

# The phonology of reduplication in Paraguayan Guaraní\*

Khashayar Hamidzadeh and Kevin Russell  
University of Manitoba

**Abstract:** This paper outlines the phonological patterns of verb reduplication in Paraguayan Guaraní 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 disyllabicity 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, Guaraní

## 1 Introduction

This paper outlines the challenges posed by Paraguayan Guaraní (Tupí-Guaraní; Paraguay) for cross-linguistic 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 Guaraní):

- 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 Guaraní 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 /ãpĩ'sẽ/ in (2).<sup>1</sup>

\*We would like to thank our speakers for their superhuman patience. The field methods course that this research arose from was funded in part by a special grant from the office of the Dean of Arts and continuing research was funded in part by grant from the University of Manitoba/SSHRCC small grants program.

Contact info: [Kevin.Russell@umanitoba.ca](mailto:Kevin.Russell@umanitoba.ca), [umhamidk@myumanitoba.ca](mailto:umhamidk@myumanitoba.ca)

<sup>1</sup>Abbreviations used in this paper: 3P.SUBJ = 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 *Kalaíto Pombéro*, Zarratea (1981)

... nda-i- katú -i voi avave o- u che-rembe'y-jopy **jopy** ...  
 NEG-B3-possible-NEG EMPH nobody A3-come B1S-edge- press REDUP

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

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

Amógotyo mie 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* [kĩrĩrĩ] ‘be quiet’ and *tyryry* [tĩrĩrĩ] ‘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)te* ‘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* [a’ju.ra] ‘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

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emphatic particle, INCL = inclusive, NEG = negative, OPT = optative, PASS = passive, PL = plural, REDUP = reduplicant, REFL = reflexive, REL = relative, TOT = totalitive (exhaustive aspect/quantification).

reduplication construction form separate domains for nasal harmony.<sup>2</sup>

(3)	p/p	t/t		k/k	k <sup>w</sup> /k <sup>w</sup>		i/ĩ	i/ĩ	u/ũ
	mb/m	nd/n	j/ɲ	ŋg/ŋ	ŋg <sup>w</sup> /ŋ <sup>w</sup>		e/ẽ		o/õ
		s/s	ʃ/ʃ			h/ħ		a/ã	
	ɔ/õ	r/ř		ɥ/ɥ̃	w/Ẃ				
		l/l̃							

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* [ha'i] ‘write’, there’s the questionable root *háí* ‘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 [sãj.ŋgo], or three [sã.ĩ.ŋgo]?

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 disyllabicity requirement:

- (4) a. o- saingo saingo            [ o . sãj.ŋgo . sãj.ŋgo ]  
       A3-hang    REDUP  
       ‘they hang here and there’
- b. \* o- saingo ingo            \*[ o . sã.ĩ.ŋgo . ĩŋgo ]  
       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).

<sup>2</sup>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.

(5) Some monosyllabic verb roots:

dynamic		stative			
<i>mýi</i>	[mĩj]	‘move, budge’	<i>he</i>	[he]	‘tasty, delicious’
<i>po</i>	[po]	‘jump’	<i>ne</i>	[nẽ]	‘stink’
<i>sẽ</i>	[sẽ]	‘go out, leave’	<i>kã</i>	[kã]	‘dried’
<i>páy</i>	[paɨ]	‘wake up’	<i>sýi</i>	[sɨj]	‘slippery’
<i>so</i>	[so]	‘be torn, escape’			
<i>pẽ</i>	[pẽ]	‘get broken’			
<i>kái</i>	[kaj]	‘get burned’			
<i>ke</i>	[ke]	‘sleep’			
<i>’u</i>	[?u]	‘eat, drink’			

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 disyllabicity 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.

(6) Positions in the Guaraní verbal complex

optative prefix	<i>t(a)-</i>
negative prefix	<i>nd(a)-</i>
PERSON prefix	e.g., <i>o-</i> , <i>i-</i> , <i>ñande-</i> , <i>ore-</i>
voice prefixes	reflexive/passive, reciprocal, causative, antipassive
incorporated noun	
ROOT	
derivational suffixes	e.g., <i>-vy</i> ‘somewhat’
control predicate suffixes and magnitude suffixes	<i>-se</i> ‘want to’, <i>-pa</i> ‘do entirely’, <i>-kuaa</i> ‘know how to’, intensifiers ‘very’, diminutives, <i>-ve</i> ‘more’
mood/aspect suffixes	e.g., future <i>-ta</i> , uncertain <i>-ne</i> , perfective <i>-ma</i>
...	many other mood, aspect, negative, and complementizer suffixes

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.I-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* [ã'kã] ‘head’ is included in the reduplicant in (8):

- (8) Oñ-**akã-** 'o kã'o umi kure. [ õ.jã.kã'ʔo . kã'ʔo ]  
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) <i>je-</i> / <i>ñe-</i> | [je]/[jẽ]         | reflexive, passive, impersonal                 |
| <i>jo-</i> / <i>ño-</i>     | [jo]/[jõ]         | reciprocal                                     |
| <i>mbo-</i> / <i>mo-</i>    | [mbo]/[mõ]        | causative (for an intransitive verb)           |
| <i>(gue)ro-</i>             | [(we)ro]/[(wẽ)řõ] | comitative causative (‘make s.b. do with one’) |
| <i>poro-</i>                | [poro]/[põřõ]     | 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.ʔu . je.ʔu 'pa ]  
 those pineapple A3-PASS-eat REDUP-TOT

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

(11) Ha'e o- **mo-** pẽ mopẽ pe yvyarakã. [ õ.mõ.pẽ . mõ'pẽ ]  
 he A3-CAUS-break REDUP the tree.branch

‘He broke the branch into pieces.’

### 4.3 Person prefixes

Guaraní has two sets of person prefixes:<sup>3</sup>

- 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	
1sg	<i>a-</i>	[a]/[ã]	<i>che-</i>	[ʃe]/[ʃẽ]
2sg	<i>re-</i>	[re]/[rẽ]	<i>nde-/ne-</i>	[nde]/[nẽ]
3	<i>o-</i>	[o]/[õ]	<i>i- (or h-)</i>	[i]/[ĩ]
1pl.incl	<i>ja-/ña-</i>	[ja]/[jã]	<i>ñande-/ñane-</i>	[ɲãnde]/[ɲãnẽ]
1p.excl	<i>ro-</i>	[ro]/[rõ]	<i>ore-</i>	[ore]/[õrẽ]
2pl	<i>pe-</i>	[pe]/[pẽ]	<i>pende-/pene-</i>	[pẽnde]/[pẽnẽ]

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-Guaraní 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.’

<sup>3</sup>Which set a person prefix belongs to is indicated at the beginning of its gloss in our interlinear examples, e.g., A1S, B3. We follow Tonhauser (2006) in the terminology of “Set A”, “Set B”, as well as “dynamic” and “stative” verbs.

- (14) I- hái ihái ko'ã apepu. [ i.haj . i'haj ]  
 B3-sour REDUP these orange  
 'These oranges are sour.'

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, *ñande-*, *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** [ ö.řě.ně . ö.řě'ně ]  
 B1P.ESTINK REDUP  
 b. \* **ore-** ne **rene** [ ö.řě.ně . řě'ně ]  
 B1P.ESTINK REDUP  
 'We each stink'
- (16) a. **pende-**sýi **pendesýi** [ pě.nde.sij . pě.nde'sij ]  
 B2P- slippery REDUP  
 b. \* **pende-**sýi **ndesýi** [ pě.nde.sij . nde'sij ]  
 B2P- slippery 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:<sup>4</sup>

- (17) Peru o- hecha heta mbarakaja **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:

<sup>4</sup>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.

- (18) Peru o-hecha heta mbarakaja **i-** hũ **ihũ** -va. [ ɪhũ . ɪ'hũ .va ]  
 B3-black REDUP -REL

‘Pedro say many cats, each of which was black.’

#### 4.4 The negative prefix

Guaraní 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.

- (19) Umi mitã **nd-** o- hó-**i** **ndohói** jepi eskuéla =pe. [ ndo,hoj ndo'hoj ]  
 those child NEG-A3-go-NEG REDUP repeatedly school =to

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

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

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.<sup>5</sup>

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.

#### 4.5 The optative prefix

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

- (20) Ere chupekuéra **t-** o- sê tosê Paraguái =gui. [ tō,sê . tō'sê ]  
 you.say to.them OPT-A3-go.out REDUP Paraguay=from

‘Tell them to leave Paraguay separately.’

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

<sup>5</sup>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 the optional process of *j*-deletion that this speaker uses, as discussed in [Subsection 6.1](#).



palatal /j/, making *ij-ayvu*.<sup>6</sup> This epenthetic consonant may either be copied in the reduplicant, as in (21a), or not, as in (21b).

- (21) a. Ij- ayvu jayvu hikuái. [ i.jaɪ̯.ʉu . jaɪ̯'ʉu ]  
           B3-be.loud REDUP 3P.SUBJ
- b. Ij- ayvu ayvu hikuái. [ i.jaɪ̯.ʉu . aɪ̯'ʉu ]  
           B3-be.loud REDUP 3P.SUBJ
- ‘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) -vy               | [ʉi]                           | mitigative ‘somewhat, a little’      |
| -’i, -mi               | [’?i], [’mĩ]                   | diminutive                           |
| -pa                    | [’pa]                          | totalitive ‘all, finish, completely’ |
| -se                    | [’se]                          | ‘want to’                            |
| -ve                    | [’ve]                          | ‘more’ (e.g., to form comparatives)  |
| -(u)ka                 | [u’ka], [’ka]                  | causative (for a transitive verb)    |
| -ete/-ite/-te          | [e’tɛ], [i’tɛ], [’tɛ]          | intensifier ‘very, a lot’            |
| -eterei/-iterei/-terei | [etere’i], [itere’i], [tere’i] | 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):

<sup>6</sup>The sound that we’ve been transcribing /j/ actually varies freely between affricate [jʃ], a more plosive [j], fricative [ʃ], 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.

(23)		suffix not copied	suffix copied
a.	o- kai -vy A3- burn -somewhat	*[ o.kaj . <u>o.kaj</u> 'vi ]	[ o. kaj,vi . <u>kaj</u> 'vi ]
b.	ha- 'u -ka A1S- eat -CAUS	*[ ha.ʔu . <u>ha.ʔu</u> 'ka ]	[ ha.ʔu,ka . <u>ʔu</u> 'ka ]
c.	ro- sē -mi A1P.E- go.out -DIM	ʔ[ rō,sē . <u>rō.sē</u> 'mī ]	[ rō. sē,mī . <u>sē</u> 'mī ]
d.	o- puka -vy A3- laugh -somewhat	[ o. pu,ka . <u>pu,ka</u> 'vi ]	[ o. pu,ka,vi . <u>ka</u> 'vi ]
e.	o- je- 'u -pa A3- PASS- eat -TOT	[ o. je.ʔu. <u>je.ʔu</u> . pa ]	[ o.je. ʔu,pa . <u>ʔu</u> 'pa ]
f.	i- ro -ve B3- bitter -more	[ i,ro <u>i,ro</u> 've ]	*[ i.ro,ve . <u>ro</u> 've ]

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 extreme fully inflected but sub-minimal verb is the monomoraic *he* [he] ‘it is tasty’.<sup>7</sup>

(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.<sup>8</sup>)

(25) Umi pakova-kuéra he -terei terei. [ he.te.re,i . te,te'i ]  
those banana-PL 3.tasty-**very** REDUP  
‘The bananas all taste good.’

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

<sup>8</sup>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 Guaraní'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-Guaraní 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 Guaraní, have kept their historical coda consonants, these are deleted in the reduplicant, as in the following example from Emérrillon, where the final coda *g* does not appear in the (infix) 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.’ (Emérrillon, Rose 2005)

It seems dubious that reduplicative template in Emérrillon and other Tupí-Guaraní languages should be described as an iamb, and Paraguayan Guaraní 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. Guaraní does not show the slightest dislike of heavy–light reduplicants: for example, *o-saingo-saingo* [o.saj.ŋgo sa.j.ŋgo] ‘hangs-REDUP’. In Subsection 6.1, we will see that many Guaraní 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 Guaraní 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* [sapu'kaj] ‘shout’

- (27) o- sapukái **pukái** [ o.sa.pu,kaj . pu'kaj ]  
 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.pu,ka . pu'kaj ]  
 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* [hí'aj] 'sweat' in (29), but is odd to ungrammatical for the root *hesarái* [hesa'raj] 'forget' in (30).<sup>9</sup>

(29) Umi hugador-kuéra hy'a hy'ai -pa. [ hí'ʔa . hí.ʔaj . 'pa ]  
 those player -PL 3.sweat REDUP -TOT  
 'Each of the players is sweating profusely.'

(30) ?? Hesara sarái jepi iñ- aranduká=gui. \*[ he.sa,ra sa'raj ]  
 3.forget REDUP repeatedly B3-book from  
 'She often forgets her book.'

Trying to maintain that Guaraní reduplication involves iambs 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 infixes 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.<sup>10</sup>

<sup>9</sup>For speaker VC, this deletion process cannot apply to any glide other than *j*, such as the [w] of *karáu* 'twisted' or the [i] 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', *vevyí* 'smooth', *kúí* 'fall' — and those which he cannot — including *kái* 'burn', *uhéi* 'be thirsty', *mondýi* 'be scared', *kuerái* 'be irritated'.

<sup>10</sup>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.

- (31) Ore- mbo- héra héra hikuái. [ ð.řě.mbo . ,he.ra 'he.ra ... ]  
 B1P.E-CAUS-be.named REDUP 3P.SUBJ

‘They gave us each a nickname.’

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* [ˈvi.ro] ‘silly, naive’, 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- v́yro v́yro umi arriero-kuéra. [ i.vi.ro . 'vi.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.<sup>11</sup>

- (33) I- v́yro iv́yro umi arriero-kuéra. [ i.vi.ro . i'vi.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.

<sup>11</sup>it 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.<sup>12</sup>

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 enforced for the intensifier suffix *-eterei*, all three syllables of which copy in (25), as well as for most stative (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 conventional iamb, completely disregarding crosslinguistic syllable weight preferences and sometimes even the stress pattern of unstressed–stressed. Many Guaraní speakers retain a reflex of the historical 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 approach, 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 offer 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.

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<sup>12</sup>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).

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