

AN OVERVIEW OF REDUPLICATION AND COMPOUNDING IN TETUN DILI

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Abstract. This paper analyzes reduplication and compounding in Tetun Dili. Reduplication, total or partial, is shown to be less productive in comparison to other Austronesian languages, but quite similar to that occurring in the Pacific pidgins and creoles, especially in those with an Austronesian substrate. Also discussed are the phonological factors involved in partial reduplication and the truncation of compounds.

1. INTRODUCTION

This paper is an overview of reduplication and compounding in Tetun Dili, spoken in East Timor.

The paper is organized as follows. Section 2 briefly presents the bases for reduplication. The meanings assigned to reduplicated forms are illustrated in section 3. In section 4 I focus on the phonological factors involved in reduplication. Sections 5 and 6 discuss reduplication in Tetun Dili within the larger context of the Austronesian languages and of other pidgins and creoles respectively. Compounding in Tetun Dili is presented in 7. Section 8 looks into the phonological constraints on nominal compounds. Section 9 briefly discusses phonological constraints that apply both to reduplication and to compounding. The findings are summarized in section 10.

The Tetun Dili examples are taken from Costa (2001), Hajek and Tilman (2001), Williams-van Klinken *et al.* (2002b), Anon. (2003b), Saunders (2004), Loch and Tschanz (2005), Eccles (n. d.), and from the collection of the magazine *Tais Timor* (2000-2005).

Tetun Dili examples given in their orthographic form follow the norms in Anon. (2003a). All examples in other languages are rendered in the orthography or in the system of transcription used in the sources mentioned. Relevant items or portions are in bold characters. In the phonological or phonetic transcriptions, hyphens mark the division into syllables while dots mark the division into moras.

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2. BASES FOR REDUPLICATION

As a morphological operation, reduplication is restricted to a relatively limited number of syntactic categories in Tetun Dili. The following syntactic categories may serve as a base for reduplication: nouns, adjectives, adverbs and cardinal numbers. The examples below illustrate each of these input categories:

- (1) nominal reduplication:
 - a. *Tersa* → ***Tersa-Tersa***
Tuesday on Tuesdays
 - b. *ibun* → ***ibuibun***
mouth nag, bother
- (2) adjectival reduplication:
ki'ik → ***kiki'ik***
small tiny
- (3) adverbial reduplication:
nafatin → ***nafatin-nafatin***
always for ever
- (4) numeral reduplication:
ida → ***ida-ida***
one one at a time.

As can be seen from the examples (1) through (4), the output categories consist of the following syntactic categories: verbs, adjectives, adverbs and numerals. Finally, reduplication may be either category-preserving or category-changing.

3. SEMANTIC PROPERTIES OF REDUPLICATION

The various meanings assigned to reduplication, depending on the syntactic category to which it applies, are summarized below.

Consider first nominal reduplication. Reduplication of temporal nouns mostly yields time adverbs, as noted by Williams-van Klinken *et al.* (2002b: 18):

- (5)
 - a. *bain* → ***baibain***
time frequently, generally
 - b. *dader* → ***dader-dader***
morning every morning
 - c. *Domingu* → ***Domingu-Domingu***
Sunday on Sundays
 - d. *kalan* → ***kala-kalan***
evening in the evenings

¹ Where the apostrophe stands for the voiceless glottal stop [?].

e. *loro* → ***loroloron***
 day daily
 f. *tinan* → ***tinan-tinan***
 year every year, annually

Another possible output category, not mentioned by Williams-van Klinken *et al.* (2002a and 2002b), is a verb whose meaning is related to that of the nominal base. Consider the form below, recorded in Loch and Tschanz (2005: 39):

(6) *ibu* → ***ibuibun***
 mouth nag, bother

A number of adjectival bases undergo reduplication when they describe plural referents Williams-van Klinken *et al.* (2002b: 16):

(7) *boot* → ***boboot***
 big big-PL

According to Williams-van Klinken *et al.* (2002b: 16), reduplication applies particularly to adjectives the referents of which are diverse:

(8) *seluk* → ***selu-seluk***
 other various other.

Several entries in Costa (2001) show that adjectival reduplication also has an intensifying meaning, not mentioned by Williams-van Klinken *et al.* (2002a and 2002b):

(9) a. *barak* → ***barbarak***
 many innumerable, countless
 b. *dook* → ***dodox***
 far very far
 c. *moos* → ***momoos***
 clean very clean.

Adjectives also function as a base for the formation of manner adverbs (Williams-van Klinken *et al.* 2002b: 18):

(10) a. *lais* → ***lailais***
 quick quickly
 b. *loos* → ***lolooos***
 right correctly, exactly
 c. *liu* → ***liuliu***
 superior especially

However, time adverbs may also be derived from an adjectival base, as demonstrated by the form below, recorded in Hajek and Tilman (2001: 231) and in Loch and Tschanz (2005: 30):

(11) *foun* → ***foufoun***
 new initially, in the beginning

In addition, as in the case of adjectives, adverbs derived from adverbs via reduplication have an intensifying meaning. Consider the following form, from Costa (2001: 254):

(12) *nafatin* → ***nafatin-nafatin***
 always for ever

The intensifying meaning of reduplicated adverbs, illustrated in (12), has gone unnoticed by Williams-van Klinken *et al.* (2002a and 2002b).

Finally, reduplicated cardinal numerals have a distributive meaning:

(13) a. *ida* → ***ida-ida***
 one one at a time
 b. *rua* → ***ru-rua***
 two in pairs
 c. *tolu* → ***tolu-tolu***
 three in groups of three
 d. *haat* → ***hahaat***
 four four at a time

In addition, reduplicated cardinals occur in idioms, as in the example below from Williams-van Klinken *et al.* (2002b: 17):

(14) *laran rurua*
 inside two-two
 'in two minds, uncertain'.

4. PHONOLOGICAL CONSTRAINTS ON REDUPLICATION

Following Booij (2005: 35), reduplication is considered here a special case of affixation consisting in the "attachment of a complete or partial copy of the base as a prefix or a suffix". The examples in sections 2 and 3 include instances of both total and partial reduplication. In Tetun Dili the copy of the base is always attached as a prefix. Since the reduplicant always precedes the base it follows that reduplication is exclusively of the pre-reduplication type².

As far as total reduplication is concerned, it appears to be subject to several constraints. Consider first the examples below:

(15) a. /li-u/ → [liuliu]
 superior especially
 b. /ter-sa/ → [tersatersa]
 Tuesday on Tuesdays
 c. /na-fa-tin/ → [nafatinnafatin]
 always for ever.

Such forms show that total reduplication can only occur with bases which are at least disyllabic. Note, in particular, that the constraint also applies to loanwords, such as *tersa*, (< Portuguese *terça feira*), in example (15b). In the corpus at my disposal there are no totally reduplicated forms derived from a monosyllabic base.

² See the typology of reduplication in Haspelmath (2002: 24).

Bases of more than two syllables can only undergo total reduplication:

(16) a. /do-miŋ-gu/ → [domiŋgudomiŋgu]

Sunday on Sundays

b. /na-fa-tin/ → [nafatinnafatin]

always for ever

Examples such as (16a) show that this constraint also applies to loanwords, e.g. *domingu* (< Portuguese *domingo*).

Finally, as illustrated by the following example, disyllabic bases may also have variants obtaining from partial reduplication:

(17) /ho-tu/ → [hotuhotu] / [hothotu]

all completely.

Let us now turn to partial reduplication. In their comments on reduplication in Tetun Dili, Williams-van Klinken *et al.* (2002a: 12) say rather little about the mechanism involved. Thus, according to these authors, “in [...] reduplications, the initial word is frequently truncated”. Moreover, “its coda is often deleted, and [...] the vowel of the final syllable is [...] omitted altogether”. As a consequence, “the onset of the final syllable is left to function as the coda of the initial word”.

There are several issues raised by this account of partial reduplication in Tetun Dili. First, it is not clear why the author prefer to speak of “truncated reduplication” and of “initial word” rather than using the standard terms “partial reduplication” and “base”. Second, their brief remarks are a description rather than an analysis. As such, they say *what* happens, but not *why* it happens. Third, reference is made to resyllabification only. As will be shown below, partial reduplication in Tetun Dili can be accounted for in terms of prosodic requirements.

The following examples illustrate the types of vowel-initial bases that may undergo partial reduplication and the shape of the reduplicant:

(18) a. VCVC → VCV

/i-dak/ → [i-**da**-i-dak]

every each

b. VCVC → VC

/i-dak/ → [i-**d**-i-dak]

every each

c. VVC → VV

/o-in/ → [o-**i**-o-in]

kind various

Partial reduplication may also apply to a variety of consonant-initial bases:

(19) a. CVV → CV

/ru-a/ → [ru-**r**ua]

two in groups of two

b. CV:C → CV

/lo:s/ → [lo-**l**o:s]

right exactly

- c. CVVC → CV
/la-is/ → [la-la-is]
 quick quickly
- d. CVVC → CVV
/la-is/ → [lai-la-is]
 quick quickly
- e. CVCVC → CVCV
/ka-lan/ → [ka-la-ka.lan]
 evening in the evenings
- f. CVCVC → CVC
/ba-rak/ → [bar-ba-rak]
 many very many
- g. CCVVC → CCVV
/kle-ur/ → [kleu-kle-ur]
 long time sooner or later

On the basis of the examples under (18) and (19), the following generalizations can be made with respect to partial reduplication in Tetun Dili:

- (20) a. partial reduplication occurs with both monosyllabic and disyllabic bases;
- b. if the base is monosyllabic, the reduplicant is a light syllable, as in (19a) or (19b);
- c. if the base is disyllabic, the reduplicant is either monosyllabic or disyllabic;
- d. if the reduplicant is monosyllabic, the syllable is heavy, as in (18b), (19d), (19f) or (19g);
- e. if the reduplicant is monosyllabic, the syllable may exceptionally be light, as in (19a);
- f. monosyllabic reduplicants consisting of a light syllable may have a competing variant consisting of a heavy syllable, as in (19c) vs. (19d);
- g. disyllabic reduplicants consist of two light syllables, as in (19e);
- h. in all cases, the reduplicant is a contiguous substring of the base, leaving no medial gap.

In what follows I outline an optimality-theoretic account of partial reduplication in Tetun Dili. The analysis assumes correspondence theory and the following constraints³:

- (21) a. MAXIMALITY-BR:
 every element of the base has a correspondent in the reduplicant (the “total reduplication” constraint);
- b. LEFT-ANCHOR:
 the left peripheral element of the reduplicant corresponds to the left peripheral element of the base if the reduplicant is to the left of the base;

³ For correspondence theory as applied to reduplication see Kager (1999: 194-252).

c. CONTIGUITY-BR:

the portion of the base standing in correspondence forms a contiguous string, as does the correspondent portion of the reduplicant.

As stated in (20b), with monosyllabic bases the reduplicant is monosyllabic. Since the syllable is light the reduplicant is monomoraic. In other words, its shape can be defined in terms of the prosodic category *mora*:

$$(22) \quad \text{RED}_{\sigma(\mu)} = \sigma = \mu$$

In partial reduplication MAXIMALITY-BR is, of course, ranked low and is dominated by the reduplicant. As in all cases of prereduplication, LEFT-ANCHOR, which imposes correspondence between the segments standing at the left edges of the base and of the reduplicant, also dominates MAXIMALITY-BR. The constraint CONTIGUITY-BR, which bans any skipping in the reduplicant, is also ranked high and therefore outranks MAXIMALITY-BR. Finally, the ranking of the reduplicant, $\text{RED}_{\sigma(\mu)}$, LEFT-ANCHOR and CONTIGUITY-BR with respect to one another is irrelevant to the outcome. The constraint hierarchy is:

$$(23) \quad \text{RED}_{\sigma(\mu)}, \text{L-ANCHOR}, \text{CONTIG-BR} \gg \text{MAX-BR}.$$

The interaction of these constraints is demonstrated in the evaluation below:

(24)

/RED + lo:s/	RED _{σ(μ)}	L-ANCHOR	CONTIG-BR	MAX-BR
lo:.lo:s	*!			*
lo.lo:s				**
o.lo:s		*		
lo.s.lo:s	*!		*	

Consider next the cases of partial reduplication from disyllabic bases. As stated in (20c), with disyllabic bases the reduplicant is either monosyllabic or disyllabic. In addition, it is typically bimoraic. The only difference between the two types of reduplicant resides in the distribution of the two moras either in one heavy syllable or over two light syllables. The prosodic shape of the reduplicant is therefore:

$$(25) \quad \begin{aligned} \text{a. } \text{RED}_{\sigma(\mu\mu)} &= \sigma = \mu\mu \\ \text{b. } \text{RED}_{\sigma(\mu)\sigma(\mu)} &= \sigma\sigma = \mu\mu \end{aligned}$$

The “equivalence”, measured in moras, of the two types of reduplicant is demonstrated by the existence of variants of one and the same base, one of which is monosyllabic and bimoraic, whereas the other one is disyllabic and bimoraic:

$$(26) \quad \begin{aligned} \text{a. } /ho-tu/ &\rightarrow [\mathbf{h}\mathbf{o}.\mathbf{t}.hotu] / [\mathbf{h}\mathbf{o}.\mathbf{tu}.hotu] \\ &\text{all} \qquad \text{completely} \\ \text{b. } /te-bes/ &\rightarrow [\mathbf{te}.\mathbf{b}.te.be.s] / [\mathbf{te}.\mathbf{be}.te.be.s] \\ &\text{real} \qquad \text{really.} \end{aligned}$$

The favoured reduplicant outranks MAX-BR. As shown above, two other constraints, L-ANCHOR and CONTIG-BR, also dominate MAX-BR. The favoured reduplicant, L-ANCHOR and CONTIG-BR also outrank the alternative reduplicant. The relative ranking of the latter and MAX-BR is irrelevant. The constraint hierarchies are:

(27) a. $\text{RED}_{\sigma(\mu\mu)}, \text{L-ANCHOR}, \text{CONTIG-BR} \gg \text{RED}_{\sigma\sigma(\mu\mu)}, \text{MAX-BR}$
 b. $\text{RED}_{\sigma(\mu)\sigma(\mu)}, \text{L-ANCHOR}, \text{CONTIG-BR} \gg \text{RED}_{\sigma(\mu\mu)}, \text{MAX-BR}$

A tableau illustrating the effects of the ranking in (27a) is given below:

(28)

/RED +ba.ra.k/	$\text{RED}_{\sigma(\mu\mu)}$	L-ANCHOR	CONTIG-BR	$\text{RED}_{\sigma\sigma(\mu\mu)}$	MAX-BR
ba.ba.ra.k	*!			*	***
ba ba.r.ba.ra.k				*	**
ba.ra.ra.k	*!			*	*
a.r.ba.ra.k		*			***
ba.k.ba.ra.k			*		**

The hierarchy of constraints in (27b) is supported by the evaluation in the following tableau:

(29)

/RED +fu.la.n/	$\text{RED}_{\sigma(\mu)\sigma(\mu)}$	L-ANCHOR	CONTIG-BR	$\text{RED}_{\sigma(\mu\mu)}$	MAX-BR
fu.fu.la.n	*!			*	***
ful.fu.la.n	*!				**
fu fu.la.fu.la.n				*	*
u.la.fu.la.n		*			
fu.a.fu.la.n			*		

Note that the prosodic shape of both types of reduplicant is consistent with the well-known “anti-degenerate foot” constraint FOOT-BINARITY, defined by Kager (1999: 156) as follows⁴:

(30) FOOT-BINARITY:

Feet are binary under moraic or syllabic analysis.

In other words, with disyllabic bases the (typical) reduplicant is the bimoraic foot.

Partial reduplication in Tetun Dili, then, is yet another illustration of how morphology uses phonological categories⁵. Partially reduplicated forms are

⁴ The constraint was first formulated by Prince and Smolensky (1993).

⁵ In the sense of Wiltshire and Marantz (2000), Haspelmath (2002: 24), Aronoff and Fudeman (2005: 70–97), Booij (2005: 177–182).

instances of prosodic morphology⁶: the shape of the reduplicant in partial reduplication must be defined in terms of prosodic categories such as the mora or the foot.

5. REDUPLICATION IN TETUN DILI AND IN OTHER AUSTRO-NESIAN LANGUAGES

As is well known, reduplication is one of the most striking characteristics typical of Austronesian languages (Prentice 1990, Sneddon 1996, Lynch 1998, Goddard 2005). Surprisingly, reduplication in the different varieties of Tetun, including Tetun Dili, is not mentioned by Thomaz (2002) in his study of the position of Tetun within the subgroup of Malayo-Polynesian languages.

Consider first the syntactic categories which function as a base for reduplication in Tetun Dili. All of them also serve a base for reduplication in other Austronesian languages. Conspicuously absent from the list of possible bases, presented in section 2, are verbs. Verbal reduplication is widely attested in the Austronesian languages, *e.g.* Indonesian/Malay (Oplt 1966, Prentice 1990, Sneddon 1996), in which it is associated with a variety of aspectual and related meanings. Moreover, it is also attested in Tetun Terik, the substrate and adstrate language of Tetun Dili, as illustrated by the following example from Costa (2001: 58):

(31) *book* → *bobook*
 mix mix for a long time

However, mention should be made of the fact that verbal reduplication appears to be extremely rare even in Tetun Terik.

As far as the semantic properties of reduplicated forms are concerned, all the meanings exemplified in Tetun Dili, discussed in section 3, are also attested in other Austronesian languages, including *e.g.* Tetun Terik. On the other hand, in many Austronesian languages, including Malayo-Polynesian ones, total or partial reduplication of nouns is a means of expressing diversity, in *e.g.* Indonesian/Malay (Oplt 1966, Prentice 1990, Sneddon 1996), or plurality, in *e.g.* Ilocano (McCarthy and Prince 1995 and 1998). As seen in section 3, neither of these meanings is assigned to reduplicated nouns in Tetun Dili. However, this is hardly surprising given that the same is true of its substrate language, Tetun Terik.

Finally, let us examine the phonological characteristics of reduplication. Total reduplication is widely attested in the Austronesian languages (Oplt 1966, Prentice 1990, Sneddon 1996, Lynch 1998, Booij 2005, Goddard 2005).

Partial reduplication is also attested in the Austronesian languages, *e.g.* Indonesian/Malay (Oplt 1966, Prentice 1990, Sneddon 1996), Javanese (Booij 2005: 35), Ilocano (McCarthy and Prince 1995 and 1995), and in the languages of the Oceanic group (Lynch 1998).

⁶ See McCarthy and Prince (1995 and 1998).

Partial reduplication in Tetun Dili displays similarities with that occurring in other Austronesian languages. For instance, all types of partially reduplicated forms attested in Tetun Dili are also found in its substrate language, Tetun Terik, as shown by the relevant items recorded in *e.g.* Costa (2001) and Morris (n.d.).

The monosyllabic bimoraic reduplicant $\text{RED}_{\sigma(\mu\mu)}$ is attested in other Austronesian languages, *e.g.* Ilocano (Aronoff and Fudeman 2005: 77, McCarthy and Prince 1998: 285):

(32) a. *púsa* → ***puspúsa***
 cat cats
 b. *kláse* → ***klaskláse***
 class classes
 c. *jyánitor* → ***jan-jyánitor***
 janitor janitors

Another similarity resides in the fact that partial reduplication may also apply to loanwords. Examples (32b) and (32c) illustrate the existence in Ilocano of partially reduplicated forms derived from loanwords as well, such as *kláse* (< Spanish *clase*) or *jyánitor* (< English *janitor*). Similarly, loanwords may undergo partial reduplication in Tetun Dili. Consider the partially reduplicated form below, derived from the base *oras* (< Portuguese *oras* ‘hours’):

(33) /*oras*/ → [o.ra.o.ras]
 time frequently.

On the other hand, there are also differences. For instance, partial reduplication with duplifixes⁷ does not occur in Tetun Dili. This type of partial reduplication occurs in the Austronesian languages, including Malayo-Polynesian ones, *e.g.* Javanese and Indonesian/Malay. According to Booij (2005: 35), in Javanese the copied segment consist of the first consonant of the base, and the fixed one is the vowel [ə]. Duplifixes occur in verbs and adjectives; for verbs, for instance, the duplifix expresses “a high intensity of the action” (Booij 2005: 35-36):

(34) RED = copy of first consonant of base + [ə]
 a. /gəni/ → [gəgəni]
 fire warm itself by the fire
 b. /tamu/ → [tətamu]
 guest visit

In Indonesian, partial reduplication with duplifixes is a means of forming lexical items with meanings related to that of the base (Prentice 1990: 199). Consider the examples below, from Prentice (1990: 199) and Sneddon (1996: 21) respectively:

(35) a. *tua* → ***tetua***
 old elders

⁷ Elements consisting of both copied segments, as with reduplicants, and fixed segments, as with affixes (Haspelmath 2002: 24).

b. *laki* → *lelaki*
 husband male, man.

According to Sneddon (1996: 21), this type of partial reduplication is no longer productive in Indonesian.

Finally, consider the case of Tetun Terik. According to Williams-van Klinken *et al.* (2002b: 55), partial reduplication forms instrument nouns and abstract nouns from a verbal base:

(36) a. *kusan* → *kakusan*
 button, lock button
 b. *fiar* → *fafiar*
 believe faith.

Williams-van Klinken *et al.* (2002b: 55) do not mention the existence in Tetun Terik of partial reduplication with duplifixes. However, the partially reduplicated forms under (36) appear to illustrate this type of partial reduplication, with duplifixes consisting of the first consonant of the base and the vowel [a]. The occurrence of partial reduplication with duplifixes in Tetun Terik is therefore yet another difference between Tetun Dili and its substrate language.

6. REDUPLICATION IN TETUN DILI AND IN PIDGINS AND CREOLEs

According to Bakker (1994: 33), “[t]he morphological process of reduplication is common (but not universal) in creole languages, but, strangely enough, rare in pidgins as a productive process”. Bakker (1994: 33) further states that this is true of pidgins “even where one of the contributing languages is rich in reduplication” and concludes that reduplication appears to be productive only in the so-called “extended” pidgins (Bakker 1994: 33). Finally, in a recent paper, he writes that “reduplication [is] one of the most striking structural differences between Pidgins and Creoles”, being “one of perhaps half a dozen structural differences” (Bakker 2003: 43).

Now, the status of Tetun Dili as a pidgin or a creole is a matter of some dispute in the literature. Thus, Smith (1994: 360), for instance, labels Tetun Dili as a pidgin, adding that it is a “lingua franca (2nd language) variety of Tetum”⁸. Other authors, *e.g.* Hajek (2002: 190) speak of “creolised Tetum-Dili”. According to most sources, Tetun Dili also has native speakers, besides those who speak it as a second language. Consequently, Tetun Dili seems to qualify for a double status, of a creole, for a minority of speakers, but an expanded pidgin for the majority of its speakers, *i.e.* the primary language of East Timor. Under the circumstances, the occurrence of reduplication in Tetun Dili is consistent with the conclusions reached by Bakker (1994 and 2003)⁹. Whether Tetun Dili is a creole or rather an extended

⁸ <Tetum> is an older spelling.

⁹ Cf. also Ansaldi and Matthews (2001).

pidgin – a distinction which is moot anyway – becomes irrelevant, since reduplication occurs both in creoles and in expanded pidgins.

It would therefore be instructive to compare reduplication in Tetun Dili and in other pidgin and creole languages¹⁰. Thus, all the syntactic categories which function as bases for reduplication in Tetun Dili also serve as such in other pidgins and creoles languages. A notable difference, however, is that in many such languages verbs too are among the bases for reduplication.

All the meanings assigned to reduplication in Tetun Dili are also attested in other pidgins and creoles.

Consider, finally, the phonological characteristics of reduplication. Total reduplication is widely attested in pidgins and creoles. Not surprisingly, total reduplication is attested in Pacific pidgins and creoles with an Austronesian substrate, such as Chabacano (Grant 2003), Malayo-Portuguese (De Silva Jayasuriya 2003) and Macanese (De Silva Jayasuriya 2003, Ansaldo and Matthews 2004).

Partial reduplication is rarer, both in the Atlantic and in the Pacific pidgins and creoles. It is absent even from some Pacific creoles with an Austronesian substrate, such as Chabacano (Grant 2003). On the other hand, it is attested in e.g. Malayo-Portuguese (De Silva Jayasuriya 2003), Bislama (Crowley 1990: 310, Meyerhoff 2003: 232-233, Avram 2005: 212) and Macanese (Ansaldo and Matthews 2004).

There are a number of similarities between partial reduplication in Tetun Dili and in other creoles with an Austronesian substrate. As shown in section 5, the number of syllables in the base may determine the type of reduplicant. Similarly, according to De Silva Jayasuriya (2003: 186), in Asian Portuguese creoles “the occurrence of partial reduplication depends on the number of syllables in the input form”.

Moreover, all types of reduplicant identified in Tetun Dili are also attested in other Pacific pidgins and creoles. Thus, monosyllabic monomoraic $\text{RED}_{\sigma(\mu)}$ occurs in Malayo-Portuguese (De Silva Jayasuriya 2003: 188):

(37) *soti* → ***so-soti***
kind all kinds.

The same reduplicant $\text{RED}_{\sigma(\mu)}$ is also attested in Macanese (Ansaldo and Matthews 2004: 10), in variants competing with those obtaining via total reduplication:

(38) a. total reduplication:
nhum → ***nhum-nhum***
 boy, lad boys, lads
 b. $\text{RED}_{\sigma(\mu)}$:
nhum → ***nhu-nhum***
 boy, lad boys, lads

¹⁰ See the papers in the volume edited by Kouwenberg (2003).

Example (38b) is erroneously analyzed by Ansaldi and Matthews (2004: 10) as a case of partial reduplication “where only the first syllable is reduplicated”.

The monosyllabic monomoraic reduplicant $\text{RED}_{\sigma(\mu)}$ occurs in Bislama (Crowley 1990: 310, Avram 2005: 212, *contra* Meyerhoff 2003):

(39) /simol/ → [si.si.mo.l]
small very small.

As in Tetun Dili, with disyllabic bases, this is rather the exception. The typical reduplicant is the monosyllabic and bimoraic $\text{RED}_{\sigma(\mu\mu)}$, as shown by Crowley (1990: 310), Meyerhoff (2003: 233) and Avram (2005: 212). Again, as in the Tetun Dili examples (19c) and (19d), this type may be used instead of $\text{RED}_{\sigma(\mu)}$, to derive a competing variant from the same base. Compare the reduplicated form in (39) with the one below:

(40) /simol/ → [sim.si.mo.l]
small very small.

Both bimoraic reduplicants, $\text{RED}_{\sigma(\mu\mu)}$ and $\text{RED}_{\sigma(\mu)\sigma(\mu)}$, are attested in other creoles with an Austronesian substrate, such as Malayo-Portuguese. Consider the following examples of reduplicated forms from disyllabic bases, taken from De Silva Jayasuriya (2003: 187-188):

(41) $\text{RED}_{\sigma(\mu\mu)}$:
femi → **fem-femi**
woman women

(42) $\text{RED}_{\sigma(\mu)\sigma(\mu)}$:
kaninu → **kanikaninu**
small very small.

De Silva Jayasuriya (2003: 186) states that “only reduplication of the first syllable [is] attested in the data” from Malayo-Portuguese. Partially reduplicated forms such as those in (41) and (42) clearly disconfirm that claim.

7. COMPOUNDING

Two types of compounds are attested in Tetun Dili. One type consists of what William-Van Klinken *et al.* (2002b: 17) call “body-good” expressions, which denote “character, emotions and physical attributes of people”. From the point of view of their morphological structure, these compounds are typically made up of a noun, a body part, and an adjective. The syntax of these compounds thus reflects word order: adjectives in Tetun Dili always occur in post-nominal position. Many of these compounds have as their first member the nouns *ain* ‘leg’, *isin* ‘body’, *laran* ‘inside’ and *oin* ‘face’ as illustrated by the examples in (43), (44), (45) and (46):

(43) a. *ain-aas*
leg high
'tall'

b. *ain-aat*
leg bad
'lame'

(44) a. *isin-aat*
body bad
'ill, sick, disabled'

b. *isin-boot*
body big
'big, fat'

(45) a. *laran-moos*
inside clean
'honest'

b. *laran-nakali*
inside cook(ed)
'outraged'

(46) a. *oin-kraik*
face low
'sad'

b. *oin-toos*
face hard
'unhappy'.

Syntactically, "body-good" expressions do not always function as compounds, as demonstrated by Williams-Van Klinken *et al.* (2002b: 17-18). For instance, the noun and the adjective in the "body-good" expression may function together as a predicate, as in (47a). This would confirm the status of compound of the "body-good" expression. However, as seen in (47b), the noun is the subject whereas, the adjective is the predicate of a sentence:

(47) a. *Ha'u hanoin ha'u isin-rua.*
I think I body two
'I think I'm pregnant.'

b. *Ha'u nia laran nakali.*
1st SG POSS inside cooked
(lit. My inside is cooked) 'I am outraged.'

Moreover, the noun and the adjective may be separated, *e.g.* by a demonstrative, which, like adjectives, are always placed in post-nominal position:

(48) *Ha'u nia laran ne'e nakali.*
1st SG POSS inside this cooked
(lit. This inside of mine is cooked.) 'I am outraged.'

The same inconsistency is displayed by copula-like linking verbs such as *sente* 'to feel'. Either the whole "body-good" expression or just the adjective functions as a predicative. Compare the following two sentences:

(49) a. *Ha'u sente laran-fraku.*
I feel inside weak
'I feel weak.'

b. *Ha'u nia laran sente fraku.*

1st SG POSS inside feel weak

(lit. My inside feels weak.) 'I feel weak.'

Note again, in (49b), that the noun and the adjective are separated: the linking verb *sente* occurs in between the noun *laran* and the adjective *fraku*.

Consider also the negation of "body-good" expressions. According to Williams-Van Klinken *et al.* (2002b: 18), there is inter-speaker variation. Thus, the negator *la* may occur either before the expression or between the noun and the adjective:

(50) a. *Ha'u la isin-di'ak.*

I NEG body good

'I am not well.'

b. *Ha'u isin la di'ak.*

I body NEG good

'I am not well.'

Since the negator *la* is used only with verbs and adjectives, its occurrence in (50a) before the noun clearly points to the adjectival status of the structure made up of the noun *isin* and the adjective *di'ak* whereas in (50b) only the adjective is negated. Incidentally, some structures consisting of a noun, the negator *la* and an adjective are even lexicalized. Consider the following example recorded in Loch and Tschanz (2005: 40):

(51) *isin-ladi'ak*

body NEG good

'unwell, ill, sick'.

Such forms are similar with lexicalized structures consisting of a noun, the negator and a verb. Here are some examples, registered in Loch and Tschanz (2005: 40):

(52) a. *isin la fó*

body NEG give

'arid'

b. *isin la tahan*

body NEG resist

'allergic, sensitive'.

In addition to "body-good" expressions, Tetun Dili also has a large number of nominal compounds. According to Williams-Van Klinken *et al.* (2002b: 25), this type of compounds includes the following main subtypes:

(53) a. possessor-head

Timoroan

Timor child

'Timorese'

b. head-modifier

ema Dili

person Dili

'person from Dili'

- c. generic-specific
ai-kameli
 wood sandal
 ‘sandalwood’
- d. verb-place
hariis-fatin
 wash place
 ‘bathroom’
- e. with *na 'in* ‘master, owner’
uma na 'in
 ‘home owner’.

8. PHONOLOGICAL CONSTRAINTS ON NOMINAL COMPOUNDS

A characteristic of nominal compounds in Tetun Dili is the occurrence of truncation. According to Williams-Van Klinken *et al.* (2002b: 12) “in compounds [...] the initial word is frequently truncated”. In such forms, the “coda is often deleted, and [...] the vowel of the final syllable is [...] omitted altogether”, leaving “the onset of the final syllable [...] as the coda of the initial word”.

First, on currently available evidence, it appears that truncation is only attested in the subtypes of nominal compound illustrated under (53a-c), a fact not mentioned by *e.g.* Williams-Van Klinken *et al.* (2002b).

Second, I would like to claim that phonological factors are involved in the formation of truncated nominal compounds. Illustrated below are the phonological shapes of first members of nominal compounds that undergo truncation and the resulting truncated forms:

(54) a. VCV → VC
/a-mu/ + /lulik/ → [am-lulik]
 father ceremony priest

b. VCVC → VCV
/i-bun/ + /rahun/ → [i-bu-rahun]
 mouth crumbs moustache

c. CVCV → CVC → [man-tolun]
/ma-nu/ + /tolun/ → [man-tolun]
 bird egg

d. CVCVC → CVCV
/lo-ron/ + /matan/ → [lo-ro-matan]
 day eye sun

e. CVVC → CVV
/bain/ + /rua/ → [bai-rua]
 day two the day after tomorrow

The examples under (54) show that:

(55) a. the truncated form of the first member of the compound is monosyllabic or disyllabic;
 b. if the truncated form is monosyllabic, the syllable is heavy, as in (54a), (54c) or (54e);
 c. disyllabic truncated forms consist of light syllables, as in (54b) or (54d).

The truncated form of the first member of the compound is either monosyllabic or disyllabic, but it is always bimoraic. In other words, the two moras are distributed either in one heavy syllable or over two light syllables. The prosodic shape of the truncated first member (M1) of the compound is:

(56) a. $M1_{\sigma(\mu\mu)} = \sigma = \mu\mu$
 b. $M1_{\sigma(\mu)\sigma(\mu)} = \sigma\sigma = \mu\mu$

In the optimality-theoretic framework adopted here, the constraints under (21) are reformulated as follows:

(57) a. MAXIMALITY-IO:
 every element of the base has a correspondent in the first member of the compound;
 b. LEFT-ANCHOR:
 the left peripheral element of the truncated form corresponds to the left peripheral element of the base;
 c. CONTIGUITY-IO:
 the portion of the base standing in correspondence forms a contiguous string, as does the correspondent portion of the truncated form.

M1 obviously outranks the constraint MAXIMALITY-IO. Similarly, LEFT-ANCHOR dominates MAXIMALITY-IO, since truncation does not occur at the left edge of the first member of the compound. The high ranking of CONTIGUITY-IO is demonstrated by the fact that non-contiguous strings are disallowed in the truncated form. Therefore, CONTIGUITY-IO also outranks MAXIMALITY-IO. The favoured M1 is ranked higher than the alternative form. Finally, the alternative M1 and are not ranked with respect to one another. The hierarchies of constraints are:

(58) a. $M1_{\sigma(\mu\mu)}, \text{L-ANCHOR}, \text{CONTIG-IO} \gg M1, \text{MAX-IO}$
 b. $M1_{\sigma(\mu)\sigma(\mu)}, \text{L-ANCHOR}, \text{CONTIG-IO} \gg M1, \text{MAX-IO}$

The effect of the ranking in (58a) is illustrated in the evaluation below:

(59)

/manu/ + /tolun/	$M1_{\sigma(\mu\mu)}$	L-ANCHOR	CONTIG-IO	$M1_{\sigma(\mu)\sigma(\mu)}$	MAX-IO
ma.tolun	*			*	**
an.tolun		*		*	**
man.tolun				*	*

The constraint hierarchy in (58b) secures the emergence of e.g. [loromatan] as the optimal candidate:

(60)

/loron/ + /matan/	M1 _{σ(μ)σ(μ)}	L-ANCHOR	CONTIG-IO	M1 _{σ(μμ)}	MAX-IO
lo.matan	*!			*	***
lor.matan	*!				**
o.ro.matan		*!		*	**
lo.o.matan			*!	*	**
☞ lo.ro.matan				*	*

In conclusion, the prosodic shape of the truncated first member of nominal compounds is the bimoraic foot. This is another proof of how Tetun Dili morphology uses phonological categories.

9. REDUPLICATION AND COMPOUNDING

As noted by Booij (2005: 36), “[r]eduplication is a kind of affixation (or compounding, in the case of full reduplication”. Morphologically, then, partially reduplicated forms resemble affixed forms, and totally reduplicated forms are similar to compounds. As far as the morphology – phonology interface is concerned, it follows that partial reduplication may be characterized by phonological constraints typical of affixation also, while total reduplication may be subject to phonological constraints holding for compounding as well. Moreover, partially reduplicated forms should also, *mutatis mutandis*, pattern with compounds involving truncation, since both presuppose loss of segmental material. In other words, phonological constraints applying to forms obtaining via partial reduplication may also apply to truncated compounds.

Consider first partial reduplication and affixation. As shown in section 4, partial reduplication in Tetun Dili is of the pre-reduplication type. Consequently, partial pre-reduplication is expected to resemble prefixation. One of the few (relatively) productive prefixes of Tetun Dili is *ha-*. According to Costa (2001: 97) *ha-* is “probably a contraction of the *halo*, *do*”. A more accurate description of *ha-* would be to consider it an instance of grammaticalization of a verb, *halo* ‘to make, to do’, into a prefix. The grammaticalization has run its full course in Tetun Terik, in which *ha-* is very productive, whereas in Tetun Dili *ha-* appears to be less fully grammaticalized. As shown by Williams-van Klinken *et al.* (2002b: 42–43), in Tetun Dili *ha-* is far less productive, there is considerable inter-speaker variation as to the roots to which *ha-* can be attached¹¹, for some roots it alternates freely with serial verb constructions with *halo* ‘to make, to do’, but not for others. The prefix *ha-* may be attached to nouns to form a verb:

¹¹ There is variation even in works on Tetun Dili. Thus, Williams-van Klinken *et al.* (2002b: 43) write that for some roots “causation is only ever expressed by *halo* (e.g. *halo kole* ‘make tired’). However, Loch and Tschanz (2005: 34) list *hakole* ‘to make someone tired’.

(61) *ha + tolu* → ***hatolu***
 egg to lay an egg

The prefix *ha-* is also used in the causativization of verbs or adjectives:

(62) a. *ha + mate* → ***hamate***
 to die to extinguish, to turn off
 b. *ha + fo'er* → ***hafo'er***
 dirty to make dirty.

Now, in Tetun Dili, stress usually falls on the penultimate syllable (Hajek and Tilman 2001: 22, Williams-van Klinken *et al.* 2002b: 9, Saunders 2004: 19). However, if *ha-* is attached to monosyllabic bases, the resulting form carries stress on the last syllable, as in the examples below:

(63) a. /ha/ + /tun/ → [ha'**tun**]
 to descend to lower
 b. /ha/ + /mo:s/ → [ha'**mo:s**]
 clean to clean.

In other words, the prefix *ha-* does not shift stress. Similarly, in partial reduplication of monosyllabic bases, no stress shift occurs:

(64) /bo/ + /bo:t/ → [bo'**bo:t**]
 RED big big-PL.

As expected, then, partially pre-reduplicated forms behave as prefixed forms as far as stress assignment is concerned: neither the reduplicant nor the prefix is stress-shifting.

Consider next the similarities between total reduplication and compounding. In his analysis of reduplication and compounding in Krio, an Atlantic English-based creole, Nylander (2003) demonstrates the obvious similarities in prosodic behaviour of the two word-formation processes. In what he calls “tonal reduplication”, the high tone on the first syllable of reduplicated forms is replaced by a low tone (Nylander 2003: 133):

(65) a. *más* ‘to crush (into small bits)’
màsmás ‘(a) bribe’
 b. *wáká* ‘to walk’
wàkàwáká ‘wandering’.

The tonal change from high to low tone on the first syllable also occurs in compounding (Nylander 2003: 135):

(66) a. *bíg, yái* ‘big, eye’
bigyái ‘greed, to be greedy’
 b. *trángà, yés* ‘strong, ear’
tràngayés ‘stubborness, to be stubborn’.

The phenomenon of tonal change in both totally reduplicated forms and in compounds in Krio thus constitutes a confirmation of the prediction that phonological constraints applying to total reduplication may also hold for compounding.

Finally, consider partial reduplication and truncated compounds. As mentioned above, partially pre-reduplicated forms would be expected to pattern with compounds with a truncated first member. As shown in sections 4 and 8, in Tetun Dili, the shape of both the reduplicants in partially pre-reduplicated forms and of the truncated first members of nominal compounds can be defined in terms of the prosodic categories (the mora, the bimoraic foot). Moreover, the prosodic shape may be identical in both cases. Compare the forms in (67) and (68):

(67) a. partially reduplicated forms:

$RED_{\sigma(\mu\mu)} = \sigma = \mu\mu$
 $RED + /barak/ \rightarrow [ba.r.barak]$
 many very many

b. truncated nominal compounds:

$M1_{\sigma(\mu\mu)} = \sigma = \mu\mu$
 $/manu/ + /tolun/ \rightarrow [ma.n.tolun]$
 bird egg egg

(68) a. partially reduplicated forms:

$RED_{\sigma(\mu)\sigma(\mu)} = \sigma\sigma = \mu\mu$
 $RED + /fulan/ \rightarrow [fu.la.fulan]$
 month monthly

b. truncated nominal compounds:

$M1_{\sigma(\mu)\sigma(\mu)} = \sigma\sigma = \mu\mu$
 $/loron/ + /matan/ \rightarrow [lo.ro.matan]$
 day eye sun

As can be seen, the prosodic shape of the reduplicants and those of the truncated first members of nominal compounds consists of a bimoraic foot, with the moras distributed either in one or over two syllables.

10. CONCLUSIONS

This paper has discussed reduplication and compounding in Tetun Dili. The analysis has highlighted several characteristics of reduplication and of compounding that have gone unnoticed in previous research.

Reduplication in Tetun Dili is less productive in comparison to other Austronesian languages. First, reduplication applies to a smaller number of syntactic categories. Most striking is the fact that the verbs do not figure among the bases for reduplication. Second, reduplicated forms cover a smaller range of meanings. Third, while reduplication is subject to phonological constraints similar to those attested in other Austronesian languages, duplifixes are not found in Tetun Dili. Finally, reduplication patterns in Tetun Dili are only a subset of those found in its substrate language, Tetun Terik.

Except for the absence of verbal reduplication, reduplication in Tetun Dili is quite similar to that occurring in the Pacific pidgins and creoles, in general, and to that attested in those with an Austronesian substrate, in particular.

I have also proposed a principled account of the role of phonological categories in partial reduplication and in compounding. Thus, the number of syllables in the base has been shown to determine the shape of the reduplicant. Further, the shape of reduplicants in partial reduplication and of the truncated first members of nominal compounds has been defined in terms of prosodic categories (the mora and the bimoraic foot).

Both partially reduplicated forms and truncated nominal compounds have thus been shown to be instances of prosodic morphology. This accords well with various other similarities between the phonological factors involved in reduplication and compounding that have been noted in the literature.

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