb root. If the verb root has only one syllable, phonological material from neighbouring morphemes must be included in order to satisfy the disyllabic requirement. All morphemes to the left of the root are easily included in the copy; only a subset of morphemes to the right can be included, and these with a high degree of inter- and intra-speaker variability. Morpheme integrity requirements are stronger for affixes than for lexical roots. Finally, the disyllable that is copied appears to be just a sequence of two syllables and cannot be insightfully characterized as a prosodic constituent (iamb, minimal word).

Keywords: reduplication, Guarani

1 Introduction

This paper outlines the challenges posed by Paraguayan Guarani (Tupí-Guaraní; Paraguay) for crosslinguistic generalizations about reduplication and prosody. Our data is drawn from elicitation work with native speakers and from a corpus of spoken and written texts.

We are deeply indebted to the speakers we have worked with, who are (with the communities where they learned Guarani):

- Vicente Cardozo (Yaguarón and Asunción)
- David Barrios (Ca’aguazú)
- Jazmin Pinazzo (near Asunción)
- Melki Melgarejo (near Concepción)
- Evelia Careaga (Asunción)
- Liza Amarilla (Ca’aguazú)
- Luz Ojeda (early Spanish/Guaraní bilingual, Asunción)

All elicitation work that was specifically focussed on reduplication took place with the first five speakers.

The following two examples from Guarani works of fiction illustrate the most common pattern of reduplication: the final two syllables of a two- or three-syllable verb root are copied — the whole root /jo’pi/ in (1) and the second two syllables of /apíšè/ in (2).

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Abbreviations used in this paper: 3psu = third person plural subject, A1p.e = first person plural exclusive Set-A person prefix, A1p.i = first person plural inclusive Set-A person prefix, A1s = first person singular Set-A person prefix, A3 = third person Set-A person prefix, b1p.e = first person plural exclusive Set-B person prefix, b1s = first person singular Set-B person prefix, b2p = second person plural Set-B person prefix, b3 = third person Set-B person prefix, caus = causative, com.caus = comitative causative, dim = diminutive, emph =

(1) from chapter 3 of the novel *Kalaito Pombéro, Zarratea* (1981)

... nda-i- katú -i voi avave o- u che-rembe’y-jopy jopy ...
    NEG-Benz-possible-NEG EMPH nobody A3-come B1S-edge- REDUP

‘... nobody can push me around [repeatedly on my edges, like a pie crust], ...’

(2) from the short story “Jevy ko’ẽ”, *Delgado* (2007)

Amógotyomie o- hecha iñ- apysẽ pysẽ óga tuja mi -mi ...
    more.over.that.way A3-see B3-poke.out REDUP house old DIM-DIM

‘A little further he saw a few old houses poking up,...’

The final syllables of both the base and the reduplicant are stressed, with primary stress falling on the reduplicant suffix (unless it is drawn even further right to another stressable suffix, see below). The reduplicative construction has several related meanings that are often grouped together under the heading of “pluractionality” in the semantics literature (e.g., Lasersohn 1995). The most common of these are: distributive over some participant in the clause (agent, patient, etc.), dispersion in time (iteratively, repeatedly, or intermittently), dispersion in space (“here and there”, and by extension, “carelessly”), as well as continuousness and durativity (see Hamidzadeh 2013).

In discussing reduplication across the Tupí-Guaraní family, *Rose* (2005) distinguishes between monosyllabic and disyllabic reduplication, with different semantics. Paraguayan Guaraní keeps only the old disyllabic pattern productively. Old monosyllabic reduplications remain only in fossilized verb roots (often onomatopoeic), such as *kirirĩ* [kĩɾĩˈɾĩ] ‘be quiet’ and *tyryry* [tɨɾɨˈɾɨ] ‘get dragged’ (there being no extant roots kirĩ and tyry).

Many verbs show free variation (within and between speakers) between full reduplication of the root and two-syllable partial reduplication. All verbs may undergo partial reduplication, which we restrict our attention to here. There is also a formally similar reduplication process for adverbs and numerals, which we will likewise not discuss here.

### 2 Background

Regular stress in Guaraní falls on the final syllable of the rightmost stressable morpheme. Stressable morphemes include all verb and noun roots, as well as a number of suffixes, including totalitive -pa, -se ‘want to’, -vy ‘somewhat’, -(e)he ‘very’. Unstressable suffixes, such as future -ta, perfective -ma, and the relative clause marker -va, generally (but far from always) follow stressable suffixes. There are a number of exceptional lexical roots where the stressable syllable is non-final, such as *ajúra* [aˈɟu.ɾa] ‘neck’.

The inventory of Guaraní is given in (3). Every phoneme has a form that appears within a nasal span and a form that occurs elsewhere, respectively indicated to the right and left of the slashes in (3). Nasal spans can be analyzed as the result of a harmony process spreading nasality leftward from the stressable syllable of a lexical root, or from any prenasalized consonant, across any grammatical prefixes to the beginning of the word (cf. Piggott and Humbert 1997). The two halves of the
reduplication construction form separate domains for nasal harmony.²

(3) p/p t/t k/k kʷ/kʷ
mb/m nd/n j/ɳ ŋɡ/ŋ ŋɡʷ/ŋʷ
s/s ʃ/ʃ h/h̃ ʋ/ʋ̃ ɾ/ɾ̃ ɰ/ɰ̃ w/
u/û i/ĩ ɨ/ u/ũ e/ẽ o/õ a/ã

Syllable structure in the native vocabulary is simple (C)V, though it can be more complicated in Spanish loanwords and in a small handful of non-Spanish words of uncertain origin.

The only practical problem in defining the syllables of Guaraní is how to deal with sequences of a vowel followed by an unstressed high vocoid. Alongside the obviously disyllabic root hai [haˈi] ‘write’, there’s the questionable root hái ‘sour’. It is possible that the final i might be an entire unstressed syllable — the analysis that appears to be favoured by Gregores and Suárez (1967) — since both onsetless syllables and exceptionally stressed roots exist independently. The final i might also be syllabified as an off-glide into the same syllable as the a; this is the analysis that Krivoshein de Canese and Acosta Alcaraz (2001) assume without argument. Similar situations can arise even if the first vowel is unstressed; for example, does the root saingo ‘hang’ have two syllables [sãŋɡo], or three [sã.ĩ.ŋɡo]?

Reduplication is the only phonological process we have found where the answer to this question matters. Such sequences count as a single syllable for the purposes of the disyllabic requirement:

(4) a. o- saingo saingo [ o . sãŋɡo . sãŋɡo ]
a3-hang REDUP
‘they hang here and there’
b. * o- saingo ingo *[ o . sã.ĩŋɡo . ĩŋɡo ]
a3-hang REDUP
‘they hang here and there’

3 What copies?

Most roots in Guaraní are two or three syllables long, but there are several monosyllabic roots, some of which are listed in (5).

² In the standard orthography, stress on a final syllable is unmarked. Stress on a non-final syllable is marked by an acute accent. Nasality is marked by a tilde on the rightmost vowel of a nasal span, unless nasality on that vowel is predictable from one of the surrounding consonants. A non-final stressed nasal vowel is marked only with a tilde, not with both a tilde and an acute accent.
In order for these monosyllabic roots to be reduplicated, additional material from neighbouring morphemes needs to be incorporated. In this section, we give a quick overview of the structure of the Guaraní verbal complex. In the next two sections, we consider which morpheme classes in this complex can and cannot donate phonological material to satisfy the disyllabic requirement of reduplication.

3.1 The Guaraní verbal complex

The morphemes of interest in the Guaraní verbal complex follow the order in (6), of which only the person prefix and the root are obligatory.

(5) Some monosyllabic verb roots:

<table>
<thead>
<tr>
<th>Dynamic</th>
<th>Stative</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>myi</em> [miʃ]</td>
<td>‘move, budge’</td>
</tr>
<tr>
<td><em>po</em> [po]</td>
<td>‘jump’</td>
</tr>
<tr>
<td><em>sẽ</em> [sẽ]</td>
<td>‘go out, leave’</td>
</tr>
<tr>
<td><em>páy</em> [paj]</td>
<td>‘wake up’</td>
</tr>
<tr>
<td><em>so</em> [so]</td>
<td>‘be torn, escape’</td>
</tr>
<tr>
<td><em>pẽ</em> [pẽ]</td>
<td>‘get broken’</td>
</tr>
<tr>
<td><em>kái</em> [kaj]</td>
<td>‘get burned’</td>
</tr>
<tr>
<td><em>ke</em> [ke]</td>
<td>‘sleep’</td>
</tr>
<tr>
<td><em>ʔu</em> [ʔu]</td>
<td>‘eat, drink’</td>
</tr>
</tbody>
</table>

In (6) Positions in the Guaraní verbal complex

<table>
<thead>
<tr>
<th>Optative prefix</th>
<th>t(a)-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative prefix</td>
<td>nd(a)-</td>
</tr>
<tr>
<td>PERSON prefix</td>
<td>e.g., o-, i-, ñande-, ore-</td>
</tr>
<tr>
<td>Voice prefixes</td>
<td>reflexive/passive, reciprocal, causative, antipassive</td>
</tr>
<tr>
<td>Incorporated noun</td>
<td></td>
</tr>
<tr>
<td>Root</td>
<td></td>
</tr>
<tr>
<td>Derivational suffixes</td>
<td>e.g., -vy ‘somewhat’</td>
</tr>
<tr>
<td>Control predicate suffixes</td>
<td>-se ‘want to’, -pa ‘do entirely’, -kuaa ‘know how to’,</td>
</tr>
<tr>
<td>And magnitude suffixes</td>
<td>intensifiers ‘very’, diminutives, -ve ‘more’</td>
</tr>
<tr>
<td>Mood/aspect suffixes</td>
<td>e.g., future -ta, uncertain -ne, perfective -ma</td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

The verbal complex is defined by its ability to occur as a constituent in front of second-position question and evidential clitics. How far to the right the verbal complex must or can extend is hazy/variable, but fortunately that is irrelevant for reduplication. Reduplication cannot incorporate phonological material from any suffix in or after the “mood.aspect” position (except, as we will see below, the negative suffix -i).
4 Material before the root copies easily

In this section, we will move leftwards through the positions in the verbal complex sketched in (6), from closest to the verb root left to the start of the verbal complex, and see that each of them is capable of donating phonological material to satisfy the disyllabicity requirement (for most speakers in most cases).

4.1 ( Portions of) incorporated nouns

Guaraní has a morphological process of noun incorporation that can place a noun root immediately to the left of the verb root inside the verbal complex (Velázquez-Castillo 1996). This incorporated noun may donate material to the reduplicant, as po ‘hand’ does in (7) to fill out the monosyllabic verb root héi [hej] ‘wash’.

(7) Ñande ja- je- po- héi pohéi. [ ja,je,po,hej . po'hej ]
we.INCL A1P.REFL-hand-wash REDUP

‘We’re washing our hands over and over.’

If, as is likely, the incorporated noun has more than one syllable, reduplication copies only the one syllable necessary for satisfying the disyllabicity requirement. For example, the only the second syllable of the incorporated noun akã [ãˈkã] ‘head’ is included in the reduplicant in (8):

(8) Oñ-akã- ’o kã’o umi kure. [ õ,na,kã,o . kã’o ]
A3- head-remove REDUP those pig

‘They kept cutting heads off the pigs.’

We may note in passing that the reduplicant syllable corresponding to the bound verb root /ʔo/ and that corresponding to the noun syllable /kã/ are faithful in nasality to their respective base syllables. This creates a disyllable that is otherwise ill-formed under Guaraní nasal harmony: an unstressed nasal syllable followed by a stressed oral syllable in the same “morpheme”.

4.2 Voice prefixes

To the left of any incorporated noun in the verbal complex come one or more of a set of prefixes that manipulate the argument structure of the resulting verb:

(9) je-/ñe- [je]/[nê] reflexive, passive, impersonal
jo-/ño- [jo]/[nõ] reciprocal
mbo-/mo- [mbo]/[mõ] causative (for an intransitive verb)
(gue)ro- [(we)ɾo]/[(we)ɾõ] comitative causative (‘make s.b. do with one’)
poro- [poro]/[põõõ] antipassive (on human patients)

These prefixes, too, can donate material to fill out an otherwise undersized reduplicant:
(10) Umi avakachi o- je- ’u je’u -pa. [ o.je.?u . je.?u ’pa ]
    those pineapple A3-PASS-eat REDUP-TOT

    ‘Little by little, all the pineapples were eaten.’

(11) Ha’e o- mo- pê mopê pe yvyrarâkâ. [ ô.mô.pê . môpê ]
    he A3-CAUS-break REDUP the tree.branch

    ‘He broke the branch into pieces.’

4.3 Person prefixes

Guarani has two sets of person prefixes:\(^3\)

- Set A: for the agents of dynamic verbs (including all syntactically transitive verbs)
- Set B: for the subjects of (intransitive) stative verbs/adjectives and the patients of transitive verbs, as well as noun possessors.

Only one person prefix gets marked on a transitive verb, whichever ranks higher on the person hierarchy: 1 > 2 > 3. The person prefixes are listed in (12); again, the forms used in oral and nasal spans are separated by a slash.

(12)        Set A       Set B

<table>
<thead>
<tr>
<th></th>
<th>Set A</th>
<th>Set B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>a-</td>
<td>[a]/[ã]</td>
</tr>
<tr>
<td>2sg</td>
<td>re-</td>
<td>[ɾe]/[ɾẽ]</td>
</tr>
<tr>
<td>3</td>
<td>o-</td>
<td>[o]/[õ]</td>
</tr>
<tr>
<td>1pl.incl</td>
<td>ja- / ña-</td>
<td>[ja]/[nã]</td>
</tr>
<tr>
<td>1p.excl</td>
<td>ro-</td>
<td>[ɾo]/[ɾõ]</td>
</tr>
<tr>
<td>2pl</td>
<td>pe-</td>
<td>[pe]/[pẽ]</td>
</tr>
</tbody>
</table>

Material from a person prefix will copy in reduplication if the verb root is monosyllabic and there is no intervening incorporated noun or voice prefix that can donate material instead. The most commonly cited example of this in the Tupí-Guarani literature is with the monosyllabic verb root po ‘jump’ (e.g., Jensen 1998; Rose 2005):

(13) a- po apo [ a.po . a’po ]
    A1s-jump REDUP

    ‘I jump over and over.’

---

\(^3\)Which set a person prefix belongs to is indicated at the beginning of its gloss in our interlinear examples, e.g., A1s, A3. We follow Tonhauser (2006) in the terminology of “Set A”, “Set B”, as well as “dynamic” and “stative” verbs.
A more complicated situation occurs when a monosyllabic stative verb/adjective root is preceded by one of the Set B person prefixes that have two syllables, ŋande-, ore-, or pende-, something which is quite rare in practice. Speakers differ on what to do in this situation. Some speakers copy both syllables of the prefix, even if this results in a three-syllable reduplicant, and reject attempts to copy only part of the prefix:

(15) a. ore- ne orene
    b1p estink REDUP
    [ ŋ.ɾẽˌne . ŋ.ɾẽˈne ]

b. * ore- ne rene
    b1p estink REDUP
    ‘We each stink’

(16) a. pende-síyi pendesíyi
    b2p slipped REDUP
    [ p.ɾẽˌsij . p.ɾẽˈsij ]

b. * pende-síyi ndesíyi
    b2p slipped REDUP
    ‘You guys are slippery.’

Other speakers are unable to reduplicate verbs like ore-ne at all, though one speaker finds splitting the prefix (?*ore-ne rene) less bad than preserving both prefix syllables (*ore-ne orene) or using a one-syllable reduplicant (*ore-ne ne), and another speaker finds the one-syllable reduplicant (?ore-ne ne) less bad than the other options.

The disyllabicity requirement of reduplication is strong enough that it can even summon person prefixes into being which would otherwise be very unlikely to occur. A small number of stative verbs/adjectives (especially some of those expressing colour and size) are almost always used without person prefixes, even when they are clausal predicates. For our speakers, it would not be strictly ungrammatical to have the third person prefix i- on hũva in (17), but it is strongly dispreferred:

(17) Peru o- hecha heta mbarangajá hũ -va.
    Pedro A3-see many cat black -REL
    ‘Pedro saw many cats that were black.’

But the dispreferred prefix becomes obligatory when hũ is reduplicated:

The relative clause suffix -va is unnecessary for expressing the meaning ‘black cat’, but its presence makes it clear that hũ ‘black’ here is acting not as a bare attributive adjective to ‘cat’, but as the predicate of a relative clause and thus something that should normally have a person prefix. As seen in (18), relative -va is too late in the verbal complex to fall within the domain of reduplication.
The negative prefix

Guarani expresses most clausal negation using a negative prefix nd-/n- paired with a negative suffix -i/-iri on the verbal complex. For some speakers, the negative prefix can be included in the reduplicant if a following vowel-initial person prefix is also being copied.

Note that copying the negative prefix is unnecessary for the purposes of satisfying the disyllabic requirement — copying the onset-less person prefix o- alone would have sufficed for that.

Other speakers are unable to reduplicate a negative verb using any pattern. Given the fact that the same speakers can copy the even earlier optative prefix, as discussed in the next section, it is possible that their inability to reduplicate a negative verb has more to do with the odd status of the negative suffix than with the negative prefix: perhaps these speakers cannot include the negative suffix because it is outside the domain of reduplication, nor can they exclude it disrupting the correspondence between the reduplicant’s and the base’s final syllables.

The optative prefix

The optative prefix at the beginning of the verbal complex may be copied:

Copying only the person prefix and not the optative prefix in (20) would result in t-o-sê osÊ, which one speaker judges as rather bad and one speaker judges as fine (though not as good as tosê tosê).

it is possible, but not obvious, that the (somewhat optional) copying of the optative prefix is motivated by a weak desire to preserve the syllabic integrity of the base. A similar effect is found with epenthetic consonants between the person prefix and the root. For example, if the b3 prefix i- comes before the vowel-initial root ayvu ‘be noisy’, the two vowels are separated by an epenthetic

\[ \text{ndohói jepe eskuéla } \text{pe. [ ndoˌhoj ndoˈhoj ]} \]

‘From time to time, the children do not go to school.’

Note also that the [-i] of the negative suffix is also included in the reduplicant in (19), despite the fact that it occurs much further to the right in the verbal complex outlined in (6) than anything else that ever gets copied in reduplication.\footnote{The speaker of (19) also accepts the version of the sentence where the negative suffix is not copied, but occurs only once after the entire base-reduplicant pair: ndoho ndohói. This appears to be the result of the optional process of j-deletion that this speaker uses, as discussed in Subsection 6.1.}
palatal /j/, making ij-ayvu.\(^6\) This epenthetic consonant may either be copied in the reduplicant, as in (21a), or not, as in (21b).

\[(21)\]  
\[a.\] Ij- ayvu  jayvu  hikuái.  \[\text{b3-be.loud REDUP 3p.SUBJ}\]  \[i.\ɟaɨ̯ˌʋu . ɟaɨ̯ˈʋu \]  
\[b.\] Ij- ayvu  ayvu  hikuái.  \[\text{b3-be.loud REDUP 3p.SUBJ}\]  \[i.\ɟaɨ̯ˌʋu . aɨ̯ˈʋu \]  
‘They’re all noisy.’

5 Stressable suffixes sometimes copy

There are a handful of stressable suffixes that can occur close to the right of the verb root, before any unstressable suffixes. The most important of these are:

\[(22)\]  
-\(\text{-vy}\)  \[\ˈʋi\]  mitigative ‘somewhat, a little’  
-\(\text{-i, -mi}\)  \[ʔi, ˈmĩ\]  diminutive  
-\(\text{-pa}\)  \[pa\]  totalitive ‘all, finish, completely’  
-\(\text{-se}\)  \[ˈse\]  ‘want to’  
-\(\text{-ve}\)  \[ˈve\]  ‘more’ (e.g., to form comparatives)  
-\(\text{-u)ka}\)  \[uˈka, ˈka\]  causative (for a transitive verb)  
-\(\text{-ete/-ite/-te}\)  \[eˈte, ˈte\]  intensifier ‘very, a lot’  
-\(\text{-eterei/-iterei/-terei}\)  \[etereˈi, ˈtereˈi\]  intensifier ‘very, a lot’

In order to satisfy the disyllabicity requirement with a one-syllable root, stressed suffixes sometimes cannot, sometimes can, and sometimes must copy. Some representative examples of this complexity are shown in (23):

\(^6\)The sound that we’ve been transcribing /j/ actually varies freely between affricate [ɟʝ], a more plosive [ɟ], fricative [j], and approximant [j], with the affricate being the most common. This epenthesis process is morphologically governed — as can be seen on almost every page of this paper, Guaraní has no general aversion to sequences of vowels.
The mitigative suffix -vy 'somewhat' copies obligatorily in kai-vy 'burn a little' in (23a), but only optionally in puka-vy 'laugh a little, i.e., smile' in (23d) — a much more conventionalized sequence. Maybe this is because reduplication would rather copy the suffix in (23a) than a person prefix. On the other hand, it has no problems with obligatorily copying the person prefix in (23f) in preference to the suffix -ve 'more'.

The most extremely fully inflected but sub-minimal verb is the monomoraic he [he] ‘it is tasty’.

(24) * he he 3.tasty REDUP

The only way a verb with the root he can be reduplicated is if it has the intensifier suffix -terei, which it typically has even when not reduplicated. (Note that all three syllables of -terei are copied, even though only two are necessary.)

(25) Umi pakova-kuéra he -terei terei. those banana-PL 3.tasty-very REDUP

‘The bananas all taste good.’

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7 He is one of a large number of stative verbs in Guarani where third person is marked by the fact that the stem-initial consonant is /h/ — rather than /ɾ/, as it is in other persons — and where no separate Set-B i- prefix is used.

8 This may be a general constraint favouring the morphological integrity of suffixes, parallel to the same speaker’s insistence on copying both syllables of a two-syllable person prefix. But it could also be a quirk of the particular suffix -terei, whose last two syllables would be confusable with a different suffix, -rei 'uselessly, in vain, for no good reason'.

6 The reduplicant is not an iamb

Since reduplication copies disyllables which are stressed on the second syllable, it would be reasonable to think Guarani’s reduplicative template is an iamb, but this would lead us to expect some of the properties that tend to go with such iambs crosslinguistically. Iambic stress systems often require the left syllable to be light/short and the right syllable to be heavy/long, and, even when it is not an absolute requirement, they often conspire to create a short–long asymmetry, or at the very least to avoid a long–short asymmetry (cf. Hayes 1995).

This description does not fit disyllabic reduplication in the Tupí-Guarani languages in general, where, as discussed by Rose (2005), disyllabic reduplication goes out of its way to create a sequence of two short (monomoraic) syllables. Even in those languages that, unlike Paraguayan Guarani, have kept their historical coda consonants, these are deleted in the reduplicant, as in the following example from Emérillon, where the final coda g does not appear in the (infixed) reduplicant, even though including it would have resulted in a perfect iamb:

(26) A- lowa- lo- wag pol.
A1S-REDUP-COM.CAUS-GO pot
‘I moved the pot several times.’ (Emérillon, Rose 2005)

It seems dubious that reduplicative template in Emérillon and other Tupí-Guarani languages should be described as an iamb, and Paraguayan Guarani is no different. With no coda consonants in its native vocabulary, the only thing that could make a syllable heavy is the offglide of a diphthong. If diphthongs do create a heavy syllable, this turns out to be completely irrelevant for reduplication. Guarani does not show the slightest dislike of heavy–light reduplicants: for example, o-saingo-saingo [o.saj.ŋɡo saj.ŋɡo ] ‘hangs-REDUP’. In Subsection 6.1, we will see that many Guarani speakers preserve a reflex of the historical pattern of coda deletion exemplified in (26). In Subsection 6.2, we will look at cases where reduplication seems indifferent even to the stress pattern of the reduplicant, allowing stressed–unstressed disyllables as well as unstressed–stressed.

6.1 j-deletion

If Guarani diphthongs create a heavy syllable, then both bases and reduplicants with the favoured iambic shape of light–heavy can arise spontaneously with verbs that end in a diphthong, such as sapukái [sapuˈkaj] ‘shout’

(27) o- sapukái pukái [ o.sa.puˌkaj . puˈkaj ]
A3-shout REDUP
‘she shouts...’

And indeed speakers can reduplicate sapukái as in (27). Yet, perversely, many speakers also have a process that deletes the final glide from the diphthong of the base, resulting in a sub-optimal iamb there:

(28) Peru o- sapuka pukái korapý =pe. [ o.sa.puˌk a . puˈkaj ]
Pedro A3-shout REDUP back.yard=to
‘Pedro kept shouting in the backyard.’
Of the four speakers we have tested with roots like sapukái, two use j-deletion in their own speech, and two do not use it in their own speech but recognize it as something other speakers do. For the speakers who use j-deletion, there is a complex pattern of obligatoriness and optionality that we have not figured out yet. For example, for speaker VC, j-deletion appears to be obligatory for the root hy’ái [hiaj] ‘sweat’ in (29), but is odd to ungrammatical for the root hesarái [hesaraj] ‘forget’ in (30).

(29) Umi hugador-kuéra hy’a hy’ai -pa. [hi,a . hi,aj . ‘pa ]
those player -PL. 3.sweat REDUP -TOT
‘Each of the players is sweating profusely.’

(30) ?? Hesara saráí jepi iñ- aranduká=gui. *[ he.sara sa’raj ]
3.forget REDUP repeatedly B3-book from
‘She often forgets her book.’

Trying to maintain that Guaraní reduplication involves iamb would require one or more of the following additional stipulations or mechanisms to cope with j-deletion — all of them otherwise unmotivated synchronically in the language:

- There is an active attempt to destroy the preferred light–heavy asymmetry in an iamb that bears secondary stress.
- The reduplicant is more faithful to the underlying representation of the root than the base itself is.
- The reduplicant affix is infixed inside the final syllable of the base. (Historically at least, this one appears to have been closest to right.)

6.2 Apparent trochees

One underived stative verb in the native vocabulary has a trochaic rather than an iambic shape: héra ['he.ra] ‘be named’. These two syllables alone can satisfy the disyllabic requirement, which would be surprising if reduplication copied an iamb.

For speaker VC, this deletion process cannot apply to any glide other than j, such as the [w] of karáu ‘twisted’ or the [j] of páy ‘wake up’. Apart from this and a moderate dispreference for using j-deletion on stative verb roots, we have not been able to figure out any pattern distinguishing the set of roots that VC can use j-deletion for — including purahéi ‘sing’, johéi ‘bathe’, vevýi ‘smooth’, kúi ‘fall’ — and those which he cannot — including kái ‘burn’, uhéi ‘be thirsty’, mondýi ‘be scared’, kuerái ‘be irritated’.

It may be worth pointing out that, in contrast to the soul-searching that accompanied some of the other questions during our elicitation sessions, all five speakers reduplicated ombohéra as in (31) instantly, without any prompting, and with complete confidence.

Many nouns in the native vocabulary also end in a trochaic stress pattern, and virtually any noun can be converted into a stative verb of possession. Unfortunately for phonologists, derived verbs of possession cannot undergo reduplication, no matter what their prosodic shape.
Guaraní has borrowed from Spanish several other stative verbs/adjectives with an unstressed final syllable, including several that have become thoroughly nativized over the centuries, for example, výro ['ʋɨ.ro] ‘silly, naïve’, originally from Spanish burro ‘donkey’. One of our speakers treats such trochaic roots exactly the same way as héra ‘be named’ — sufficient on its own to satisfy the disyllabicity requirement:

(32) I- výro výro umi arriero-kuéra. [ ʋi.ro . ʋi.ro ... ]
    b3-silly REDUP those guy -PL.

‘Those guys are all silly.’

Other speakers treat Spanish loanwords differently: the two syllables of the root are not sufficient to satisfy the disyllabicity requirement and the person prefix is raided for an extra syllable, as in (33); however, both syllables of the root must still be reduplicated — an apparent morphological integrity condition that we do not find at all with native Guaraní verb roots. This pattern may be more morphologically than phonologically governed.11

(33) I- výro ivýro umi arriero-kuéra. [ ʋi.ro . ʋi.ro ... ]
    b3-silly REDUP those guy -PL.

‘Those guys are all silly.’

It would seem that the historic reduplication pattern of copying two monomoraic syllables has been liberalized (to varying degrees for different speakers) towards a pattern that copies any two syllables, of any weight and with any stress pattern. At no point in the present or reconstructable past has the reduplicant had the properties of a prototypical iamb.

7 Conclusion

We have seen that the Guaraní reduplicant is minimally disyllabic. The disyllabicity requirement is preferentially satisfied with material from the verb root. However, if the root has only one syllable, then material between the verb root and the left edge of the verbal complex is available for copying.

11it is possible that the pattern of (33) may be due to an almost purely morphological constraint on one stratum of the lexicon. The one speaker with whom we have tested longer borrowed stative verbs shows the same pattern as in (33) — copying both the person prefix and the entire root — no matter how long the root is, e.g., i-simapéna isimapéna ‘they procrastinate (REDUP)’, i-malisióso imalisióso ‘they’re sly (REDUP)’. He applies the same pattern to i-plíki iplíki ‘they’re languorous (REDUP)’, where the phonotactically aberrant plíki is of uncertain (but probably not Spanish) origin. We mentioned in the introduction that many Guaraní verb roots have the option of using full reduplication as well as partial (disyllabic) reduplication; the only new twists with this subset of verbs would be the obligatory use of full reduplication and the obligatory, prosodically unmotivated, copying of the person prefix. But even this speaker has at least some phonological conditioning on the morphological pattern: a finally stressed Spanish loan can reduplicate either this way or in the ordinary way, e.g., either i-santoro isantoro or i-santoro toro ‘they’re nasty (REDUP)’.
Most of the material in the verbal complex to the right of the root is not available for copying, with
two exceptions: a subset of stressable derivational, control, and augmentative/diminutive suffixes
which occur very close to the root (and always before any non-stressable suffix), and, for some
speakers, the negative suffix -i, if it is syllabified into the last syllable of the reduplicative base.\(^\text{12}\)

Reduplication respects the morphological integrity of person prefixes. If reduplication needs to
borrow material from a two-syllable prefix, then either both syllables are copied (for some speakers)
or the reduplication is impossible (for other speakers). Morphological integrity might also be en-
forced for the intensifier suffix -eteræi, all three syllables of which copy in (25), as well as for most
static (but not dynamic) verb roots borrowed from Spanish, though the details of this remain to be
worked out. No such morphological integrity is found with lexical roots of the native vocabulary —
there is no hesitation to copy only part of either a native verb root or a native incorporated noun.

Reduplication often, but not always, respects the integrity of the syllables of the base. Onsets
are typically copied even if they do not belong to the same morpheme as the vowel that could have
satisfied the disyllabicity requirement alone (e.g., the negative and optative prefixes, epenthetic /j/
after the person prefix i-).

The two syllables that satisfy the disyllabicity requirement do not act at all like a conven-
tional iamb, completely disregarding crosslinguistic syllable weight preferences and sometimes
even the stress pattern of unstressed-stressed. Many Guaraní speakers retain a reflex of the his-
torical coda-deletion process that ensured that both syllables of proto-Tupí-Guaraní reduplicants
were monomoraic. The reduplicant cannot be defined as a minimal word either, since the minimal
word in Guaraní has a single mora: he ‘it is tasty’. The Guaraní patterns pose a problem for any
theory that defines the size of reduplicants solely in terms of prosodic constituents.

The “canonical forms” approach of Downing (2006) might be more successful. Under this ap-
proach, disyllabic “templates” for reduplication do not result from constraints requiring specific
prosodic constituents, but from a general morphology-prosody mapping constraints: morphological
roots must branch prosodically. This would allow a canonical forms account to require a reduplicant
as a sequence of two syllables, as the facts of Guaraní seem to call for, rather than as an iamb or
some other prosodic constituent. Unfortunately, alongside encouraging two-syllable lexical roots,
Downing’s approach tries just as hard to encourage affixes to be monosyllabic. This seems to of-
fer little insight into why Guaraní affixes are even more insistent on keeping all their syllables in
reduplication than lexical roots are.

Finally, any account in any theory will face a challenge in coping with the widespread variation
both within and across lexical items, and within and across speakers, that characterizes Guaraní
reduplication.

References

Cook, T. (2013). The status of the macrostem in reduplication in Ndebele and Zulu. In Cathcart, C.,


\(^\text{12}\) The zone of the Guaraní verbal complex that is eligible for reduplication is reminiscent of a mirror image of
the “macro-stem” that can be copied in some Bantu languages (Cook 2013; Downing 2000).


