Reduplicant Shape Alternations in Ponapean: Evidence Against Morphological Doubling Theory

INTRODUCTION: Ponapean (Austronesian; Rehg & Sohl 1981, Rehg 1993) exhibits a pattern of prefixal partial reduplication which is variable in size, alternating between one mora and two moras in length (Rehg & Sohl 1981:§3.3.4, McCarthy & Prince 1986, Kennedy 2002). This paper develops an analysis of this pattern, couched generally in Base-Reduplicant Correspondence Theory (BRCT; McCarthy & Prince 1995), which derives these alternations through the interaction of stress and phonotactics. This analysis requires that the shape of the reduplicant be calculated at a point in the derivation where there is direct access to the surface properties of the base (and the reduplicant's position relative to the base). This rules out frameworks where the reduplicant is calculated without access to the base, such as Morphological Doubling Theory (Inkelas & Zoll 2005).

DATA: The properties of Ponapean reduplication are illustrated by the forms in (1), arranged according to the mora count of the base. The variation in reduplicant size is predictable based primarily on the location of stress in the base, which is right-to-left alternating by mora (Rehg 1993, Kennedy 2002). If stress falls on the **initial** mora of the base (*odd parity bases*, e.g. (2)), the reduplicant is always bimoraic. On the other hand, if stress falls on the **peninitial** mora of the base (*even parity bases*, e.g. (3)), the reduplicant is (preferentially) monomoraic. This preference is realized when the base begins in a heavy syllable, but not when the base begins in a light (CV̆) syllable (the grayed out cells in (1)). In this case, the reduplicant surfaces with two moras (e.g. (4)).

(1) Ponapean reduplication (adapted from Kennedy 2002:225; see Rehg & Sohl 1981:§3.3.4)

	Odd	*Even*	*Odd*	*Even*
	1-mora base	2-mora base	3-mora base	4-mora base
1-mora reduplicant		**dù**-duúp		**tò**-toò.roór **sò**-soù.pi.sék
2-mora reduplicant	**pàa**-pá **tè.pi**-tép **dòn**$_{\mu}$-dód	**duǹ**$_{\mu}$-du.né **si.pì**-si.péd **diǹ**$_{\mu}$-di.líp	**dùu**-dùu.pék **mèe**-mèe.lél **lìi**-lì.aán	**rìì**-ri.àa.lá

(2) Odd parity bases

a. dùu-dùu.pék

b. *dù-dùu.pék

(3) Even parity bases (#heavy)

a. dù-duúp

b. *duù-duúp

(4) Even parity bases (#light)

a. rìì-ri.àa.lá

b. *rì-ri.àa.lá

ANALYSIS: I argue that this distribution can be explained by the interaction of four factors:

(5)
a. A preference for shorter (i.e. monomoraic) reduplicants (ALIGN-ROOT-L$_{\mu}$ $\gg$ MAX-BR)
b. A requirement that the reduplicant bear stress (STRESS-TO-RED)
c. A ban on moraic clash (*CLASH$_{\mu}$)
d. A ban on adjacent identical light syllables (*REPEAT(light))

Just in case stress falls on the initial mora of the base (as in (2)), stressing a monomoraic reduplicant would result in a clash (6b). To avoid the clash, the reduplicant is extended to two moras (6c). An unstressed monomoraic reduplicant (6a) is not tolerated, as it would violate STRESS-TO-RED.

(6) Odd parity bases → bimoraic reduplicants: (2) *dùu-dùupék*

/RED, duupek/		STRESS-TO-RED	*CLASH$_{\mu}$	ALIGN-ROOT-L$_{\mu}$
a. du-dùupék	[0-201]	*!		*
b. dù-dùupék	[2-201]		*!	*
c. ☞ dùu-dùupék	[20-201]			**

But when stress falls on the peninitial mora of the base (as in (3)), a stressed monomoraic reduplicant (7b) would **not** result in a clash. This allows ALIGN-ROOT-L$_{\mu}$ to select the shorter reduplicant, i.e. (7b) $\succ$ (7c).

(7) Heavy-initial even parity bases $\rightarrow$ monomoraic reduplicant: (3) *dù-duúp*

/RED, duup/		STRESS-TO-RED	*CLASH$_{\mu}$	ALIGN-ROOT-L$_{\mu}$
a. du-duúp	[0-01]	*!		*
b. ☞ dù-duúp	[2-01]			*
c. duù-duúp	[02-01]			**!

This interaction between *CLASH$_{\mu}$ and ALIGN-ROOT-L$_{\mu}$ is interrupted when the base begins in a light syllable (as in (4)). In these cases, *REPEAT(light) (cf. Yip 1995, Hicks Kennard 2004) — a phonotactic constraint against adjacent identical light syllables — rules out the otherwise preferred monomoraic reduplicant candidate (8b) and forces extension to two moras (8c), just as *CLASH$_{\mu}$ does for odd parity bases.

(8) Light-initial even parity stems $\rightarrow$ bimoraic reduplicant: (4) *riì-ri.àa.lá*

/RED, riaala/		STRESS-TO-RED	*REPEAT(light)	ALIGN-ROOT-L$_{\mu}$
a. ri-ri.àa.lá	[0-0201]	*!	*!	*
b. rì-ri.àa.lá	[2-0201]		*!	*
c. ☞ riì-ri.àa.lá	[02-0201]			**

This analysis is couched in terms of BRCT, but little hinges on BR-correspondence *per se*. What is crucial is that the framework allow for the shape of the reduplicant to be calculated in a module which has access to the output properties of the base. This rules out any framework which does not have this architectural structure, most notably Morphological Doubling Theory (MDT; Inkelas & Zoll 2005).

THE ARGUMENT AGAINST MDT: In MDT, the reduplicant and the base are derived at separate derivational stages ("daughter nodes") with potentially distinct cophonologies, before being conjoined at a subsequent derivational stage ("the mother node"), which may too have a distinct cophonology. In cases of partial reduplication, the reduplicant undergoes truncation as governed by its distinct cophonology. While additional phonology can apply to the reduplicant at the mother node (though note that all such phonology must apply equally to the base), the bulk of the reduplicant's properties must be determined *prior* to its concatenation with the base. This will not work for Ponapean.

As laid out above, there are two cases where the default preference for a monomoraic reduplicant is overridden: (i) when it can avoid a moraic clash (cf. (6)), and (ii) when it can avoid adjacent identical light syllables (cf. (8)). For both of these cases, the structural description of the constraints that motivate extension (*CLASH$_{\mu}$ and *REPEAT(light), respectively) spans the reduplicant and the first syllable of the base. If the reduplicant's shape had to be determined prior to its concatenation with the base, neither of these constraints' structural descriptions would be met, and thus neither could be used to explain the alternation.

One conceivable MDT-compatible alternative which seeks to attribute the reduplicant-extending markedness to the reduplicant structures themselves will not work. Both types of extension actively avoid a stressed monomoraic reduplicant. However, we see from the heavy-initial even parity bases (cf. (7)) that stressed monomoraic reduplicants are tolerated in the language. It is only under concatenation with certain types of bases, some of whose properties are assigned only on the surface, that this structure is dispreferred. Furthermore, as can be seen from (1), the stress properties of the reduplicant frequently diverge from the stress properties of their base correspondents.

All together, this means that underlying properties of the base are insufficient to generate the surface properties of the reduplicant; only concatenation with the base supplies the necessary context for determining the size of the reduplicant. This is therefore a type of base-reduplicant junctural phonology which cannot be accounted for in MDT and other theories where the reduplicant is calculated in isolation from the base. Ponapean thus stands as a point in favor of parallelist frameworks like BRCT.