The Gradual Path to Variable Reduplication: Kavalan

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Proposal Serial Template Satisfaction (STS, McCarthy et al. 2012), a novel theory of reduplication situated in Harmonic Serialism (HS, McCarthy 2000, 2010, among others), can account for languages like Kavalan (1), where a single reduplicative morpheme shows different bimoraic shapes (with different stems), without assuming multiple allomorphic templates or weight requirements in order to address what looks like the emergence of a heavy syllable reduplicative template.

(1) *Continuative reduplication in Kavalan*

a. CVC if the stem's first syllable is heavy:	b. (C)V(C)V if the stem's first syllable is light:
tum.-tum.βəs 'to keep pulling'	m-ʁi.-βa.u.-βa.ut 'to keep fishing'
maj.-maj.nəp 'to keep sleeping'	pu.ku.-pu.kun 'to keep hitting'

STS The HEADEDNESS(X) constraint (2a) can be fulfilled by INSERT(X−1) (2b), which inserts a prosodic constituent node of type X−1 into the existing structure and incurs a violation of *HD(X−1), or by COPY(X−1) (2c), which copies a *string* of constituents of type X−1 along with their content into the pre-existing prosodic structure. Note that since COPY(X) is defined to copy strings of elements of type X, a single operation of COPY(X) incurs a violation of *COPY(X), *regardless of the number of the constituents contained in the copied string* (i.e., *(ta)-(ta.sa)* and *(ta.sa)-(ta.sa)* are equal with respect to faithfulness, both incurring one violation of *COPY(X)). Moreover, the string-copying property of COPY(X) may produce a violation of COPY-LOCALLY(X) (2d), e.g. **(sa)-(ta.sa)*.

(2) a. HEADEDNESS(X) (HD, Selkirk 1995): Assign a violation mark for every constituent of type X that does not contain a constituent of type X−1 as its head.

b. INSERT(X−1): X = FT, X−1 = σ

FT-(ta.sa)	→	(σ)-(ta.sa)
*HD(FT)		✓HD(FT), *HD(σ)

c. COPY(X−1): X = FT, X−1 = σ

FT-(ta.sa)	→	(ta)-(ta.sa), (ta.sa)-(ta.sa)
		*(tas)-(ta.sa)

d. COPY-LOCALLY(X) (COPY-LOC, McCarthy et al 2012: 181): To a candidate produced by Copy(X), assign as many violations as there are Xs intervening between the original X string and its copy.

Analysis The reduplicative template involved in (1) is a foot, whose headedness is met by INSERT(σ) rather than by COPY(σ), e.g., **(tum.bəs)- (tum.bəs)*, because *COPY(σ) outranks both FT-BIN and HD(σ):

(3) 1st step: *COPY(σ), COPY-LOC(μ), NOLONG-V » FT-BIN » HD(σ) » *COPY(μ), NOCODA

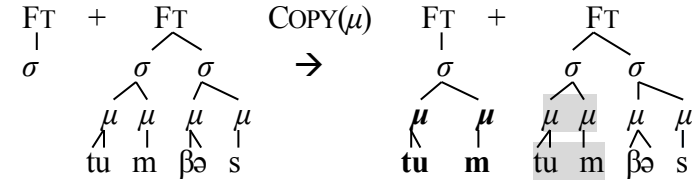
FT + FT	INSERT(σ)	FT + FT	*Violations*:
σ σ	→	**σ**	FT-BIN, HD(σ)
tum βəs		tum βəs	

Given that coda in Kavalan is moraic (Lin 2012), if the first syllable of a stem is CVC, COPY(μ) is a more optimal operation to meet FT-BIN because HD(σ) dominates *COPY(μ), leading to CVC reduplication (4a). Conversely, if the first syllable of a stem is not heavy, FT-BIN would not be met by COPY(μ) because the syllable would contain only one mora (e.g., *pu_{μ}-$pu_{\mu}ka_{\mu}n_{\mu}$). As a consequence, HD(σ) will be infringed by one more INSERT(σ) in order

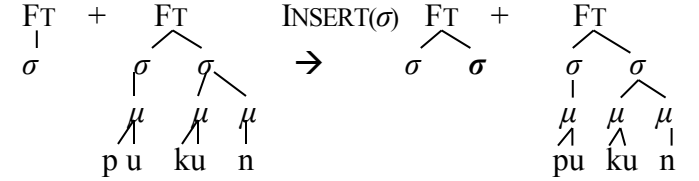
to obey FT-BIN (4b). Afterwards, *COPY(μ) will be violated to satisfy HD(σ), leading to disyllabic reduplication (4c). Note that, assuming that some undominated constraint penalizes a syllable from accommodating two vowels, copying the first two moras of the stem would not meet FT-BIN either, because $pu_{\mu}ku_{\mu}$ contains two vowels, hence too large to satisfy HD(σ). Moreover, FT-BIN cannot be respected by vowel lengthening or non-local copying of the last mora of the stem (e.g. *$pu_{\mu}n_{\mu}$-$pu_{\mu}ku_{\mu}n_{\mu}$), because both COPY-LOC(μ) and NOLONG-V dominate FT-BIN.

(4) *COPY(σ), COPY-LOC(μ), NOLONG-V » FT-BIN » HD(σ) » *COPY(μ), NOCODA

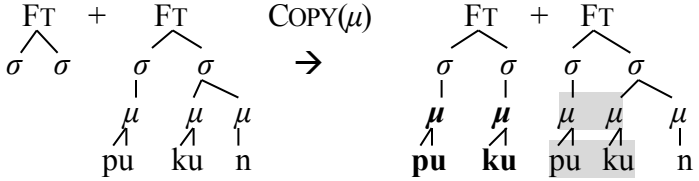
a. FT + FT — COPY(μ) → FT + FT — 2nd step of CVC reduplication
Violations: *COPY(μ), NOCODA



b. FT + FT — INSERT(σ) → FT + FT — 2nd step of (C)V(C)V reduplication
Violations: HD(σ)x2



c. FT + FT — COPY(μ) → FT + FT — 3rd step of (C)V(C)V reduplication
Violations: *COPY(μ)



Implications *First*, considering the fact that coda consonants in Ilokano are moraic (Hayes & Abad 1989), heavy syllable reduplication (5) could be analyzed as stepwise involving insertion of a syllable into a foot template (rather than a syllable template with heaviness requirement), followed by insertion of two moras into the inserted syllable, with subsequently copied segments from the stem to fill the two moras. Such an analysis contrasts with McCarthy et al. (2012: 197), in which the heavy syllable reduplication is taken to be involving a syllable template with certain weight requirement to be formulated.

(5) Heavy syllable reduplication in Ilokano (Hayes & Abad 1989: 357-359)
pus-pu:sa 'cat/pl.' kal-kaldiŋ 'goat/pl.

Second, constraint interaction (in addition to templates) also plays a role in shaping the prosodic structure of the reduplicant. Thus, a foot template may result in monosyllabic reduplication, as in Kavalan. *Third*, McCarthy et al. (2012: 197) admit that STS contributes no solution to the issue of how weight conditions should be formulated. The present analysis, however, strongly suggests that whenever a monosyllabic reduplicant is required to be heavy, such a heaviness requirement could be reduced to the basic machinery of STS and the language's phonology in general. No heaviness requirement needs to be stipulated on the template (e.g. $\sigma_{\mu\mu}$ as in McCarthy & Prince 1986/1996) or formulated as a constraint (e.g. RED=$\mu\mu$ as in McCarthy & Prince 1993). This leads to the conclusion that templates below the prosodic word level might be *FT* and σ only, but never σ_{μ} or $\sigma_{\mu\mu}$. Moreover, by eliminating weight requirements, we also dispense with RED=$\mu\mu$ as a constraint on the reduplicant.

Selected Reference McCarthy, John, Wendell Kimper & Kevin Mullin. 2012. Reduplication in Harmonic Serialism. *Morphology* 22: 173-232.