Onset Prominence in Wubuy Reduplication

Kevin M. Ryan[1] and Jeffrey Heath[2]
[1]*Harvard University and* [2]*University of Michigan*

1 Introduction

Across languages and weight-sensitive systems, if syllable weight is affected by the sonority of the onset, lower sonority onsets are heavier. Evidence for this asymmetry comes from weight-sensitive systems such as stress, meter, textsetting, and prosodic end-weight. Wubuy represents the first case of which we are aware from reduplication that potentially bears on the generalization. In Wubuy, if the base begins with an obstruent, one syllable is copied (e.g. [-**d̪i**-d̪ilila-]). If the base begins with a sonorant, two syllables are copied (e.g. [**l̪iɾi**-l̪iɾibala-]). In this talk, we consider approaches to sonority-sensitive reduplication in Wubuy and argue that the weight-based account is the least stipulative synchronic approach. That said, it is only one case, so one should be cautious about inferring implications for naturalness from it.

Wubuy, also known as Nunggubuyu, is an endangered Gunwinyguan (non-Pama-Nyungan) language spoken in Arnhem Land in Australia's Northern Territory (Heath 1984). Wubuy's consonant inventory, as in Figure 1, is notable for a few reasons. First, it has five contrasting liquids. Second, it has a four-way place contrast within the coronals, including laminal interdentals, apical alveolars, apical retroflexes, and laminal palatals or alveolars. Third, its plosive series is conventionally taken to be basically voiced. Wubuy has a three-vowel system with contrastive length (i(ː), u(ː), a(ː)), although the long varieties are usually derived. Syllables are $C_0^1VC_0^2$. That is, onsets and codas are optional, with complexity being possible only in the coda. Geminates do not occur.

	labial	dental (laminal)	alveolar	retroflex	palatal (laminal)	velar
			(— apical	—)		
plosive	b	d̪	d	ɖ	ɟ	ɡ
nasal	m	(n̪)	n	ɳ	ɲ	ŋ
lateral		l̪	l	ɭ		
rhotic			ɾ	ɻ		
glide	w (labiovelar)				j	

Figure 1: Consonant inventory of Wubuy.

2 Reduplication

2.1 *Partial reduplication: descriptive generalizations* Setting aside a minor type of reduplication that is confined to pronouns, the main type of partial reduplication in Wubuy has at least the following functions, as described by Heath (1984). In verbs, reduplication indicates repetition or prolongation. In nouns, it indicates the plural, although not all nouns can take the plural. Additionally, some verbs and nouns, usually adjective-like in meaning, take reduplication regardless of the above. Thus, reduplication is frequent and productive. In every case, the phonology of reduplication is the same, the basic generalization being that if the base begins with an obstruent, the reduplicant is one syllable (CV-); otherwise, it is two syllables (C_0VC_1V-). V in every case represents a short copy of the first vowel of the base. To our knowledge, this system has not been treated in the generative literature.

Examples of CV- reduplicants, as found with obstruent-initial bases, are provided in (1) (from Heath 1980, 1982, 1984). In most cases, the reduplicant follows another prefix, but it can also be word-initial.

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Example (d), which contains [**gu**-gul], and (e), which contains [**ga**-gaː], illustrate that the monosyllabic reduplicant does not copy a coda or vowel length from the base.

(1)	a.	wini-**bu**-buɾi	"they were sitting"
	b.	ma-**d̪i**-d̪ilila-ŋi	"it was dripping"
	c.	niwu-**ba**-bagaɭaɲ-ɟu-ŋaː	"he cut the eyes in it"
	d.	ŋu-**gu**-gulmuŋ-gaːjuːːː	"he cut up its belly"
	e.	wa-**ga**-gaː-la	"other side"

If the base begins with a sonorant, the reduplicant is always disyllabic, as in (2). The two vowels are short and match in quality, regardless of the vocalism of the base, as can be seen in (c–d). As further illustrated by (d–e), when reduplication is disyllabic, the whole consonantal interlude between the two vowels is copied, even if it contains a coda, as in [wu-**ɻad.ba**-ɻad.bi.d̪aː].

(2)	a.	**l̪iɾi**-l̪iɾibala-wala-waɟ	"along below"
	b.	ŋi-**jama**-jamaː	"it kept doing that"
	c.	wini-**wud̪u**-wud̪i-Ø	"they were still up"
	d.	wini-**ŋamba**-ŋambiː-ni	"they bathed"
	e.	wu-**ɻadba**-ɻadbid̪aː	"it is tied"

Vowel-initial bases, being sonorant-initial, likewise take disyllabic reduplicants, with the additional complication that the sequences of adjacent vowels that result on both sides of the reduplicant coalesce into long vowels.

(3)	a.	[wun**aːgaː**garaŋgaː]	via	wuna-**aga**-a-garaŋgaː	"they looked for him"
	b.	[waː**ɻl̪aː**ɻl̪uɖd̪uɭwaː]	via	wa-**aɻl̪a**-aɻ-l̪uɖd̪uɭwaː	"water rose up"

2.2 *Exceptions to the basic generalization* There are a few well-circumscribed exceptions to the basic generalization involving monosyllabic bases, haplology, and hardening reduplicants. First, a monosyllabic base, regardless of whether it begins with a sonorant, can only take a monosyllabic reduplicant. For example, [jilg] "silly" reduplicates as [**ji**-jilg], not *[**jilgi**-jilg]. This restriction can be analyzed by assuming that any second vowel of the reduplicant needs to be licensed by a second vowel in the base, even though the two vowels' qualities are not required to match. At any rate, only a handful of monosyllabic bases occur. Note that in general, the base includes any suffixes; thus, most monosyllabic *roots* do not furnish monosyllabic *bases*.

As a second minor class of exceptions, if the base already looks reduplicated, the reduplicant might be irregular in one of two ways, as in (4). First, in some cases, the reduplicant undergoes haplology, as in (a). Second, an expected CV- reduplicant might exceptionally copy a coda, as in (b). But these processes are evidently not productive (cf. e.g. [-**nana**-na-ni-] "sees"). Haplological reduplicants are familiar from other languages, including Boumaa Fijian (Dixon 1988) and Nakanai (Johnston 1980).

(4)	a.	/mamaɻ/	→	**ma**-mamaɻ, ***mama**-mamaɻ	"empty"
	b.	/-guɟguɟi-/	→	**guɟ**-guɟguɟi, ***gu**-guɟguɟi	"to hold up"

As a final type of exception, in certain lexical items, the underlying sonorant at the beginning of the reduplicant hardens to an obstruent if it is immediately preceded by at most a pronominal agreement marker, as in [-**baɾa**-waɾa-] "be crooked" instead of the expected outcome, *[-**waɾa**-waɾa-] (Heath 1982).[1] However, the regular outcome reasserts itself in certain morphological contexts, including after a derivational prefix or after the first member of a compound, as in [-l̪al-**waɾa**-waɾa-] "to stretch out in a crooked form." At any rate, this alternation is confined to a few apparently unpredictable items, so we take it to be outside the scope of a synchronic analysis. Note also that this last type of exception is in fact not an exception to the basic generalization about syllable count: Even when the reduplicant hardens, it is still disyllabic before sonorant-initial base.[2]

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[1] "Hardening" is meant only to describe the synchronic pattern, not its diachrony.

[2] Brett Baker (p.c.) further points to cases likes [ŋaɲ-**ɟaɾa**-ja-ɾiː], in which the would-be [j] of the reduplicant hardens to an obstruent [ɟ] post-nasally. Such cases involve opacity or cyclicity. That is, the selection of a reduplicant size must

3 Analysis

3.1 *Preliminary analysis* Turning to analysis, take T to be an obstruent and N to be a sonorant. At this point, let us stipulate a template for the reduplicant, namely, TV. RED=TV can then dominate whatever apparatus generates a disyllabic size, be it another template or the emergence of the unmarked (TETU). A schematic tableau is provided in (5). We set aside aspects of the reduplication that are commonplace in other languages and readily analyzed, including the fact that the second syllable of RED never copies a coda, the fact that vowels must agree in quality within RED, and the inability of RED to exceed two syllables. The interest here is the conditioning of size by sonority. On the present approach, the disyllabic size is the elsewhere case, emerging only if a TV shape cannot be achieved by copying from the left edge of the base. In tableau (6), candidate (b) illustrates that ANCHOR prevents reaching into the base to grab a TV shape from anywhere other than the left edge. Moreover, highly ranked IDENT$_{\text{BR}}$ (not shown) prevents tinkering with the sonority of copied segments to achieve a TV target. The copying of a medial coda in the winner of (6), namely (a) [**ɻad.ba**-ɻad.ba], is prosodically gratuitous, but compelled by CONTIGUITY, which rules out skipping segments, as in candidate (c), which omits the coda.

(5)

RED, /baga/	ANCHOR-L$_{\text{BR}}$	CONTIG$_{\text{BR}}$	RED=TV	(disyllabic)
a. ☞ **ba**-baga				*
b. **baga**-baga			*!	

(6)

RED, /ɻadba/	ANCHOR-L$_{\text{BR}}$	CONTIG$_{\text{BR}}$	RED=TV	(disyllabic)
a. ☞ **ɻadba**-ɻadba			*	
b. **ba**-ɻadba	*!			*
c. **ɻaba**-ɻadba		*!	*	

While this schematic analysis works so far, the question is whether one can do better than RED=TV. For example, is it possible to do away with the reduplicative template altogether and let markedness take over? Or, even if we are forced to have a constraint indexed to the reduplicant, can we at least temper its stipulativeness?

3.2 *Wubuy's alloduply cannot be motivated by a foot-sized target* Partial reduplicants that can be one or two syllables depending on properties of the base are nothing new. Generally, the cause of such "alloduply" (Spaelti 1997) is either an invariant target on some other level of constituency, such as the foot, or phonotactics overriding an otherwise default size, a kind of emergence of the unmarked. As an example of variation in syllable count due to invariance on another prosodic level, consider Boumaa Fijian (Dixon 1988). If the base is light-initial, as in (a–b) in (7), the reduplicant is disyllabic. If heavy-initial, as in (c–d), the reduplicant is monosyllabic. In either case, the reduplicant is a moraic trochee. Throughout, feet are parenthesized.

(7)
a. **(buta)**-butaʔo "steal on a number of occasions"
b. **(tala)**-talanoa "ongoing coversation"
c. **(maː)**-maːrau "be permanently happy"
d. **(ᵑgoː)**-ᵑgoːlou "shout for an extended period"

A Boumaa-style analysis is not viable for Wubuy. For starters, to account for the monosyllabic reduplicant TV, one would have to analyze TV̌ (with its short vowel) as a foot, in contrast to NV̌, which could not be a foot. That is, footings would need to be **(NV̌CV̌)**-NVCV and **(TV̌)**-TVCV, not ***(NV̌)**-NVCV. But the reduplicant TV is unstressed in Wubuy.[3] Moreover, TV does not otherwise serve as a foot in other prosodic systems of Wubuy, such as prosodic minimality or the regular stress system (on any description, cf. Hore 1981, Heath 1984, Baker et al. 2019, Baker et al. 2020). Of course, a footing scheme along these lines would also be typologically unusual.

precede the addition of the prefix that conditions hardening. We put aside this morphological complication as being orthogonal to the productive phonological generalization under discussion, though a complete analysis of reduplication in Wubuy would have to cover it.

[3] This is not only the impression of the authors, but supported by ongoing phonetic research by Peter Nyhuis (p.c.).

3.3 *Wubuy's alloduply cannot be motivated by general markedness* Variation in partial reduplicant size can also arise from phonotactics overriding an otherwise default size. As an illustration, consider Nakanai, here omitting much detail in order to highlight just one relevant contrast. The default size is disyllabic, as in (a–b) in (8). However, if the disyllabic reduplicant would contain two obstruents, only one syllable is copied, as in (c–d) (Johnston 1980, Carlson 1997, Spaelti 1997, Butska 1999). Carlson attributes this to OCP(-son) ≫ MAX$_{BR}$, that is, a constraint against consecutive obstruents dominating the unmarked pattern.

(8)
a. a-**biri**-biri "washing"
b. **ligi**-ligi "hurting"
c. **ba**-beta "wet"
d. **ta**-tuga "depart/walk"

Wubuy's alloduply cannot be motivated by general phonotactics along such lines. For starters, Nakanai-style OCP(-son) does not help for Wubuy, since it incorrectly generates forms like ***buri**-buri, spacing out the obstruents, instead of desired **bu**-buri. A constraint *favoring* successive obstruents is of no help either, since then nothing penalizes obstruent-obstruent reduplicants such as ***baga**-baga (for desired **ba**-baga). Indeed, regulating cross-vowel sonority combinations does not work in general. There is no combination of a default size (one or two syllables) plus an overriding sonority phonotactic from {*TVT, *TVN, *NVT, *NVN} that does the trick. To spell this point out, Figure 2 shows incorrect outcomes that are generated by each of the four possible sonority combinations. In every case, it is irrelevant whether the default size is one or two syllables, as the phonotactic is always decisive.[4]

ranking	incorrect outcome
*TVT ≫ any default size	***buri**-buri ≻ **bu**-buri
*NVN ≫ any default size	***ja**-jama ≻ **jama**-jama
*TVN ≫ any default size	***wu**-wu̪di ≻ **wu̪du**-wu̪di
*NVT ≫ any default size	***wu**-wu̪di ≻ **wu̪du**-wu̪di

Figure 2: The failure of phonotactics regulating sonority combinations across syllables to account for size restrictions on the Wubuy reduplicant.

Invoking the general unmarkedness of obstruents is equally unhelpful. As background, reduplication systems sometimes favor obstruents over sonorants. For example, in Sanskrit, when reduplicating an onset cluster, only the lowest sonority consonant is copied, regardless of its position in the onset. For instance, [druʋ-] reduplicates as [**du**-druʋ-], not *[**ru**-druʋ-], and [st^{h}aː-] reduplicates as [**ta**-st^{h}aː-], not *[**sa**-st^{h}aː-]. McCarthy et al. (2012) analyze the former as being driven by *MAR/LIQ, and other cases can be analyzed similarly. Thus, one might be tempted to connect the TV reduplicant in Wubuy to the unmarkedness of obstruent onsets. But this tack is also unfruitful. If the elsewhere case is disyllabic, then nothing precludes copying two syllables when both syllables begin with obstruents, as in *[**baga**-baga]. If, on the other hand, the default size is monosyllabic, obstruent unmarkedness does nothing to motivate the disyllabic size when both consonants are sonorants, as in grammatical [**jama**-jama]. Moroever, we are aware of nothing language-internal that might suggest that NV- is marked as a prefix. Quite the opposite; across Wubuy prefixes, NV- is vastly more frequent than TV-.

As a final attempt to replace RED=TV with general markedness, consider a constraint called ECHO OBSTRUENT, which requires an obstruent to be followed across the vowel by a copy of itself (cf. cases of cross-vowel consonant harmony in Rose & Walker 2004), overriding a two-syllable default. This works in most cases to limit obstruent-initial reduplication to one syllable. For example, [**ba**-baga] properly echoes in tableau (9), while echoing is moot for all-sonorant [**jama**-jama] in tableau (10), allowing the disyllabic default to emerge. Nevertheless, such a constraint is dubious in naturalness (both in its implementation of

[4] Meanwhile, a phonotactic such as *TVC$_{RED}$ "penalize an obstruent followed across a vowel by consonant if both are contained within the reduplicant," even if it is accepted as a possible constraint, amounts to stipulating the description. The restriction of its evaluation to segments that are part of RED tempers any argument from TETU, as does the unnaturalness of the phonotactic itself: VC cannot be said to be generally marked after an obstruent. Note further that this constraint's reference to the intervening vowel is necessary, as TC sequences do occur within reduplicants in Wubuy, as in (2e).

reduplication via harmony and in its limitation to obstruents), and more importantly does not work. First, this analysis incorrectly predicts monosyllabic RED for bases such as [wud̪i], [ɻadbid̪aː], [ŋambiː-ni], and [ja-ŋɡi], all of which contain an obstruent in the onset of their second syllable. In such cases, ECHO OBSTRUENT would penalize copying the unechoed obstruent from the second syllable, yielding incorrect outcomes such as *[**wu**-wud̪i] as opposed to unechoed [**wud̪u**-wud̪i]. Moreover, ECHO OBSTRUENT erroneously predicts disyllabic reduplication for bases such as [ɡuɡuda], [ɟuɟuɾɡi], [ɟiɟi-bu], and [balbaɻa], where a disyllabic reduplicant would have the same number of violations of ECHO OBSTRUENT as a monosyllabic reduplicant, leaving the default (two syllables) to prevail.[5]

(9)

RED, /baɡa/	ECHO OBSTRUENT	(disyllabic)
a. ☞ **ba**-baɡa	∗	∗
b. **baɡa**-baɡa	∗∗!∗	

(10)

RED, /jama/	ECHO OBSTRUENT	(disyllabic)
a. **ja**-jama		∗!
b. ☞ **jama**-jama		

4 Weight-based analysis

4.1 *Onset sonority as a factor in weight: background* An approach that is more promising than phonotactics starts with the recognition that syllable weight can be sensitive to onset sonority. In every such case of which we are aware, lower sonority counts as heavier, that is, TV $\geq$ NV. (Sonority has the opposite effect in the rime, where greater sonority patterns as, if anything, heavier.) Low sonority contributes to weight in the onset for a couple of reasons, which are not mutually exclusive. First, due to auditory adaptation and recovery, a vowel is perceived as louder after a low-sonority onset than it would be after a high-sonority onset (Gordon 2005, Smith 2005). Second, the p-center (perceptual center) of the syllable tends to adjust leftwards given a longer onset, and obstruents tend to be longer than sonorants (Ryan 2014). However, both of these explanations need not apply to every case.

Weight based on onset sonority is attested in various metrical systems, including prosodic end-weight, metrics, textsetting, and stress. First, low sonority onsets are treated as heavier than high sonority onsets in prosodic end-weight, in which heavier syllables are generally preferred in final position (Cooper & Ross 1975, Campbell & Anderson 1976), one explanation being that that is the locus of greater stress (Ryan 2019a). Syllable weight in end-weight is a function not just of the nucleus and coda, where greater length and sonority contribute to greater weight, as they normally do, but also a function of the onset, where less sonority contributes to greater weight. For example, "wheel and deal" is more felicitous than "deal and wheel." This tendency is not just significant in frozen binomials such as the examples in (11), but is shown to be productive by experiments (Pinker & Birdsong 1979, Oden & Lopes 1981, Parker 2002, Ryan 2019b). It is also attested in other languages (e.g. Müller 1997).

(11)
a. wheel and deal
b. wear and tear
c. huff and puff
d. namby-pamby
e. mumbo-jumbo

Second, some quantitative poetic meters evince gradient sensitivity to onset sonority in assessing weight. In every such case, obstruent onsets pattern as heavier than sonorant onsets. The Finnish Kalevala epic furnishes one such meter (Ryan 2019b, with further examples in Ryan 2014, 2019b). The table in (12) (adapted from

[5] Andrew Lamont (p.c.) raises a further possible markedness analysis whereby a foot beginning with a sonorant is more harmonic than one beginning with an obstruent. This would ostensibly favor footed (NVC_0V-) over unfooted TV-. While another formal possibility to note, this line of analysis faces two challenges, namely, the unclarity of stress (and hence footing) on disyllabic reduplicants as well as the unnaturalness of a constraint favoring sonorant-initial feet, a context in which, if anything, fortition would be expected.

Ryan 2019b: 148) summarizes a regression model in which syllables' placement in strong as opposed to weak metrical positions is predicted from properties of those syllables. Onset N is significantly less strong-aligned than onset T, even after controlling for the shape of the rime, the position in the word, and the weights of surrounding syllables in the word (random effects are not shown in the table).

(12)

	β	standard error	z	p
(intercept)	15.01	1.84	8.2	$< .0001$
rime VT (vs. V)	8.22	0.22	37.9	$< .0001$
rime VN (vs. VT)	3.39	0.65	6.0	$< .0001$
rime VV (vs. VN)	1.26	1.17	1.1	$= .282$
rime VVC (vs. VN)	40.89	5.49	7.4	$< .0001$
onset N (vs. T)	−0.74	0.18	−4.2	$< .0001$
onset Ø (vs. N)	−0.54	0.22	−2.4	$= .015$

As a third and final example of onset sonority affecting weight, if a stress system is sensitive to onset sonority, it is lower sonority onsets that pattern as heavier. For example, in Pirahã, voiceless onsets count as heavier than voiced onsets (Everett & Everett 1984, Everett 1988, 1998, Gordon 2005). Within a final three-syllable window, stress is assigned to the rightmost instance of the heaviest grade available in the weight scale KVV > GVV > VV > KV > GV (where K is voiceless and G is voiced). Other claimed cases of onset-sonority sensitivity in stress include Arabela, English, Ngalakgan, Tümpisa Shoshone, Karo, and Alyawarra (Gordon 2005, Baker 2008, Topintzi 2010, McGarrity 2014, Ryan 2014). Some of these cases are controversial, in part because the empirical validity of descriptions of stress systems can be difficult to diagnose (cf. de Lacy 2014). Fortunately, Wubuy reduplication does not suffer from this kind of empirical subtlety: It is clearcut whether one or two syllables is reduplicated for any given token.

Thus, putting aside long vowels and codas, a tentatively universal weight hierarchy emerges:

$$\text{CVCV} > \text{TV} > \text{NV}$$

4.2 *A weight-based approach to Wubuy reduplication* Given this hierarchy, the Wubuy reduplicant could be viewed as a case of affix minimality (on which, see Gouskova 2021), akin to the cases in (13). Minimum affix sizes, while familiar from reduplication (e.g. a heavy syllable target), apply also to other types of affixes, in which case they are often lower bounds. For example, in English, a class II prefix[6] must be at least bimoraic, but it could also be heavier than that. Also in English, a derivational affix, unlike an inflectional affix, must contain at least one mora. Similar cases abound in other languages, as do affix maxima (e.g. Spaelti 1997, Gouskova 2007).

(13) Some examples of weight minima for affixes
a. $\sigma_{\mu\mu}$ RED in many languages
b. $\geq \mu\mu$ English class II prefixes
c. $\geq \mu$ English derivational affixes

That said, if RED is taken to have a minimum weight in Wubuy — that is, TV or heavier — it would have to be specific to RED, since the language exhibits many prefixes that are NV. Indeed, the vast majority of prefixes in Wubuy begin with a sonorant. But this confinement to RED may not be a serious concern: As Gouskova (2007: 393) writes, "Lexically indexed constraints have to be a part of phonological theory in order to account for exceptionality and lexical stratification. It is entirely reasonable to except [*sic*] that in some languages, the reduplicant will be *the* exceptional morpheme, subject to restrictions that do not apply elsewhere."

As argued above, one cannot replace RED-specificity (e.g. RED=TV or RED≥TV) by general markedness considerations (i.e. constraints that make no reference to RED). Nevertheless, one can still temper the stipulativeness of invoking RED by seeking typological grounding for its restriction. The present case underdetermines the formal possibilities, which must ultimately answer to the broader typology, but three possibilities are sketched in (14). First, one could retain the templatic constraint RED=TV, but seek to restrict possible templates in a principled way. In this case, one might recognize that a template can be any constituent *or heavy constituent* (with McCarthy & Prince 1995), including TV among possible heavy constituents, as

[6] For example, *desegregate* and *de-escalate* include class II prefixes, while *deduce* and *decide* include class I prefixes.

supported by the weight-sensitive typology. This approach would preclude a less natural templatic constraint such as RED=NV. Alternatively, one might invoke affix minimality, once again recognizing TV to be a particular kind of heavy syllable. Finally, RED=TV could be replaced by a markedness constraint indexed to RED, such as one that renders obstruent onsets moraic, but only in the reduplicant. This latter approach would work, though we do not see a need to posit a moraic onset for TV in the case of Wubuy; not all weight is mora-driven.[7] At any rate, the bottom line is that RED-specificity is needed in some form. Although it is desirable to eliminate templatic constraints or indexation to RED when possible, it is sometimes not possible to do so, as Gouskova (2007) likewise demonstrates for Tonkawa.

(14) Three typologically grounded alternatives to non-RED-specific markedness

a.	restricted templaticism	principled limits on RED=X
b.	affix minimality	RED$\geq \sigma_{\mathrm{TV}}$ with reference to a universal hierarchy
c.	constraint indexation	e.g. $(\mathrm{T}_{\mathrm{ons}} \rightarrow \mu)_{\mathrm{RED}}$ with a typologically supported kernel

With any of these three strategies, RED-specificity plus base-reduplicant (BR) correspondence predicts the existence of backcopying, which is sometimes seen as a liability for templates or indexation to RED. However, at least some kinds of backcopying do occur. In fact, we find a good case of it in Wubuy, where vowel shortness is always backcopied from the first vowel of a disyllabic reduplicant. For example, the base [-jaː-ɾiː] "goes" is shortened to [-ja-ɾiː] after a reduplicant, as in [-**jaɾa**-ja-ɾiː] (Heath 1984). This shortening is evidently due to BR-correspondence and cannot be attributed to a more general cause.

5 Conclusion

In conclusion, Wubuy reduplication can be analyzed as a case of TV outweighing NV, converging with typological evidence from a number of languages and systems that treat lower-sonority onsets as heavier. This approach is arguably the least stipulative, as it connects reduplicant size restrictions to the more generally motivated phonology of weight.[8] In particular, obstruent-initial bases reduplicate with CV-, as in [**d̪i**-d̪ilila]. Sonorant-initial bases reduplicate with C_0VC_1V-, as in [**l̪iɾi**-l̪iɾibala]. Meanwhile, the ungrammaticality of *[**l̪i**-l̪iɾibala] reflects the subminimality of NV- as a reduplicant. This approach to Wubuy assumes that RED targets a particular kind of heavy syllable in a language with multigrade weight. Multigrade weight is necessary to assume because elsewhere in Wubuy, syllables with long vowels are treated as heavy. But this elsewhere treatment does not preclude an additional weight criterion based on onset sonority. In fact, multigrade or nested weight criteria are not uncommon. For instance, in Pirahã, as summarized above, any syllable with a long vowel is heavier than any syllable with a short vowel; but within each of those two weight classes, onset sonority emerges as an additional factor in weight. We have furthermore argued that RED-specificity, whether implemented by template or indexation, cannot be replaced by general markedness, such as favoring obstruent onsets or regulating sonority combinations across a vowel.

That said, Wubuy is just one case, so one should be wary about reading too much into it for naturalness. After all, language change is known sometimes to yield arbitrary or unnatural patterns which are nevertheless learnable and productive (Beguš 2018). Ideally, then, one would like to see more cases or experimental evidence along these lines. This talk did not cover the Wubuy prefix [-ŋu-], which is also sensitive to onset sonority, being inserted between certain prefixes and obstruent-initial stems (Heath 1987, 1997). Additionally, a relative of Wubuy, namely, Anindilyakwa, has basically the same reduplication pattern as Wubuy (Leeding 1989, van Egmond 2012, Baker 2014). Anindilyakwa, unlike Wubuy, has root-initial prenasalized obstruents, which it treats like other obstruent onsets in reduplication. At any rate, descriptions of these languages have not brought out the possible connection to the onset weight typology that this talk has highlighted. In some languages, such as Nakanai, sonority-sensitive reduplication can be a function of phonotactics. But it might also reflect syllable weight, as in Wubuy, where no phonotactic generalization covers the data.

[7] As two examples of non-mora-driven weight, both cited above, consider the full range of weight contrasts in Pirahã and English end-weight.

[8] If onset sonority is accepted to be a possible factor in weight in other weight-sensitive systems, there may be little cost to recruiting the same machinery for reduplication. Indeed, one might argue that if onset sonority is otherwise available as a factor in weight, its absence from reduplication systems would be more of an explanandum than its presence.

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