Reduplication as a tool for morphological and phonological analysis in Awetí

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0 Introduction

This study describes reduplication in Awetí, a Brazilian indigenous language spoken by a small people living in three villages in the region of the headwaters of the Xingu river, Mato Grosso, central Brazil.[1] Awetí does not belong to, but is the closest relative of the well-known Tupí-Guaraní subfamily, the largest branch of the Tupí family. Mawé, Awetí and Tupí-Guaraní together constitute a major branch of Tupí, "Mawetí-Guaraní" (Rodrigues and Dietrich 1997; Drude 2006; Drude and Meira in prep.).

The main interest this study may claim is of a methodological character: the contribution that the study of reduplication (henceforth "RED", for short) can make for the understanding of phonological and morphological units and processes, such as nasalization, abstract morpheme-final phonemes, identification of the stem and of morpheme boundaries, the derivation / inflection distinction, etc.

Sections 1 and 2 serve as a basis for the remaining paper. Section 1 summarizes the phonological system of Awetí. Section 2 gives some basic morphological properties and presents some diagnostic affixes used in the remaining sections. Then section 3 gives a short general overview over RED in Awetí. Section 4 describes the basic patterns of RED found with active (transitive and intransitive) verbs. The members of a small particular subclass of these end in an unstressed syllable; these are treated in section 5. Section 6 uses evidence from RED for a closer look at certain (morpho-)phonological alternations at the beginning and end of verbal stems. RED with stative verbs is treated in section 7. Finally, the RED-related behavior of

[1] The general knowledge of Awetí underlying this study is a result of ten years of work on Awetí, including a total of around fourteen months of fieldwork. From 2001 to 2005, the project was supported by the Volkswagen Foundation within the DOBES (Documentation of Endangered Languages) program, focusing on documenting the language and aspects of the culture. From 2008 on, my research has been supported by a Dilthey-fellowship which again allows me to do fieldwork and to invite speakers to the Museu Goeldi in Belém. Reduplication has been studied, and the specific data used in this study has been elicited, during the fieldtrip in April/May 2009. I am very grateful for the support by the funding agencies, the Museu Goeldi and my Awetí teachers. I also owe thanks to several reviewers of earlier versions of this paper, in particular to an anonymous reviewer and the editors. Remaining shortcomings are mine alone.

derivational affixes and incorporated nouns is discussed in section 8. The most important findings are summarized in the conclusion in section 9.

1 Phonemes and phonotactics of Awetí

Awetí has a small system of phonemes most of which are rather typical for Tupí languages. There are six oral vowels */i,ɨ,u,e,a,o/* and their nasal counterparts */ĩ,ɨ̃,ũ, ẽ,ã,õ/*. Due to nasal harmony, the contrast between oral and nasal vowels is neutralized in most non-final syllables, in particular before nasal segments. This can be accounted for by postulating six "neutral" phonemes */i̲,ɨ̲,u̲,e̲,a̲,o̲/*, marked by (non-IPA) underlining, which are phonologically unspecified for orality or nasality.

The basic consonantal phonemes are */p,pʷ,t,k,kʷ,ʔ,m,n,ŋ,j,w,ts,z,ɣ,h,l,r/*.[2] Besides these, a small group of more abstract underspecified phonemes is postulated due to neutralizations. In particular, the contrast between the simple stops and their nasal counterparts (*p : m*, *t : n*, *k : ŋ*) is neutralized in the coda, giving rise to the archiphonemes */P,T,K/*, which harmonize with the nasality or orality of the preceding vowel (see section 6).[3]

At the beginning of certain (in particular, modal and nominalizing) suffixes, there is an abstract consonantal phoneme */°/*.[4] After *[m,n,ŋ]* (that is, after */P,T,K/* following nasal vowels), it is realized phonetically as a homorganic oral stop *[p,t,k]* and analogically as *[t]* after *[j]* or as *[p]* after *[w]*. If */°/* occurs after *[p,t,k]* (that is, after */P,T,K/* following oral vowels), it inhibits lenition (to *[β,ɾ,ɣ]*, respectively, as would happen before vowels). This can also be interpreted as realization of */°/* as a homorganic oral stop *[p,t,k]*, with subsequent deletion of one segment of the resulting sequence of two identical segments (there are no phonetic geminates or long segments in Awetí).[5] For instance: */t+úP+°u/* > *[ˈt+up+pu]* > *[ˈtupu]* 'to stay', cf. (21).

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[2] The status of */pʷ,kʷ,ɣ,h/* as basic consonantal phonological units is debatable. The phonetic realization is made explicit in all examples.

[3] The abstract (underspecified) archiphoneme */P/*, for instance, contains only the property "bilabial". Depending on the environment, it is realized after oral vowels as *[p̄]* (before pause or oral stops) or *[β]* (before vowels, "lenition"), and as *[m]* after nasal vowels or before nasal consonants.

[4] As common for more abstract phonemes, there is no IPA symbol for this segment. We use a small raised circle. The segment contains only the properties "oral" and "stop/plosive".

[5] Not relevant for the current study, there is also the first segment of the sentence-final particle *[mɛ]* ~ *[nɛ]* ~ *[ŋɛ]* ~ *[ɲɛ̃]* ~ *[w̃ɛ̃]* which adopts properties such as its place of articulation from the preceding segment, which in turn is always nasalized before this particle. Phonologically, we propose an abstract underspecified consonantal nasal segment */N/*, restricted to this very frequently used particle.

The skeleton (1) shows the main positions for the basic disyllabic as well as for monosyllabic and trisyllabic stems, where brackets indicate that consonants are optional in all slots. The abstract schemata below in (10), (12), (14), (18), (24), (28), (31), and (33) refer to these skeleton structures.

(1) $[C_1]\ V_1\ [C_2]\ V_2\ [C_3]$ – $[C_1]\ V_2\ [C_3]$ – $[C_1]\ V_1\ [C_2]\ V_1\ [C_2]\ V_2\ [C_3]$

With respect to the positions in (1), the Awetí vowels distribute as indicated in (2), and the consonants as in (3).

(2) Distribution of vowels

V_1							*ĩ*	*ɨ̃*	*ũ*	*ẽ*	*ã*	*õ*	*i̱*	*ɨ̱*	*u̱*	*e̱*	*a̱*	*o̱*	*ɨ̱*
V_2	*i*	*ɨ*	*u*	*e*	*a*	*o*	*ĩ*	*ɨ̃*	*ũ*	*ẽ*	*ã*	*õ*							

(3) Distribution of consonants

C_1	*p*	*pʷ*	*t*	*k*	*kʷ*	*ʔ*	*m*	*n*		*j*	*w*	*ts*			*h*	*l*			*N*
C_2	*p*	*pʷ*	*t*	*k*	*kʷ*	*ʔ*	*m*	*n*	*ŋ*	*j*	*w*	*ts*	*z*	*ɣ*	*h*	*l*	*r*	*°*	
C_3										*j*	*w*						*P*	*T*	*K*

As shown in (1), monosyllabic morphemes have a skeleton where the part V_1C_2 of the prototypical disyllabic morphemes is omitted, and skeletons for morphemes with more than two syllables are formed by repeating this very part.[6] Skeletons for prefixes do never contain C_3 and usually not V_2, and those for suffixes do not contain the slot C_1. Note that */°/* is restricted to suffixes.

The picture can be complicated, if rarely, by occurrence of glides between positions of the skeleton (1). In particular, */j/*, more rarely */w/,* may appear between V_1 and C_2. (cf. *ʔa̱jpók* 'return', *kuja̱wká* 'toucan sp.', *mi̱wãjpé* 'necklace'). These, as occurrences of *[j]* or *[w]* immediately after consonants C_1 or C_2 may often be explicable as results of (lexicalized) compositions and/or of resyllabifications of an underlying or older */i,e/* or */u,o/* (e.g., */pia/* > *[pja]* 'wide', cf. */o+to+°aw/* > *[otwaw]* 'by his going'), or by similar processes.

Awetí words are usually stressed on the last syllable of the stem (Drude to appear-b). There are, however, a few paroxytonic stems with, so to say, an additional

[6] That means, as to vowels, Awetí distinguishes only between those in morpheme-final syllables (V_2), even in monosyllabic stems, and those in morpheme-pre-final syllables (V_1), including the first syllable.

final unstressed syllable (see section 5). Only a few suffixes, mostly derivational ones, attract lexical stress. In this study, stress is marked by an acute accent over the vowel of the stressed syllable in the phonological representations.

2 Relevant morphological facts and terms

As far as verb forms are concerned, Awetí is a moderately agglutinating language. Typical verb forms of simple (not derived) verbs contain three or four, maximally five morphs. For the ease of the reader, the morphs of verb forms in the text are separated by a middle dot "·" (e.g., "*tok·tóK·e̱·tu*"). Mostly not more than one derivational affix is present in any given verb form. The principal morphological positions or "slots" of an Awetí verb form are shown in (4).

(4) person- voice- causative- STEM -derivative -aspect -mood

Awetí verb forms contain at most one person prefix; in the case of transitive verbs this can be a prefix referring to the subject or a prefix referring to the object.[7] The voice prefixes include *te̱-* 'reflexive' and *to̱-* 'reciprocal'; the same slot may be occupied by incorporated nouns instead. A causative (i.e., derivational) prefix like *mo̱-* 'causative' or *((z)e̱)z(o̱)-* 'concomitative causative' may occur before an active intransitive stem. With other stems, derivational affixes immediately follow it, for instance *-ʔáT* 'resultative' or *-ká* 'causative' (both with stative verbs) or *–ᵒukáT* 'causative' (with transitive verbs). Many verb forms show one of the two aspect suffixes *-ju* or *–zo̱ko* (see below). Finally, many moods, most of them used for subordination, are marked by a suffix occurring at the very end of the main verb. One of these, *-tu* (see below) is frequently used in this paper.[8] Other verbal categories such as "factuality" categories (including "future") may be marked by means of particles.[9]

Following tradition, I take *"inflection"* to denote the morphological marking (usually by means of affixes) of different forms that belong to the same word paradigm; all inflected forms of a word share the same lexical meaning (but belong to different functional categories, or have different "morpho-syntactic features"). By

[7] If not explicitly indicated otherwise, all person prefixes in the examples refer to the subject.
[8] Also the negative suffix *-(i)ka* appears in the final slot.
[9] The morphological structure of nouns is much simpler, except for de-verbal nouns. These latter show the same structure as in (4), including the slot for person prefixes and aspect suffixes. The nominalizing affixes occur in the voice or mood slots.

"derivation", in turn, I understand a morphological process that produces new lexical words from underlying simpler words with a different but related lexical meaning.[10] Inflection tends to be more regular and to apply to all words of a given class while derivation may be more idiosyncratic, irregularly applying to some but not all words and yielding non-transparent lexicalized meanings.[11]

By the notion *"stem"* (of a word) I here understand a morph or sequence of morphs which carries the lexical meaning of the word and which serves as a basis for adding one or several inflectional affixes (yielding complete inflected forms of the word), and/or as a basis for derivation or composition. That is, stems may be combined with derivational affixes or other stems. The result of adding a derivational affix to an "original" stem is again a stem: the stem of a derived word.

For the purposes of this paper, we focus on certain inflected forms of verbs which have, in particular, certain affixes that are useful for identifying morpheme boundaries. These forms are: the absolute form (5) which is the citation form used to refer to the verb itself; the imperfective forms (6), meaning: 'to do ... as a habit', or 'to be about to do ...'; and the progressive forms (7), general meaning: 'to be doing ...', with stative verbs possibly also 'to become ...'.

(5) a. Suffixes and their allomorphs in absolute verb forms: *-tu/-ᵒu* 'ABS',[12] *-zã/-ã*[13]

Stem ends in: / Verb type:	vowel	consonant
active	*-tu*	*-ᵒu*
stative	*-zã-tu*	*-ã-tu*

[10] In fact, "process" is just a handy metaphor. In declarative terms, derivation is a systematic relation between different lexical words where the forms and lexical meaning of one (derived) word can be described in terms of morphological and semantic functions applying to the other (underlying) word.
[11] There may be borderline cases which are difficult to assign (such as the passive or the comparative and superlative in Germanic languages, where good arguments for both analyses can be given), in particular due to grammaticalization. But this does not invalidate the distinction *per se*.
[12] Abbreviations used: 1: first person; 3: third person; ABS: absolute; AGNR: agent nominalizer; CAUS: causative; COCAUS: concomitative-causative; COMPL: completive; EXCL: (plural) exclusive; INCL: (plural) inclusive; IPFV: imperfective; OBJ: object; PROG: progressive; RECP: reciprocal; REFL: reflexive; RESULT: resultative; SUB: subjunctive; SUBJ: subject; TV: thematic vowel.
[13] The element *-zã/-ã*, with empty lexical/functional semantics, is glossed ZĀ. See below section 6.

b. Prefixes and their allomorphs in absolute verb forms: *t-* 'ABS',[14] *n-/nã-*[15]

Stem begins with: Verb type:	vowel	consonant
transitive active	*n-*	*nã-*
intransitive active & stative	*t-*	—[16]

(6) Allomorphs of the imperfective suffix *-zo̲ko/-o̲ko/-e̲zo̲ko* 'IPFV'

Stem ends in: Verb type:	vowel	*/T/*[17]	other consonants
active	*-zo̲ko*	*-zo̲ko*	*-o̲ko*
stative	*-zo̲ko*	*-e̲zo̲ko*	*-e̲zo̲ko*

(7) Allomorphs of the progressive suffix *-ju/-°e̲ju/-e̲ju* 'PROG'

Stem ends in: Verb type:	vowel	*/T,j/*	other consonants
active	*-ju*	*-ju*	*-°e̲ju*
stative	*-ju*	*-e̲ju*	*-e̲ju*

Henceforth we refer to the suffixes above as *-tu*, *-zo̲ko* and *-ju*, respectively. In the text, verbs are cited by their absolute form, with the affixes in (5).

For the finite forms, i.e., the (unmarked) perfective, the imperfective and the progressive, the examples given show mostly third person forms.[18] The third person prefixes, glossed "3", are *o̲-* (resyllabified as *[w]* before certain vowels) for active intransitive verbs, *we̲j-* for transitive verbs, and for stative verbs *i̲-* (before consonants) or *t-* (before vowels). The patterns of RED do not vary with other person categories. Note that singular and plural are not distinguished in third person Awetí verb forms. In the free translations, we usually use "he" or "him" ("it" for inanimate entities), but

[14] The elements *t-* and *-tu/-°u* in intransitive verbs can be seen as parts of a circumfix 'ABS'.
[15] In absolute forms, this 3rd person object prefix could also be glossed as 'ABS' and/or be analyzed as part of a circumfix. Note that Awetí women use *t-* or *i̲-* instead. See Drude (2002).
[16] There is no prefix in absolute forms of consonant-initial intransitive verbs, but a stem-initial */p/* changes to */m/*.
[17] After oral vowels, */T/* is phonetically deleted before *-z̲o̲ko*. After nasal vowels, */T/* surfaces as *[n]* which apparently behaves as any other consonant: the suffix seems to be just *-o̲ko*. However, phonologically we postulate */...T-z.../* in both cases. The apparent idiosyncrasies arise on the phonetic level by the rules of solving sequences of homorganic consonants: *[...tz̲...]* > *[...z̲...]*; *[...nz̲...]* > *[...n...]*.
[18] There is no singular–plural distinction for Awetí verb forms in the third person.

in fact all third person pronouns could be used: "he/she/it/they" or "him/her/it/them".

All forms presented here are unmarked for tense, that is, they belong to the non-future category. In the free translations, in particular of perfective forms (forms unmarked for aspect), we usually choose past tense because this reflects the perfective meaning and is the unmarked translation given by Awetí speakers.

3 General properties and semantics of reduplication in Awetí

In Awetí, reduplication as a productive regular morphological process occurs only with verbs.[19] Generally, the input for RED is a verb stem, not including inflectional affixes.[20] In many cases, the input may consist of a stem formed by derivation (that is, the derivational affix, such as a valence changing affix, is reduplicated together with the original simple stem); but this does not work with all affixes or with all stems (see section 8).

The formal properties of RED in Awetí are summarized in (8).[21] They are all extensively described and exemplified in the following sections. For quick orientation, some examples (only stems, not entire inflected word forms) are also given in (8).

[19] Some reciprocal forms of postpositions (with adverbial function in the sentence) also may show reduplication. Consider for instance the postposition *... ʔɨ̃wo* 'together with ..., accompanying ...':
nã-ʔɨ̃wo o-to ko tsoa — 3-with 3-go field to — 'He went to the field together with her, accompanying her.'
o̱-to̱-ʔɨ̃wo o-to ko tsoa — 3-RECP-with 3-go field to — 'They went to the field together, one with another.'
o̱-to̱-ʔɨ̃wo~ʔɨ̃wo o-to ko tsoa — 3-RECP-with~with 3-go field to — 'They (all) went to the field(s) accompanied, in pairs or groups (everyone with someone else).'
Also, there is the isolated case (semantically similar to the previous example) of *mo̱mo-zo̱-tsu-puT~tsu-púT*, 'all and each on their own, one by one', which is related to the adverb *mo̱mo-zo̱-tsu-púT* 'one by one' by reduplication of the last two morphs. These appear elsewhere as a postposition *tsú* 'like' and as a nominal suffix *púT* 'former' ("nominal past"). Both seem to be a lexicalized derivation from the numeral *mo̱mo-zo̱-tsú* 'one', which in turn may historically be related to *mo̱mó* 'other/another'.
Finally, idiophones frequently show repetition, which is not in the scope of this paper.

[20] In contrast, Rose (2007; 2005) observes that in Tupí-Guaraní languages (parts of) person prefixes can be included in the base and reduplicant in order to complete a two-syllabic reduplication pattern.

[21] RED has been assumed to be suffixing or "postfixing" in the analysis for all Tupian languages we are aware of (Jensen 1998, Rodrigues 1953, Seki 2000). But, in fact, as RED in Awetí is always full RED, it is almost impossible to decide which of the two tokens would be the "base" and which the "reduplicant". If only some but not all morphs of a stem are copied, these are often the first morphs, cf. (8b), which could be taken as evidence for prefixing RED in Awetí. Generally, we sympathize with "projection–linearization" approaches to RED which do not distinguish between a base and a reduplicant (affix). See, for instance, Raimy (2000), Halle (2008), Reiss & Simpson (2009). Thus we speak generally rather of the "left" and the "right hand copy" of the "input" (usually the stem of the original, non-reduplicated verb) instead of the "reduplicant" and the "base".

(8) a. Stems with final stress are completely copied, independently of their syllable structure (e.g. *tó > to~tó; ekó > ẹko~ekó; mọtó > mọto~mọtó*; see section 4);

b. Active verbs with stems ending in a consonant show a final additional unstressed *-ẹ* in the reduplicated form (e.g. *úT > uT~úT-ẹ; mɨzũK > mɨzũK~mɨzũK-ẹ*; see section 4); this does not hold for stative verbs (e.g. *tɨ́P > tɨP~tɨ́P; potɨ́j > potɨj~potɨ́j*; see section 7);

c. Stems with a final unstressed syllable do not copy the final parts *-ẹ* or *-ã* (after consonants; e.g. *tóK-ẹ > tok~tóK-ẹ; kãK-ã > kãK~kãK-ã*) or the final part *–zã* (after vowels; e.g. *kɨrʔã-zã > kɨrʔã~kɨrʔã-zã*); see section 5.

These formal properties make RED particularly interesting for identifying the stem of verbs and for the study of phonological processes of lenition and other allophony of final consonants, especially if combined with the morphophonological rule of stem-initial */p/–/m/* alternation (see section 6). The phenomena observed in this context support our analysis of morpheme-final archiphonemes */P,T,K/*. RED also sheds an interesting light on the internal morphological composition of verbs with stems which end in unstressed syllables (section 5). A similar situation holds for the allomorphs of certain valence-changing affixes (section 8).

In the terms given in the previous section, although highly productive[22] and formally regular, RED in Awetí is clearly not an inflectional but a derivational (word-formation) process. In other words, RED is used to obtain new lexical items (verbs) with meanings which are systematically related to the meaning of the original simple verb (with the non-reduplicated stem).

I have been unable to identify different semantic types of RED in Awetí which could also be distinguished by formal criteria; in particular, there is no semantic distinction between monosyllabic versus di- or multisyllabic reduplication. This is because there is only total / full, no partial RED in Awetí, independent of the number of syllables. Semantically, different effects of RED exist, but these are not correlated with formal distinctions. There are only restrictions to lexical verb classes (transitive vs. active intransitive vs. stative verbs), which in turn reflect semantic differences (stative verbs mostly denote properties).

[22] We have not found any example of a verb which would not permit reduplication.

The main lexical-semantic effects of RED are those listed in (9), ordered (impressionistically) by importance or frequency. The most frequent effects (9a,b,c) are related to pluractionality. Often several of these effects occur in combination [e.g. (13), (69)], or the meaning of the resulting verb varies [e.g. (11), (15)], applying one or another semantic effect. This is illustrated by examples in the following sections; at least one example each is indicated in (9).

(9) a. The action/event happens repeatedly (several times, simultaneously or in sequence) (15) (30) (47);
b. There are several subjects of the action/event, simultaneously or not (in particular with intransitive verbs) (25) (30) (35);
c. With transitive verbs: the action/event happens with respect to several objects (17) (63). Sometimes there is an additional distributive meaning component (17) (58). In the case of ditransitive verbs, plurality may concern the recipient / benefactive (15);
d. With stative verbs (property concepts): attenuation, that is, the property does not hold fully, but rather "more or less" (51);
e. The action/event involves several different directions (mostly with verbs of motion) (13) (25) (45);
f. Several other somewhat less frequent meaning components are partly lexicalized: lack of control (13) (23); — "little-by-little" (37) (69); — inchoative ('is beginning to...') (13) (69); — lack of reason or purpose (19).

We now turn to describe and illustrate RED in more detail, starting with active verbs.

4 Reduplication with active verbs: basic patterns

As there is no Awetí verb with a stem consisting of only one phoneme. One of the simplest patterns for verb stems is C_1V_2.[23] As for all cases of RED with vowel-final stems with stress on the last syllable, the reduplicated verb has just two complete copies of the input, the original stem. Thus, pattern (10) holds for a C_1V_2 stem.

[23] The indices refer to the skeletons (1) and the explanatory criteria in (2) and (3) discussed in section 1. For the pattern V_2C_3, see (24), below.

(10) C_1V_2 > C_1V_2~C_1V_2

Consider for instance the verb *tó·tu*[24] 'to go, to leave' (stem: *tó*) and its reduplicated counterpart *to·tó·tu* which has two meanings: 'to flee' (of many, typically in different directions) and 'to wander' (as of a small child). We show the simple (third person) perfective form in (11a,c) and the absolute citation form in (11b,d) for both verbs. In all examples we show a phonetic representation in the first line and a phonological representation in the second line.[25] The morphs are glossed in the third line, and free translations are given in the fourth and possibly a fifth line.

(11)	a. *[ɔˈtɔ]*	b. *[ˈtɔtu]*	c. *[ɔtɔˈtɔ]*	d. *[tɔˈtɔtu]*
	/o̱-tó/	*/tó-tu/*	*/o̱-to~tó/*	*/to~tó-tu/*
	3-go	go-ABS	3-go~go	go~go-ABS
	'He went.'	'to go'	'They fled.'	'to flee (many) /
			'(The child) wandered.'	to wander'

Similarly, pattern (12) holds for disyllabic stems with final stress and beginning and ending in a vowel. Again, the whole stem is copied without further modifications.

(12) $V_1C_2V_2$ > $V_1C_2V_2$~$V_1C_2V_2$

Consider the verb *t·e̱kó·tu* 'to walk' and its reduplicated counterpart *t·e̱ko·e̱kó·tu* with the meaning 'to begin to walk' (typically stumbling, trying again and again, as of a toddler, also 'walking around without a clear direction'), exemplified in (13).

(13)	a. *wɛˈkɔ*	c. *wɛˌkɔɛˈkɔ*
	o̱-ekó	*o̱-e̱ko~ekó*
	3-walk	3-walk~walk
	'He walked.'	'(The child) began to walk (stumbling).'

[24] For the absolute forms of verbs used as citation forms see section 2.

[25] The phonological representation indicates morpheme boundaries by hyphens or, between the two copies in reduplicated forms, the tilde "~". In (11), we indicate the phonetic/phonological status by brackets and slashes, respectively. We will not do so in the rest of this study. Awetí forms in italics in the text are always phonological if not marked by brackets.

Also consonant-initial and vowel-final disyllabic stems with final stress are completely reduplicated, see pattern (14).

(14) $C_1V_1C_2V_2$ > $C_1V_1C_2V_2$~$C_1V_1C_2V_2$

For instance, consider the transitive verb *nã·mọtó·tu* 'to give' and its reduplicated counterpart *nã·mọto·mọtó·tu* meaning 'to give repeatedly' or 'to give to several people, to distribute'. We only show the finite forms for these words in (15), adding a further verb derived from the reduplicated verb *nã·mọto·mọtó·tu* by means of the completive suffix *-wã*.

(15)	a. *ˌwɛ̃ɲməˈtə*	b. *ˌwɛ̃ɲməˌtəməˈtə*	c. *ˌwɛ̃ɲməˌtəmətəˈwã*
	wẹj-mọtó	*wẹj-mọto~mọtó*	*wẹj-mọto~mọto-wã*
	3-give	3-give~give	3-give~give-COMPL
	'He gave it.'	'He gave repeatedly.'	'He gave it all, repeatedly.'
		'He gave to several people.'	'He gave it all to several people'

In the case of transitive verbs the stem of which starts with a vowel, forms with subject-agreement exhibit an additional /t/ between the person prefix and the stem proper. In principle, three analyses are possible for this /t/: (a) it is part of the stem (that is, the stem has an allomorph with an additional segment /t/ which occurs after subject person prefixes); (b) it is part of the prefix (that is, the subject prefixes have allomorphs with a final segment /t/ occurring immediately before vowel-initial stems); (c) it is a morph by itself, for instance a generic object marker.[26] The three possibilities are illustrated in (16), together with an object-centered form of the same verb *n·ạtĩ·tu* 'to tie'.

(16)	a. *wɛ̃ɲtãˈntĩ*			b. *kãɲãˈntĩ*
	wẹj-tạtĩ	*wẹjt-ạtĩ*	*wẹj-t-ạtĩ*	*kạj-ạtĩ*
	3.SUBJ-tie	3.SUBJ-tie	3.SUBJ-OBJ?-tie	1.INCL.OBJ-tie
	'He tied it.'			'[Someone] tied you and me.'

[26] It is quite possible that the /t/ is at least historically related to the third person prefix of stative verbs (and of nouns, in the female variety of Awetí, cf. Drude 2002).

An argument against hypothesis (a) is provided by RED data: the /t/ is not reduplicated, which suggests that it is not part of the stem. See the forms of the reduplicated verb *n·ą̇tĩ·ą̇tĩ·tu* 'to tie several, or at several places' in (17).[27]

(17)	a. *ˌwɛ̃ɲtãˌntĩãˈntĩ*	b. *ˌkãɲãˌntĩãˈntĩ*
	wɛ̨jt-ą̇tĩ~ą̇tĩ	*kɑ̨j-ą̇tĩ~ą̇tĩ*
	3.SUBJ-tie~tie	1.INCL.OBJ-tie~tie
	'He tied them all.'	'[Someone] tied everyone of us (including you).'
	'He tied it all over.'	'[Someone] tied us at many places.'

The pattern of RED identified so far, see (10), (12) and (14), changes slightly when the simple stem ends in a consonant. Also in this case the entire original simple stem is copied, but in addition there is now a final unstressed *-ɛ̨* in the reduplicated form, as illustrated by the simple finite forms of the verb *táK·ºu* 'to cry' and their reduplicated counterpart *taK·táK·ɛ̨·tu* 'to cry often (for no reason)' in (19). They exemplify the pattern for a consonant-initial monosyllabic stem, given in (18). Importantly, the *-ɛ̨* does not show up between the two copies of the stem, where it would phonotactically make sense (avoiding consonant encounters, as happens generally in Awetí morphology). So this *-ɛ̨* is evidently not a phonetic or phonological phenomenon.

(18) $C_1V_2C_3$ > $C_1V_2C_3$~$C_1V_2C_3$-ɛ̨

(19)	a. *ɔˈtak̃*	b. *ɔtak̃ˈtaɣɛ*
	o̜-táK	*o̜-taK~táK-ɛ̨*
	3-cry	3-cry~cry-TV
	'He cried.'	'He cried often (for no reason).'

We gloss this final *-ɛ̨* as 'thematic vowel' ("TV").[28] It does not seem to have a proper meaning, neither lexical nor functional, being comparable to thematic vowels or composition junctures in other languages. Still, it seems to have morphological status, being part of the stem derived by RED. Note, for instance, that the *-ɛ̨* is not omitted

[27] The morpheme breaks in (17a) follow analysis (b). Still, the other options are not completely refuted, not even (a); see footnote 44.
[28] Despite the label, we assume thematic vowels to be morphs, similar to "epenthetic interfixes" in composition (cf. the German *Fugenmorphem*, or the French *e muet*).

before inflectional suffixes, which appear in their post-vowel allomorph. Consider for example the imperfective forms with the suffix *-zǫ̣ko* (compare (6), above), given in (20).[29]

(20)	a. *ɔˈtaɣɔkɔ*	b. *ɔtaǩˈtaɣɛzǫ̣kɔ*
	ǫ̣-táK-ǫ̣ko	*ǫ̣-taK~táK-ę̣-zǫ̣ko*
	3-cry-IPFV	3-cry~cry-TV-IPFV
	‘He used to cry.’	‘He used to cry frequently (for no reason).’
	‘He is about to cry.’	

Also before the mood suffixes, the morph *-ę̣* is obligatory in the reduplicated verbs. This is illustrated by the two citation forms given in (21). Again, the absolute suffix *-tu/-°u* appears in its post-vowel allomorph *-tu* in the reduplicated verb.

(21)	a. *ˈtaku*	b. *taǩˈtaɣɛtu*
	táK-°u	*taK~táK-ę̣-tu*
	cry-ABS	cry~cry-TV-ABS
	‘to cry’	‘to cry repeatedly (for no reason)’

The thematic vowel *-ę̣* which appears after consonant-final reduplicated stems of active verbs must not be confused with the */°ę̣/* which occurs at the beginning of the aspect suffix *-ju* in its post-consonantal allomorph *-°ę̣ju*, see (7). In the first place, the progressive suffix allomorph contains the initial abstract consonant */°/* which inhibits lenition of final stops. In the second place, it attracts word accent. Both properties are illustrated in (22a), in contrast to (22b)[30] [and also to (19b), (20b) and (21b)].

(22)	a. *ɔtaˈkɛju*	b. *ɔtaǩˈtaɣɛju*
	ǫ̣-taK-°éju	*ǫ̣-taK~táK-ę̣-ju*
	3-cry-PROG	3-cry~cry-TV-PROG
	‘He was crying.’	‘He was crying repeatedly (for no reason).’

[29] Note that the second possible semantic interpretation of the imperfective, “to be about to …”, is not possible, or much less common, with reduplicated verbs.
[30] (22b) is hypothetical; it has not been elicited and might be odd for semantic reasons.

On the other hand, the */ᵒe̱/* in *-ᵒe̱ju* does not occur with a stem ending in */T/*, where the progressive suffix appears in its shorter form *-ju*, phonetically fusing with the stem (by regular deletion of the first segment of a sequence of two homorganic consonants). Compare the perfective and progressive forms of the verbs *téT·ᵒu [ˈtɛtu]* 'to sleep' and *teT·téT·e̱·tu [tɛˈtɛrɛtu]* 'to sneeze repeatedly' (as of someone who is really sleepy – e.g., during a journey in a hot vehicle – and can't help sleeping, if for instances), in (23).

(23)

a. *ɔˈtɛt̄*	b. *ɔtɛˈtɛrɛ*
o̱-téT	*o̱-teT~téT-e̱*
3-sleep	3-sleep~sleep-TV
'He slept.'	'He sneezed repeatedly.'

c. *ɔˈtɛju*	d. *ɔtɛˈtɛrɛju*
o̱-téT-ju	*o̱-teT~téT-e̱-ju*
3-sleep-PROG	3-sleep~sleep-TV-PROG
'He was sleeping.'	'He was sneezing repeatedly.'

The pattern for vowel-initial stems also shows the thematic vowel. In the case of a monosyllabic consonant-final stem with skeleton V_2C_3 the pattern (24) holds.

(24) V_2C_3 > V_2C_3~V_2C_3-*e̱*

This pattern is illustrated below with forms of the verb *t·úT·ᵒu* 'to come' and *t·uT·úT·e̱·tu* 'to gather' (that is, for several to come, from different directions): in (25), with perfective forms, in (26), with imperfective forms, and in (27), for the absolute forms. [Here, V_2=*u* and C_3=*T*, compare (1) and explanations there.]

(25)

a. *ɔˈut̄*	b. *ɔuˈrurɛ*
o̱-úT	*o̱-uT~úT-e̱*
3-come	3-come~come-TV
'He came.'	'They gathered.'

(26) a. *ɔˈuzo̱kɔ*
o̱-úT-zo̱ko
3-come-IPFV
'He used to come.'
'He is about to come.'

b. *ɔuˈurɛzo̱kɔ*
o̱-uT~úT-e̱-zo̱ko
3-come~come-TV-IPFV
'They used to gather.'

(27) a. *ˈtutu*
t-úT-°u
ABS-come-ABS
'to come'

b. *tuˈurɛtu*
t-uT~úT-e̱-tu
ABS-come~come-TV-ABS
'to gather'

Other patterns could be added, such as those in (25) or others for stems with three or more syllables. Some of them will be illustrated below, see the references.

(28) a. $C_1V_1C_2V_2C_3$ > $C_1V_1C_2V_2C_3$~$C_1V_1C_2V_2C_3$-*e̱* (43)
b. $C_1V_1V_2C_3$ > $C_1V_1V_2C_3$~$C_1V_1V_2C_3$-*e̱* (45)
c. $V_1C_2V_2C_3$ > $V_1C_2V_2C_3$~$V_1C_2V_2C_3$-*e̱*

Interestingly, there is a small group of simple (not reduplicated) verbs which also have the thematic vowel *-e̱*, or an unstressed final element *-(z)ã*. These are discussed in the next section.

5 Reduplication with active verbs with a final unstressed syllable

With a small group of non-reduplicated paroxytonic verbs it is not immediately clear whether the final *-e̱* or *-(z)ã* is a part of the stem or not. Consider the verb *[ˈtəɣɛtu]* 'to tear' (of unidimensional, that is, thin longish objects such as threads, strings, lines, ropes etc.). Two characteristic forms and our analysis are given in (26).

(29) a. *ɔˈtəɣɛ*
o̱-tóK-e̱
3-tear-TV
'It tore.'

b. *ɔˈtəɣɛju*
o̱-tóK-e̱-ju
3-tear-TV-PROG
'It was tearing.'

Words like *[ˈtɔɣɛtu]* are phonologically suspicious – generally all Awetí words have lexical stress on the last syllable of the stem; exceptions involve known morphological processes. Also the phonetic segment *[ɣ]* generally occurs as an allophone of */K/*, which only occurs morpheme-finally. So is the phonological form *tóɣe̱-tu* or *tóK-e̱-tu*? Without the data from RED, we would not have a compelling reason for assuming a morphological boundary before the final */e̱/*, because there is no form of the verb *[ˈtɔɣɛtu]* without this */e̱/*.

In the reduplicated counterpart *[tɔk̃ˈtɔɣɛtu]* 'to tear (of many unidimensional objects, and/or several times, at several places)', the suspicious */e̱/* is not copied by the left hand copy, see (30a). The *[ɣ]* in the right hand copy corresponds to *[k̃]* in the left hand copy, pointing at */K/* (cf. footnote 3).[31]

(30)	a. *ɔtɔk̃ˈtɔɣɛ*	c. *ˈtɔɣɛtu*
	o̱-tok~tóK-e̱	*tóK-e̱-tu*
	3-tear~tear-TV	tear-TV-ABS
	'(The rope) tore at several places.'	'to tear (unidimensional)'
	'They (e.g., many ropes) tore.'	

We conclude that the */e̱/* is not part of the input of the RED process (neither of the "base", in terms of reduplication as affixation); the part of the original verb to be reduplicated consists of only the "proper" stem. Therefore, we can assume a morphological border before the */e̱/* not only in the complex word *tok·tóK·e̱·tu* but also in the simple verb *tóK·e̱·tu*. This indicates that the final *-e̱* is, again, a thematic vowel, already in the non-reduplicated word, see (29) (30b).[32] Thus pattern in (31) holds for RED in this case and in similar cases.

(31) $C_1V_2C_3$-e̱ > $C_1V_2C_3$~$C_1V_2C_3$-e̱

The alternative analysis would be to assume that the */e̱/* would be an integral part of the original stem and that RED copies only the segments of the input from the left up

[31] It is for that very reason that the phonological status of a putative phoneme /ɣ/ is dubious – it is needed only in cases where *[ɣ]* occurs without any morpheme boundary.
[32] In other words, the complete stem of all forms of *tóK·e̱·tu* consists of two morphs, the "proper" stem *tóK* and the thematic vowel *-e̱*, similar to many inflected verb forms in Romanic languages.

to the stressed vowel (V_2) and possibly a following consonant (C_3), disregarding subsequent unstressed vowels ($C_1V_2C_3\underline{e}$ > $C_1V_2C_3$~$C_1V_2C_3\underline{e}$). However, the additional -*e̲* is clearly a thematic vowel in the reduplicated words discussed in the previous section, and it seems to behave just the same way in the simple words that have it. Note that, except for */ã/* (see below), no other unstressed vowels exist in stem-final position, pointing again at a morphological, not phonological phenomenon. Therefore we do not adopt this analysis of partial RED.

The regular pattern (31) holds independently of number of syllables, although the thematic vowel -*e̲* seems to be more common with monosyllabic stems. Consider the example of *to̲róK·e̲·tu* 'to tear' (of bidimensional objects, that is, of cloth, nets, paper, etc.) and its reduplicated counterpart *to̲roK·to̲róK·e̲·tu* 'to tear (of many bidimensional objects, and/or several times, at several places)' in (32).

(32)	a. *ɔtɔˈɾəɣɛ*	b. *ɔtɔˌɾəʔ̃tɔˈɾəɣɛ*
	o̲-to̲róK-e̲	*o̲-to̲rok~to̲róK-e̲*
	3-tear-TV	3-tear~tear-TV
	'It (e.g., cloth) tore.'	'They (e.g., many nets) tore.'
		'It (e.g., the cloth) tore at several places.'

These forms exemplify the complete basic disyllabic pattern in (33).

(33) $C_1V_1C_2V_2C_3$-*e̲* > $C_1V_1C_2V_2C_3$~$C_1V_1C_2V_2C_3$-*e̲*

There is a second even smaller class of active verbs that have another final unstressed vowel, namely an */ã/* (an intrinsically nasal *[a]*) with similar properties as the */e̲/* discussed above. For phonological reasons a morphological boundary before that -*ã* is even more obvious than in the case of the thematic vowel -*e̲*: the nasality of the -*ã* in many cases does not spread to the proper stem, as would be expected if it were the last vowel of the stem.[33] Also, as we will see below, there is a variant of -*ã* after vowels, -*zã*, where the */z/* (a segment that cannot occur in position C_3) is also not included in the reduplication.

[33] Admittedly, this could be accounted for by postulating nasalization rules which refer to lexical stress, as they are known in Tupí-Guaraní languages with nasal harmony. In many cases, the stem is also nasal, which can be explained by lexicalization, where the morphological boundary tends to disappear.

Consider first the example of the intransitive verb *kãK·ã·tu [kˈãŋãntu]* ‘to dry’ in (34) and its reduplicated counterpart *kãK·kãK·ã·tu [kãŋkˈãŋãntu]* ‘to dry (of several)’ in (35).[34] The morph *-(z)ã* does not have a clearly identifiable meaning although formerly it might have been a derivational suffix that derived verbs from nouns (however, the relation of *kãK·ã·tu* ‘to dry’ to the noun *kãK [kãŋ]* ‘bone’ is hard to establish). For lack of a clear semantic / functional label, this morph is here glossed just as “ZÃ”.

(34)	a. *ɔ̃ˈŋkãŋã*	b. *ɔ̃ˈŋkãŋãɲũ*
	o̱-kãK-ã	*o̱-kãK-ã-ju*
	3-dry-ZÃ	3-dry-ZÃ-PROG
	‘It dried.’	‘It was drying.’

(35)	a. *ɔ̃ŋkãŋˈkãŋã*	b. *kãŋˈkãŋãntu*
	o̱-kãK~kãK-ã	*kãK~kãK-ã-tu*
	3-dry~dry-ZÃ	dry~dry-ZÃ-ABS
	‘Several/all dried.’	‘to dry (of many)’

For a monosyllabic vowel-final stem with an additional morph *-zã*, see the example with the stem *põ* ‘to be loaded, filled up (as of a canoe)’ and its reduplicated counterpart *põ·põ* meaning ‘(for many) to be loaded, filled up’ in (36).[35] Despite their semantics, these are active verbs.

(36)	a. *ɔ̃ˈmpɔ̃zo̱ã*	b. *ɔ̃mpɔ̃ˈmpɔ̃zo̱ã*
	o̱-pő-zã	*o̱-põ~pő-zã*
	3-be.full-ZÃ	3-be.full~be.full-ZÃ
	‘It was full.’	‘Several (e.g., boats) were filled up.’

A disyllabic example is *kɨrʔã·zã·tu* ‘to gain weight / be fat’ and the reduplicated *kɨrʔã·kɨrʔã·zã·tu* ‘to (begin to) gain weight (little by little)’ (as after a serious illness) in (37).[36]

[34] The stem *kãK* of this verb is intrinsically nasal. In section 7 on stative verbs there will be examples that illustrate that nasality of the morph *zã* does not spread to an oral stem.
[35] The citation forms of these verbs, *mő·zã·tu* and *mõ·mő·zã·tu*, will be explained in the following section.
[36] The morpheme-internal consonant encounter of */r/* and */ʔ/*, and the unexpected presence of an oral *[r]* after a nasalized vowel *[ĩ]* indicate that this stem might be a lexicalization of a morphological

Again, as the previous example, this is an active verb whose semantics is like that of a stative verb, denoting a property. (This may be related to the occurrence of *-(z)ã*.)

(37)	a. *õŋkɨ̃rˈʔãz̨ã*	b. *õŋkɨ̃r˛ʔãŋkɨ̃rˈʔãz̨ã*
	o̜-kɨrʔã-zã	*o̜-kɨrʔã~kɨrʔã-zã*
	3-be.fat-ZÃ	3-be.fat~be.fat-ZÃ
	‘He gained weight. / He was fat.’	‘He began to get weight, little by little.’

Finally, we give a disyllabic consonant-final example, *ʔatű́K·ã·tu* ‘to burn down’ and *ʔatũK·ʔatű́K·ã·tu* ‘to burn down (of several)’, in (38).

(38)	a. *õʔãˈntũŋã*	b. *õʔã˛ntũñʔãˈntũŋã*
	o̜-ʔatű́K-ã	*o̜-ʔatũK~ʔatű́K-ã*
	3-burn.down-ZÃ	3-burn.down~burn.down-ZÃ
	‘It burned down.’	‘Several (e.g., houses) burned down.’

In sum, verbs with the final unstressed morph *-(z)ã* reduplicate only the proper stem, without *-(z)ã*, as formulated in (39).

(39) STEM-*(z)ã* > STEM~STEM-*(z)ã*

Reduplication is not only a very useful criterion to identify the proper stem of verbs, separating it from additional thematic vowels or additional relic morphs. It also provides insights about the nature of the stem-final non-glide segments *[p,t,k,m,n,ŋ]* and about the nature of a stem-initial alternation of */m/* vs. */p/*, apparently a morpho-phonological process, as will be discussed in the next section.

6 Reduplication and the */p/–/m/* allomorphy and final consonants

Consider the verb *mɨ̨zũK·°u* ‘to stamp one’s foot’. All inflected forms contain the stem *pɨ̨zũK*, an allomorph which begins with */p/*, as shown in (40).

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complex construction. There are no nouns *kɨT* or *kɨrʔã* which could be related to this verb. No primary plurality meaning of the reduplication could be elicited for this verb.

(40)	a. *õmpɨˈʐũŋ*	b. *mɨˈʐũŋku*
	o̱-pɨ̱zũK	m*ɨ̱zũK-°u*
	3-stamp.foot	stamp.foot-ABS
	‘He stamped his foot.’	‘to stamp one’s foot’

In fact, showing an */m/* instead of a */p/* in the absolute form is a phenomenon not restricted to verbs (and also known from other Tupí languages, cf. Jenssen 1998, Seki 2000). Consider the nouns ‘foot’ and ‘costume, culture’ in an inflected (possessed) form (41a, 42a) and in the absolute form (41b, 42b).[37]

(41)	a. *iˈpɨ*	b. *ˈmɨ*
	i̱-pɨ́	*mɨ́*
	1-foot	foot
	‘my foot’	‘foot (general, of a person or animal)’

(42)	a. *ɔzo̱poˈɾɨwɨt̃*	b. *moˈɾɨwɨt̃*
	o̱zo̱-po̱ɾɨ́wyt	*mo̱ɾɨ́wyt*
	1.EXCL-culture	culture
	‘our (not your) culture’	‘(human) culture (in general)’

The following example (43), with a finite and the absolute form of the reduplicated verb *mɨ̱zũK·mɨ̱zɯ́K·e̱·tu* ‘to stamp ones foot repeatedly’ (often also by a group of people, as this activity is part of several rituals), shows that the process of changing the */p/* to */m/* is not just, say, a phonetic phenomenon which occurs word-initially. It shows also that the initial */m/* is not a prefix but an integral part of the stem, which happens to have two different allomorphs, one for all inflected forms and one for the absolute form. For building the absolute form of the reduplicated verb, RED takes the simple absolute stem allomorph *mɨ̱zũK* as its input.[38]

[37] Obviously, *pɨ/mɨ* ‘foot’ is also the first element in the lexicalized verb *mɨ̱zũK·°u* in (40).
[38] Thus, using a derivational morphological model where the two “processes” were to be ordered, we could say that the morphological *p/m* alternation occurs “earlier” than reduplication.

(43) a. *ɔ̃mpĩˌʐ̃ũŋpĩˈʐ̃ũŋɛ* b. *mĩˌʐ̃ũŋmĩˈʐ̃ũŋɛtu*

o̱-pɨzũK~pɨzṹK-e̱ *mɨzũK~mɨzṹK-e̱-tu*

3-stamp.foot~stamp.foot-TV stamp.foot~stamp.foot-TV-ABS

'He stamped his foot repeatedly.' 'to stamp one's foot repeatedly'

The *p/m* alternation is independent of the orality or nasality of the stem in question. The next example (44) shows *máP·°u* 'to end, to be over, to be used up', an intransitive verb with an oral stem, and its reduplicated counterpart *maP·máP·e̱·tu* 'to end (of several)'.

(44) a. *ɔˈpap̚* b. *ɔpaˈpaβɛ*

o̱-páP *o̱-paP~páP-e̱*

3-end 3-end~end-TV

'It ended, it is used up.' 'Several (e.g. peoples) ended.'

c. *ˈmapu* d. *maˈmaβetu*

máP-°u *maP~máP-e̱-tu*

end-ABS end~end-TV-ABS

'to end, to be used up' 'to end (plural subject)'

There are several interesting facts to be observed in (44). For one thing, it can again be seen that sequences of (homorganic) consonants at the morpheme boundary are phonetically reduced. More importantly, in a form like (44d) all vowels are phonetically oral, showing that inherently oral vowels V_2 are not nasalized even when in an unstressed position and before a phonetically nasal consonant. This is an important argument for inherently oral vowels. (Alternative analyses would assume only nasal and neutral vowels where the neutral vowels would be phonetically realized as oral "by default".)

Consider next *mo̱áT·°u* 'to cast' (e.g. an arrow), an intransitive verb where the stem-final consonant C_3 */T/* is not homorganic with the initial *p/m*, and its reduplicated counterpart *mo̱aT·mo̱áT·e̱·tu* 'to cast (several)' (e.g. arrows, typically in different directions, firing indiscriminately) in (45).

(45)	a. *ɔˈpwaɬ̄*	b. *ɔpwaɬ̄ˈpwarɛ*
	o̱-po̱áT	*o̱-po̱aT~po̱áT-e̱*
	3-cast	3-cast~cast-TV
	‘He casted [an arrow].’	‘He casted several [arrows].’
	c. *ˈmwatu*	d. *mwanˈmwarɛtu*
	mo̱áT-ᵒu	*mo̱aT~mo̱áT-e̱-tu*
	cast-ABS	cast~cast-TV-ABS
	‘to cast (e.g., an arrow)’	‘to cast (several arrows, in all directions)’

As can be seen, the final segment */T/* is phonetically not deleted in the reduplicated verb, at least not in slow speech (this is also reflected by the orthography: ⟨*opwatpware*⟩, ⟨*mwanmwaretu*⟩). But the phonetic outcome of */T/* varies – before the nasal consonant */m/*, it is realized as *[n]*, as part of the rules of nasal harmony. That means that *[n]* and *[t]* are not just in complementary distribution among different morphemes (*[n]* after nasal vowels, *[t]* after oral vowels) but actually vary in different forms of the same morpheme. The choice of the oral or nasal (or lenited, cf. (51), below) allophone of the final segments */P,T,K/*, is a phonetic process which takes the phonological forms (with absolute */m/*-initial or general */p/*-initial allomorphs) as its input. The outcome depends not only of the preceding vowel, but, as the reduplicated forms show, also of following consonants.

This behavior of */T/* is also a strong argument that phonetically nasal vowels in position V_2 [such as *[ũ]* in *[pɨ̃ˈzu̱ũŋ]* in (40)] are intrinsically nasal (*/pɨzũK/*) even before morpheme-final nasal segments *[m,n,ŋ]* and that the final consonants are indeed archiphonemes (unspecified for nasality or orality) as postulated in section 1. Alternative analyses could try to avoid abstract archiphonemes */P,T,K/* and propose phonetic nasalization of vowels V_2 before intrinsically nasal final consonants C_3, which would result in forms like */o̱-pɨzu̱ŋ/* (instead of */o̱-pɨzũK/*) and oral counterparts */po̱a̱t/* (instead of */po̱áT/*). But, in such an analysis, even if it could be explained why an intrinsically oral final */t/* would be nasalized in forms like (45d), why does nasality then not also spread to the preceding vowel [even not in (44d)]?

The following examples show the same phenomenon for verbs with a final */K/* and again a final */T/*, but in both cases with a thematic vowel *-e̱* already in the simple

verb: *móK·e̱·tu* ‘to burst’ and *moK·móK·e̱·tu* ‘to burst (of several, and/or at several places)’, in (46), and *móT·e̱·tu* ‘to jump’ and *moT·móT·e̱·tu* ‘to bounce, to jump repeatedly’, in (47). As an example for a bisyllabic stem, consider *mo̱kóK·e̱·tu* ‘to push, to jostle’ (another person) and *mo̱koK·mo̱kóK·e̱·tu*, ‘to push repeatedly’ (one another, tussling around) in (48).

(46)

a. *ɔˈpɔɣɛ*	b. *ɔpɔk̄ˈpɔɣɛ*
o̱-póK-e̱	*o̱-poK~póK-e̱*
3-burst-TV	3-burst~burst-TV
‘It bursted.’	‘Many bursted.’
	‘It bursted several times, at different places.’

c. ˈmɔɣɛtu	d. *mɔŋˈmɔɣɛtu*
móK-e̱-tu	*moK~móK-e̱-tu*
burst-tv-ABS	burst~burst-TV-ABS
‘to burst’	‘to burst (of several)’
	‘to burst (in several places)’

(47)

a. *ɔˈpɔrɛ*	b. *ɔpɔt̄ˈpɔrɛ*
o̱-pó̱T-e̱	*o̱-poT~póT-e̱*
3-jump-TV	3-jump~jump-TV
‘He jumped.’	‘He bounced (jumped around).’

c. *ˈmɔrɛtu*	d. *mɔnˈmɔrɛtu*
móT-e̱-tu	*moT~móT-e̱-tu*
jump-TV-ABS	jump~jump-TV-ABS
‘to jump’	‘to bounce (to jump repeatedly)’

(48)

a. *ɔpɔˈkɔɣɛ*	b. *ɔpɔˌkɔk̄pɔˈkɔɣɛ*
o̱-po̱kóK-e̱	*o̱- po̱koK~po̱kóK-e̱*
3-jostle-TV	3-jostle~jostle-TV
‘He jostled, pushed somebody.’	‘They tussled one another around.’

	c. *mɔˈkɔɣɛtu*	d. *mɔˌkɔŋmɔˈkɔɣɛtu*
	mo̱kóK-e̱-tu	*mo̱koK~mo̱kóK-e̱-tu*
	jostle-ABS	jostle~jostle-TV-ABS
	‘to push, to jostle somebody’	‘to tussle one another around’

In the preceding three sections 4, 5, and 6 we demonstrated the patterns of RED for active verbs (we mostly focused on intransitive active verbs). The next section more briefly discusses RED with another major class of verbs: stative verbs.

7 Reduplication with stative verbs

Stative verbs in Awetí (as in other Tupí languages) mainly express concepts which in many other languages are expressed by adjectives. They formally differ from active verbs by several morphological properties, especially with regard to person prefixes (Drude 2008). They also show obligatorily the thematic vowel *-e̱* before the aspectual suffixes (already recognized but not yet described by the concept of thematic vowel in Drude 2008; to appear-a). In the absence of aspectual suffixes, the element *-(z)ã* occurs before most modal suffixes (described as allomorphy of the suffixes in Drude to appear-a). Most relevant for this study is that stative verbs also show a different behavior with respect to the thematic vowel *-e̱* in the case of RED. These phenomena will be demonstrated and discussed in this section.

A typical stative verb in Awetí is *tɨ́P·ã·tu* ‘to be many’. We show in (49) the simple third person indicative perfective (unmarked), imperfective and progressive forms. As can be seen, forms of stative verbs with aspect suffixes show the thematic vowel *-e̱*, and the prefix for 3rd person is *i̱-* on a consonant-initial stative stem.

(49)	a. *iˈtɨβ̃*	b. *iˈtɨβɛzɔkɔ*	c. *itɨˈβɛju*
	i̱-tɨ́P	*i̱-tɨ́P-e̱-zo̱ko*	*i̱-tɨP-é̱-ju*[39]
	3-be.many	3-be.many-TV-IPFV	3-be.many-TV-PROG
	‘They are many.’	‘They are about to be many.’	‘They are becoming more.’

[39] Interestingly, the word accent in the progressive forms seems to fall on the syllable with the thematic vowel *-e̱*, or at least it varies between this syllable and the (expected) preceding syllable.

The use of an absolute form of stative verbs is not as obvious as in the case of active verbs (or nouns). Nevertheless, it can be regularly formed by adding the element *-(z)ã* to the bare stem, followed by the suffix *-tu* (50a). If the suffix *-tu* occurs after aspect suffixes, the element *-(z)ã* does not appear. We show in (50b) a finite form (subjunctive, used for subordination, also with a suffix *-tu*) because it has not yet been tested whether absolute forms with aspect markers exist for stative verbs.[40]

(50)	a. *ˈtɨβãntu*	b. *itɨˈβɛjutu*
	tɨ́P-ã-tu	*i̱-tɨP-é̱-ju-tu*
	be.many-ZÃ-ABS	3-be.many-TV-PROG-SUB
	‘to be many’	‘that they are becoming more and more’

Reduplication with stative verbs differs from RED with active verbs not only semantically (with stative verbs, RED has rather an attenuative effect) but also in that the perfective forms (unmarked for aspect) do not receive the thematic vowel *-e̱*. Besides this, the reduplicated stems behave just like other stems of stative verbs. We show in (51) a simple finite form and the absolute form of the reduplicated verb *tɨP·tɨ́P·ã·tu* ‘to be more or less many’.

(51)	a. *itɨp̄ˈtɨp̄*	b. *tɨp̄ˈtɨβãntu*
	i̱-tɨP~tɨ́P	*tɨP~tɨ́P-ã-tu*
	3-be.many~be.many	be.many~be.many-ZÃ-ABS
	‘They are relatively many.’	‘to be relatively many’

We illustrate RED with stative verbs further in (52) with the verbs *mo̱tɨ́j·ã·tu* ‘to be heavy’ and *mo̱tɨj·mo̱tɨ́j·ã·tu* ‘to be more or less heavy / to be a little heavy’, which both show *p/m* alternation.

(52)	a. *ipɔˈtɨj*	b. *ipɔˌtɨjpɔˈtɨj*
	i̱-po̱tɨ́j	*i̱-po̱tɨj~po̱tɨ́j*
	3-be.heavy	3-be.heavy~be.heavy
	‘It is heavy.’	‘It is a little heavy.’

[40] The expected forms would be *tɨP·é̱·zo̱ko·tu* and *tɨP·é̱·ju·tu*. We did not record these or the (attested) subjunctive form (50b) *i̱·tɨP·é̱·ju·tu*.

	c. *məˈtɨjãntu*	d. *məˌtɨjməˈtɨjãntu*
	mo̱tɨ́j-ã-tu	*mo̱tɨj~mo̱tɨ́j-ã-tu*
	be.heavy-ZÃ-ABS	be.heavy~be.heavy-ZÃ-ABS
	‘to be heavy’	‘to be relatively heavy’

Forms of *ta̱ʔóK·ã·tu* ‘to be angry’, a stative verb with a final */K/*, are illustrated in (53), with occurrence of the progressive suffix *-ju*.[41] According to some speakers, the reduplicated verb *ta̱ʔoK·ta̱ʔóK·ã·tu* has the (rather active) meaning ‘to quarrel (without good reason), to squabble’ instead of or in addition to ‘to be somewhat angry’.

(53)	a. *itaˈʔəʞ̄*	b. *itaˌʔəʞ̄taˈʔəʞ̄*
	i̱-ta̱ʔóK	*i̱-ta̱ʔoK~ta̱ʔóK*
	3-be.angry	3-be.angry~be.angry
	‘He was angry.’	‘He quarreled, squabbled.’
	c. *itaˈʔəɣɛju*	d. *itaˌʔəʞ̄taˈʔəɣɛju*
	i̱-ta̱ʔóK-e̱-ju	*i̱-ta̱ʔoK-ta̱ʔóK-e̱-ju*
	3-be.angry-TV-PROG	3-be.angry~be.angry-TV-PROG
	‘He was getting angry.’	‘He was quarreling.’

The final example (54) shows, again, a *p/m* initial stem with a lexicalized meaning for the derived word (by RED): *ma̱tẽP·ã·tu* means ‘to be afraid, to fear’, while *ma̱tẽP·ma̱tẽP·ã·tu* means ‘to be a little afraid’, usually translated more specifically as ‘to be careful’.

(54)	a. *ĩmpãˈntɛ̃m*	b. *ĩmpãˌntɛ̃mpãˈntɛ̃m*	c. *ĩmpãˌntɛ̃mpãˈntɛ̃mɨtu*
	i̱-pa̱tẽP	*i̱-pa̱tẽP~pa̱tẽP*	*i̱-pa̱tẽP~pa̱tẽP-i̱tu*
	3-be.afraid	3-be.afraid~be.afraid	AGNR-be.afraid~be.afraid-AGNR
	‘He is afraid.’	‘He is careful.’	‘a careful one’
		‘He is a little afraid.’	‘an (always) little afraid one’

[41] Unfortunately, no audio recording of the form *[itaˌʔəʞ̄taˈʔəɣɛju]* has been made.

Example (51c) shows a de-verbal noun. This illustrates that reduplicated stems can, in turn, serve as a basis for further derivation, here with the agent nominalizer (AGNR) *i/t-...-(y)tu*.[42] This leads us directly to the last major topic of this study: the behavior of complex stems with RED.

8 The morphological domain of reduplication

So far we have seen reduplication applied only to a morphologically simple ("underlying" or "proper") stem. No inflectional affixes are included in RED in Awetí, not even the thematic vowel *-e̱* or the morph *-zã*, both arguably part of the complete stem of the verb. This poses the question of the morphological domain of RED – the behavior of complex (derived and composed) stems with respect to RED. Are there any morphs that can be reduplicated together with the stem, and what does this possibly reveal about the nature of these morphs?

The causative prefixes *mo̱-* and *((z)e̱)z(o̱)-* briefly mentioned in section 2 are examples for derivative affixes which are reduplicated together with the original stem.[43] Both derive transitive from active intransitive verbs. If the semantics of the the simple intransitive verb is an action or process A by an agent or other subject X 'X does A', then the causative prefix *mo̱-* derives transitive verbs with a meaning 'Y causes X to do A'. Consider (55) and (56) which involve the simple verbs *ʔãP·ᵒu [ʔãˈmpu]* 'to rise, to get up' and *kúj·e̱·tu* 'to fall down'.

(55)	a. *ɔ̃ˈʔãm*	b. *wɛ̃ŋmɔ̃ˈʔãm*	c. *wɛ̃ŋmɔ̃,ʔãmɔ̃ˈʔãmɛ*
	o̱-ʔãP	*wej-mo̱-ʔãP*	*wej-mo̱-ʔãP~mo̱-ʔãP-e̱*
	3-stand.up	3-CAUS-stand.up	3-CAUS-stand.up~CAUS-stand.up-TV
	'He stood up.'	'He rose (someone) up.'	'He raised several (people) up.'

(56)	a. *ɔˈkujɛ*	b. *wɛ̃ŋmɔˈkujɛ*	c. *wɛ̃ŋmɔ,kujmɔˈkujɛ*
	o̱-kúj-e̱	*wej-mo̱-kúj-e̱*	*wej-mo̱-kuj~mo̱-kúj-e̱*
	3-fall-TV	3-CAUS-fall-TV	3-CAUS-fall~CAUS-fall-TV
	'He fell down.'	'He dropped (something).'	'He let several (things) fall down.'

[42] This is a circumfix the first part of which is, again, formally identical with the third person prefix of stative verbs.
[43] In other words, the complete stem of the derived (transitive) verb is reduplicated, not only the stem of the underlying intransitive verb.

The concomitative-causativizer *((z)ẹ)z(o̱)-* is the Awetí affix with the most intriguing allomorphic variation known so far. Its allomorphs vary depending on the segment (consonant or vowel) that follows it, and also according to the preceding person prefix (subject-marking or object-marking), as is summarized in (57).

(57) Allomorphs of *((z)ẹ)z(o̱)-*

Following segment: / Person prefix:	consonant	vowel
subject marking	*zo̱-*	*zẹz-*
object marking	*ẹzo̱-*	*ẹz-*

The meaning effect of this derivational prefix can be summarized as follows. If the meaning of the original intransitive verb is 'X does A', then the meaning of the derived transitive verb is 'X does A and causes Y to participate in the same action A (together with X)'.

In RED, the prefix *((z)ẹ)z(o̱)-* is copied with the root. Interestingly, the right hand copy of the RED always contains the allomorph used for object-marking prefixes, even in subject-centred forms. The form of the prefix in the left hand copy depends on the prefix type, as in the simple verb. This is illustrated in (58) for the verb *n·ẹzo̱·tó·tu* 'to take [(sth.) with oneself]', derived from the very common Awetí verb *tó·tu* 'to go / leave' with the consonant-initial stem *tó* [cf. (11), above].

(58) a. *wɛjzo̱ˈtɔ*
wẹj-zo̱-tó
3-COCAUS-go
'He$_i$ took it with himself$_i$'

b. *itɛzo̱ˈtɔ*
i̱t-ẹzo̱-tó
1.OBJ-COCAUS-go
'He$_i$ took me with himself$_i$'

c. *wɛjzo̱ˌtɔɛzo̱ˈtɔ*
wẹj-zo̱-to~ẹzo̱-tó
3-COCAUS-go~COCAUS-go
'He$_i$ took each of many things with himself$_i$'

It seems odd that the reduplicated form is not just **wej·zo̱·to·zo̱·tó*, simply copying the prefix allomorph *zo̱-* as it occurs in the non-reduplicated verb, together with the original stem *tó*. In terms of a sequence of processes, it might be suggested that the allomorph *e̱zo̱-* is the "default" or "underlying" one in this case, from which *zo̱-* is derived by elision of the initial */e̱/*. The choice of the allomorph in the left hand copy is then something which would happen "later" than RED.

The same happens with vowel-initial stems: the right hand copy in the reduplicated form presents the allomorph of the prefix which usually occurs after object-marking prefixes. Compare the examples in (59), completely analogous to the forms in (58), but now with forms of *n·e̱z·úT°u* 'to bring', derived from the simple verb *t·úT·°u [ˈtutu]* 'to come' (stem: *úT*).

(59) a. *wɛjzɛ̰ˈzu̞ɾ̄*
wej-ze̱z-úT
3-COCAUS-come
'He$_i$ brought (sth.) [with himself$_i$].'

b. *itɛˈzu̞ɾ̄*
i̱t-e̱z-úT
1.OBJ-COCAUS-come
'He$_i$ brought me [with himself$_i$]'

c. *wɛjzɛ̰ˌzu̞ɾɛzɛ̰ˈzu̞ɾɛ*
wej-ze̱z-uT~e̱z-úT-e̱
3-COCAUS-come~COCAUS-come-TV
'He$_i$ brought each of many things [with himself$_i$].'

In this case, the right hand copy of the prefix is *e̱z-*, an allomorph which is shorter, not longer, than *ze̱z-*, the allomorph occurring in the left hand copy (as expected after a subject-marking prefix). So instead of elision of an initial */e̱/*, we would have epenthesis of an initial */z/* due to the preceding person prefix, in the left hand copy.

However these facts might be analyzed (e.g. in terms of underlying forms, RED as affixation to the left or right, or in projection terms etc.), it seems clear that RED in Awetí is described best in morphological rather than phonological terms. Interestingly, the RED process 'has access' to the underlying morphemes so that, in the reduplicated verb, allomorphs may surface which are not present in the simple verb.[44]

[44] This fact weakens the argument against the hypothesis (a) that the */t/* between the subject person prefix and the proper stem of a transitive verb may be part of the stem; see discussion of (16). The allomorph of the stem without the */t/* could be the allomorph used for RED, and the left hand copy could exhibit the allomorph determined by the environment (following a subject person prefix).

So far, complex verbs formed by derivation reduplicate their whole stem, including a derivational prefix. The same holds for most derivational suffixes. For instance, transitive verbs (with a meaning ‘X does A to Y’), may be causativized by a suffix *-°u̱káT*. The derived verb has a meaning ‘Z makes / lets X do A to Y’. Interestingly, this suffix attracts word accent, which is evidence that it is part of the new stem of the derived bi-transitive verb. Indeed, consistently even this disyllabic suffix is fully reduplicated with the original stem. See the examples in (60).

(60) a. *wɛjˈtup⃗*
we̱j-túP
3-see
‘He saw [something].’

b. *wɛj,tupuˈkat⃗*
we̱j-túP-°u̱káT
3-see-CAUS
‘He made / let [someone] see [something].’

c. *wɛjtupu,katupuˈkarɛ*
we̱j-tuP-°u̱kaT~túP-°u̱káT-e
3-see-CAUS~see-CAUS-TV
‘He made / let [someone] see [each of many things].’

This RED of original stem plus *-°u̱káT* is independent of the number of syllables of the root. Example (61) shows RED of a verb derived from a simple verb with a disyllabic stem, *nã·mi̱ʔĩK·°u* ‘to appear (to so.)’.

(61) a. *wɛ̃ŋmĩʔĩŋkuˈkat⃗*
we̱j-mi̱ʔĩK-°u̱káT
3-appear-CAUS
‘He showed sth. to so.’

b. *wɛ̃ŋmĩʔĩŋku,kanmĩʔĩŋkuˈkarɛ*
we̱j-mi̱ʔĩK-°u̱kaT~mi̱ʔĩK-°u̱káT-e̱
3-appear-CAUS~appear-CAUS-TV
‘He showed many things to so., [each of them].’

For stative verbs (semantics: ‘X has [property] P’, for instance *lo̱lé·zã·tu* ‘to be bad / ugly’), there are two derivational suffixes; both carry the lexical accent of the resulting word. One, the resultative *-ʔáT*, derives intransitive active verbs (‘X acquires P’). This suffix is, again, included in RED, as demonstrated in (62). As the resulting verb *lo̱le·ʔáT·°u* ‘to become bad / ugly’ is an active verb, the final thematic vowel *-e̱* is present in the reduplicated verb.

(62) a. *ilɔˈlɛ*
i̱-lo̱lé
3-bad
'He is ugly. / It is rotten.'

b. *ɔlɔlɛˈʔaɬ̰*
o̱-lo̱le-ʔáT
3-bad-RESULT
'It became bad.'

c. *ɔlɔlɛʔalɔleˈʔarɛ*
o̱-lo̱le-ʔaT~lo̱le-ʔáT-e̱
3-bad-RESULT~bad-RESULT-TV
'Several things /everything became bad.'

Finally, the causative suffix *-ká* derives transitive verbs from stative verbs ('X causes Y to acquire property P'). However, unexpectedly, this suffix is *not* reduplicated with the stem. Compare the examples in (63).

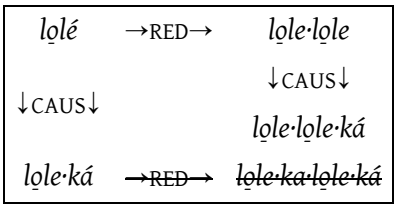
(63) a. *wɛjlɔlɛˈka*
we̱j-lo̱le-ká
3-bad-CAUS
'He spoiled it.'

b. *wɛjlɔˌlɛlɔlɛˈka*
we̱j-lo̱le~lo̱le-ká
3-bad~bad-CAUS
'He spoiled many things, each of them.'

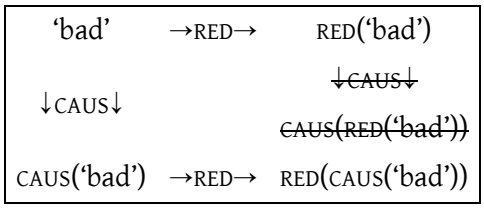
However, the semantics of *lo̱le·lo̱le·ká·tu* 'to spoil many things' (plural objects) is that of RED of the transitive verb *lo̱le·ká·tu* 'to spoil', not that of causativation of the reduplicated stative verb *lo̱le·lo̱lé·zã·tu* 'to be more or less bad / ugly', which would yield the meaning 'to make something more or less bad'. So, semantics follow the expected pattern observed with the other derivational affixes; but form and semantics go different ways, as illustrated in (64).[45]

[45] We restrict the presentation of the formal aspects to the stems, and indicate the semantics in functional notation: RED('bad') = 'to be more or less bad' — CAUS(RED('bad')) = 'to make sth. more or less bad' — CAUS('bad') = 'to spoil' — RED(CAUS('bad')) = 'to spoil many things'.

(64) a. formal derivations



b. semantic derivations



The odd semantics of *lo̱le·lo̱le·ká·tu* can be seen as an argument that *-ká* is a regular derivational affix which happens to show a formal (but not semantic) irregularity with respect to RED. Indeed, besides the fact that *-ká* does not reduplicate with the original stem, there is nothing that would point at another analysis of *-ká* than that of a derivational affix; it is certainly not an inflectional affix.[46] The semantic effect is perfectly analogous to that of *mo̱-* and *-ᵊu̱káT*; it concerns clearly the lexical meaning, not functional categories. Also, *-ká* attracts word accent, as do *-ᵊu̱káT* and *-ʔáT*.

The only reasonable conclusion I see is that RED in Awetí formally does not apply to all derivative affixes, but only to most.[47] I have been unable so far to identify formal or semantic criteria that would determine which affix is reduplicated and which is not. This means, however, that RED unfortunately is not a completely reliable formal criterion for distinguishing inflectional from derivational affixes.

As a case in question, consider the two prefixes *te̱-* 'reflexive' and *to̱-* 'reciprocal', occurring with transitive stems. They show some properties of derivation: Most importantly, their meaning effect could be described in terms of manipulating the lexical meaning ('X acts on X himself' and 'X acts on Y and Y acts on X'). Then, verb forms with these prefixes take the same person prefixes as intransitive verbs do. We illustrate these prefixes with the transitive verb *nã·kɨ̃j·tu* 'to hurt, to combat, to kill'. Note that the original verb shows the transitive third person prefix *we̱j-* while the forms with *te̱-* and *to̱-* contain the third person prefix *o̱-* which else occurs with active intransitive verbs.

[46] The only uncommon feature of *-ká* (and *-ʔáT*) is that it does not have a vowel-initial allomorph for use with consonant-final stems (differently from the negation suffix *-ka/-ika*). This suggests rather a lexical origin of *-ká* (an older verb stem used in compositions?).

[47] Another derivational suffix which does not (or not always) reduplicate is *-wã* 'completive', see (15). Reduplicated verbs with the derivational suffix *-túT* 'to want to ...' have not been elicited.

(65)	a. *w̃ɛ̃ɲˈkɨ̃ɲ*	b. *ɔ̃ntɛ̃ˈŋkɨ̃ɲ*	c. *ɔ̃ntɔ̃ˈŋkɨ̃ɲ*
	wẹj-kɨ̃j	*ọ-tẹ-kɨ̃j*	*ọ-tọ-kɨ̃j*
	3-hurt	3-REFL-hurt	3-RECP-hurt
	‘He hurt someone.’	‘He hurt himself.’	‘They hurt one another.’
			‘They fought.’

The behavior of these prefixes could allow for an analysis as derivational prefixes – they would derive active intransitive verbs from transitive verbs. (In particular, the meaning ‘to combat’ is the most common one with reciprocal forms.)

Nonetheless, our analysis so far (e.g., Drude 2008) considers these prefixes to be inflectional. Accordingly, the forms with these prefixes belong to categories ‘reflexive’ and ‘reciprocal’, and these are names of functional “voice” (or “genus verbi”) categories. These forms are part of the paradigm of the transitive verb. Reasons for our analysis are that *tẹ-* and *tọ-* are highly regular and almost never show idiosyncrasies or effects of lexicalization.[48] The lexical semantic effect is always transparent and concerns only arguments which are already present in the original lexical meaning. Insofar it is comparable, for instance, to the semantics of the passive in Germanic languages. Finally, their close relation to the arguments (like the passive, they reduce the valency) can explain the change of the person prefixes.

Interestingly, RED not only fails to be a reliable criterion for deciding this question because of its inconsistency with regard to derivational affixes (see above), but also because the forms with *tẹ-* and *tọ-* show variation: with some stems, the prefixes are reduplicated (present in both copies), with other stems not.

Consider the reduplicated forms related to the simple verb *nã·kɨ̃j·ˀu* ‘to hurt, to combat, to kill’ in (65). In this case, the reflexive and the reciprocal prefixes are copied with the original stem *kɨ̃j*, as seems to be the case with most if not all monosyllabic stems.

[48] The case of ‘to combat’ as a default meaning of the reciprocal form is an atypical exception; still, also the non-reciprocal forms can mean ‘to attack’. – Note that these prefixes are the only known way to express reflexivity/reciprocity in Awetí; there are no independent pronominal reflexive forms or other reflexive morphemes. The same prefixes also occur with prepositions.

(66)	a. *õntɛ̃ˌŋkɨ̃ŋtɛ̃ˈŋkɨ̃ŋɛ̃*	b. *õntõˌŋkɨ̃ŋtõˈŋkɨ̃ŋɛ̃*
	o̜-te̜-kɨ̃j~te̜-kɨ̃j-e̜	*o̜-to̜-kɨ̃j~to̜-kɨ̃j-e̜*
	3-REFL-kill~RFL-kill-TV	3-RECP-kill~RECP-kill-TV
	‘He hurt himself several times.’	‘They fought again and again.’

According to our analysis, the forms with *te̜-* and *to̜-* are inflected forms of the simple verb. Therefore, the two forms in (66) are inflectional forms of the reduplicated verb *nã·kɨ̃j·kɨ̃j·ˀu* ‘to hurt several times, to combat several times, to kill several beings’.[49] True, this is the only known case where an inflectional affix is reduplicated, and this seems odd at first sight. (The analysis may also have to face certain problems of a semantic nature.)

There are other verbs where the prefixes in question cannot be copied in the left hand copy. Consider the forms in (54), based on the transitive verb *nã·ʔa̜pɨ́·tu* ‘to burn’.[50]

(67)	a. *ɔtɛʔaˈpɨ*	b. *ɔtɛʔaˌpɨʔaˈpɨ*
	o̜-te̜-ʔa̜pɨ́	*o̜-te̜-ʔa̜pɨ~ʔa̜pɨ́*
	3-REFL-burn	3-REFL-burn~burn
	‘He burned himself.’	‘He burned himself several times, at several places.’

The form **o̜-te̜-ʔa̜pɨ~te̜-ʔa̜pɨ́*, which would be analogous to *o̜-te̜-kɨ̃j~te̜-kɨ̃j*, is not possible. This variation generally seems to be correlated with the number of syllables, but there are exceptions. The exact conditions for allowing or requiring (or not) of RED of reflexive / reciprocal prefixes together with the original stem have not yet been identified. They may partly be lexicalized (idiosyncratically), and it seems that there is also some variation from speaker to speaker.

So the fact that forms with *te̜-* and *to̜-* share properties of both derivation and inflection is mirrored by the variable behavior of these prefixes with respect to RED.

A similar situation holds for incorporation. Usually, incorporation derives intransitive verbs from transitive ones by inserting a noun before the verbal stem

[49] The alternative view would be that these forms belong to different verbs *te̜·kɨ̃j·te̜·kɨ̃j·ˀu* and *to̜·kɨ̃j·to̜·kɨ̃j·ˀu*, which would be individually derived by reduplication from two simple intransitive verbs *te̜·kɨ̃j·ˀu* and *to̜·kɨ̃j·ˀu*.

[50] Unfortunately, no forms of this verb (or any other verb which does not reduplicate *te̜-/to̜-*) have been taped.

which refers to the object of the action. This is not a very productive process, often with idiosyncratic (lexicalized) meanings. Only few nominal elements can be incurporated, for instance body parts such as *po* ‘hand’. One such element is *mo̱ʔáT* ‘person, human being’. This is used for example to derive the intransitive verb *mo̱ʔáT·a̱ʔó·tu* ‘to swear’ from the transitive verb *n·a̱ʔó·tu* ‘to curse’. When reduplicated, the incurporated part is not copied with the root, as is shown in (68).

(68)	a. *wɛjaˈʔə*	b. *wɛjaˌʔəaˈʔə*	c. *ə̃məˌʔarəˌʔəaˈʔə*
	we̱j-a̱ʔó	*we̱j-a̱ʔo~a̱ʔó*	*o̱-mo̱ʔaT-a̱ʔo~a̱ʔó*
	3-curse	3-curse~curse	3-person-curse~curse
	‘He cursed.’	‘He cursed a lot, several people.’	‘He swore a lot, about / at several people.’

The form **o̱-mo̱ʔáT-a̱ʔo~mo̱ʔáT-a̱ʔó*, which theoretically could exist along with (68c), is ungrammatical.

On the other hand, there are cases where the incorporated part is reduplicated as well. For instance, some intransitive verbs are based on the transitive verb *nã·ʔú·tu* ‘to ingest (eat, drink, inhale,...)’: *kaT·ʔú·tu* ‘to eat, to have a meal’ (cf. *káT* ‘thing, spirit’), *ʔɨ·ʔú·tu* ‘to drink, to satisfy one’s thirst’ (cf. *ʔɨ́* ‘water, liquid’), *pe·ʔú·tu* ‘to smoke, to inhale tobacco’ (cf. *pé* ‘tobacco’). Differently from many other verbs with incurporation, with these verbs, the nominal element is reduplicated together with the root. See (69) for forms of *nã·ʔú·tu* and *kaT·ʔú·tu*. The third form of the reduplicated verb *kaT·ʔu·kaT·ʔú·tu* shows its rather specific inchoative meaning (or, at least, that is the default reading), which suggests lexicalization.

(69)	a. *wɛjˈʔu*	b. *əkarˈʔu*	c. *əkarˌʔukarˈʔu*
	we̱j-ʔú	*o̱-kaT-ʔú*	*o̱-kaT-ʔu~kaT-ʔú*
	3-ingest	3-thing-ingest	3-thing-ingest~thing-ingest
	‘He ate/drunk/smoked.’	‘He had a meal.’	‘He started little by little to eat again.’

There are two main possible explanations for this divergent behaviour of these verbs: (a) They are rather old (also reconstructed for Tupí-Guaraní, see, e.g., Mello 2000) and

hence possibly lexicalized, so that presently the stem is not analyzed any more, although morphologically transparent. (b) The verbal root *ʔú* ‘ingest’ is monosyllabic.

In sum, the morphological domain of RED is the stem. In the case of complex stems, generally the whole (derived or composed) stem is reduplicated, but there are exceptions. Some, but not all of these can be explained by lexicalization or number of syllables. On the other hand, the inflectional voice affixes *tẹ̲-* and *tọ̲-* are sometimes reduplicated together with the stem, which coincides with the fact that they are in some respects similar to derivational affixes.

9 Conclusion

Besides describing the facts of reduplication in Awetí, this study showed that reduplication may provide a useful criterion for answering phonological and morphological questions. The major findings based on RED data were the following:

- Our analysis of morpheme-final consonants as abstract archiphonemes due to the neutralization of the oral–nasal contrast has been confirmed (otherwise oral segments may be realized as nasal allophones before nasal consonants).
- The analysis of inherently oral vowels in position V_2 [see (1)] has been strengthened (these vowels are phonetically oral even between nasal consonants).
- The word-initial alternation of */p/* (inflected forms) and */m/* (absolute forms) is a morphological, not a phonological one (the */m/* is present in both copies).
- The unstressed final elements *-ẹ̲* and *-(z)ã* that appear in certain simple verbs are morphs that do not belong to the proper stem. (They are never reduplicated, and *-ẹ̲* occurs in many reduplicated verbs.) Interestingly, the same morphs appear in certain inflected forms of stative verbs.
- Although a useful indicator, RED unfortunately does not seem to be an unequivocal criterion for distinguishing derivation from inflection: most, but not all derivational affixes are reduplicated with the original stem, and there are affixes which vary as to RED.

As to reduplication itself, the following two findings may be the most interesting:

- In reduplicated verbs, shorter and longer allomorphs may occur which are not present in the simple verb, without phonological reasons. (58) (59)
- When combining derivation and reduplication, form and semantics may diverge with respect to the ordering of applying the respective transformations. (63) (64)

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