

Word duplication in Kadorih

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On the basis of Kadorih examples, this article discusses the nature of word duplication and offer an accurate characterization of this phenomenon. Kadorih, formerly known as ‘Ot Danum’ and ‘Dohoi’, is an Austronesian language spoken in the upriver region of Central Kalimantan, Indonesia. In Kadorih, a duplicated output (= the whole structure derived by means of word duplication) can be classified as either a repeated or a reduplicated output phonologically. Repeated outputs are either phonological or intonational *phrases*, whereas reduplicated outputs must be prosodic *words*. I will also characterize Kadorih word duplication from the viewpoint of morphology, morphosyntax and semantics. I will show in addition that word class affiliation of reduplicated outputs cannot be morphologically determined — their syntactic distribution contributes to the description of the respective clausal functions (argument/predicate/adjunct).

Keywords : Kadorih, Austronesian family, repetition, reduplication, word class

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1. Introduction

Kadorih is an Austronesian language belonging to the (West) Barito subgroup of Malayo-Polynesian languages. Word duplication in Barito languages has hardly been discussed to date. In this article, I try to provide a comprehensive description of word duplication in Kadorih, following a descriptive and theoretical framework advocated by Inkelas & Zoll (2005, Morphological Doubling Theory). The data presented here are based on my own fieldwork conducted in Indonesia.

The word-formation mechanism that doubles the whole or a part of a word is called ‘reduplication’. In this article, I use ‘duplication’ as a cover term for both reduplication and repetition (reduplication yields a word, whereas repetition yields a unit larger than a word. See section 2.2 for more detail). In addition, the term ‘word duplication’ refers to a morpho-semantic process which doubles a word, and the term ‘duplicated output’ will be used to refer to the whole structure derived by means of word duplication.

This article is organized as follows. The present section gives a brief introduction to the language, and section 2 provides a structural description of word duplication in

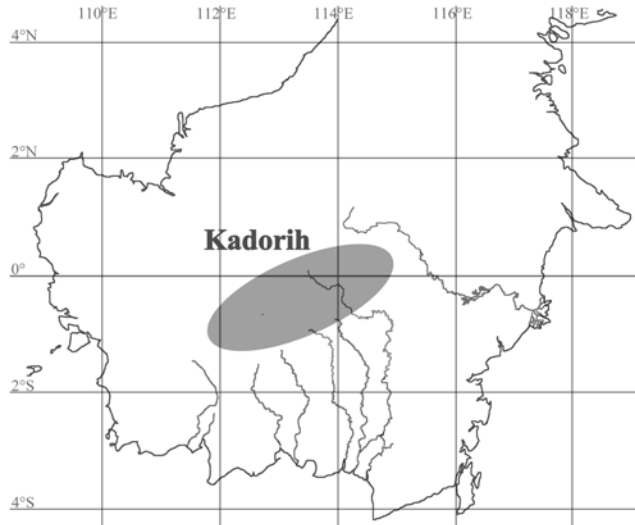


Fig. 1 The geographical distribution of Kadorih speakers

the language. Section 3 focuses on phonological/grammatical constraints that govern the process of reduplication. Section 4 gives an overview of meanings and functions of duplication. Section 5 discusses the relation between reduplication and word classes. Finally, Section 6 presents conclusions.

According to *Ethnologue* (2009), Kadorih is also known as ‘Ot Danum’, ‘Dohoi’ (Hudson 1967) or ‘Malahoi’ (language code: ot d). The number of its speakers is estimated to be 78,800 (2007 SIL).

Kadorih has eighteen consonants (*l p b t d c [ɕ] j [ɕ̥] k g m n ny [ɲ] ng [ŋ] w [β] s [ɕ] h r l [r~l̥] y [j] /*) and five vowels (*i e a o u*) (The phonemes are represented in italics, with bracketed IPA symbols if needed).

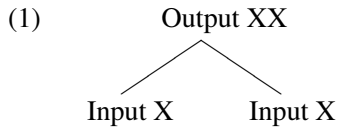
2. Structural description

2.1. Word duplication

The representation in (1)¹ shows a morpho-semantic structure of duplicated XX that involves the variable X as its input. Phonological processes (e.g. deletion or insertion)

¹ In most cases, duplication in a language seems to be described or analyzed either as a process of morpho-phonological affixation (Marantz 1982) or morpho-semantic compounding (Hurch 2005, Inkelas 2006). This article follows the latter approach which essentially presupposes semantic identity between the independent copies in duplication.

apply independently to each node. In other words, each node is evaluated by different phonological constraints.



2.2. Reduplication and repetition

By definition, reduplication yields a word as output. In contrast, repetition yields a unit larger than a word (cf. Gil 2005a: 31). A morpho-syntactic word in Kadorih can be defined using prosodic criteria in (2).

- (2)
- a. No obvious pause (whose duration is longer than the normal pronunciation of a whole word) can divide a word into smaller segments.
 - b. The word may carry a single intonation or be part of a structure which carries a single intonation.
 - c. Within a single intonation unit, a falling pitch can occur only in its last syllable.

Some outputs resulting from reduplication and repetition, respectively, are exemplified below.

- (3)
- | | | | |
|----|------------------|----------------------|----------------------------|
| a. | <i>mosomosom</i> | ‘sourish’ | (cf. <i>mosom</i> ‘sour’) |
| b. | <i>duhiduhi</i> | ‘a bit thorny’ | (cf. <i>duhi</i> ‘thorn’) |
| c. | <i>duhiduhi</i> | ‘many thorns’ | |
| d. | <i>tuot tuot</i> | ‘sit down, sit down’ | (cf. <i>tuot</i> ‘to sit’) |

(3a) is a reduplicated output created by the base *mosom* ‘sour’. It may bear a single intonation which may also be borne by an even larger structure including it. Whatever the case may be, this tetrasyllabic structure (*mo. so. mo. som*) cannot be separated into *moso* and *mosom*, and a falling pitch occurs only in its last syllable.

(3b) and (3c) constitute a minimal pair contrasting in prosodic feature, the former is a reduplicated output, and the latter is a repeated output. The specific characteristics of the latter, *duhiduhi* in (3c) are: (i) it can be intervened by an obvious pause, (ii) it can bear two independent intonations, and (iii) a falling pitch can occur in a position other than the last syllable.

The example *tuot tuot* in (3d) is a repeated output, and crucially different from the other examples in that (i) it is intervened by a pause, (ii) it bears two independent intonations, (iii) no falling pitch occurs.

These descriptions of the outputs in (3) can be summarized as follows.

(4)

outputs	analysis	pause	intonation	falling pitch	
$\overline{mosomosom}$	ω	inseparable	1	1 (last)	redup.
$\overline{duhiduhi}$	ω	inseparable	1	1 (last)	
$\widetilde{duhiduhi}$	$\omega \ \omega$	separable	1 or 2	2	repet. ²
$\overline{tuot \ tuot}$	$[\omega]_1 \ [\omega]_1$	separated	2	no	

(ω = prosodic word, 1 = intonational phrase, redup. = reduplication, repet. = repetition)

In Kadorih, a reduplicated output must be a single prosodic word, whereas a repeated output must be a phrase composed of two prosodic words. Repeated outputs can receive one or two intonation units, and always express iconic meanings.

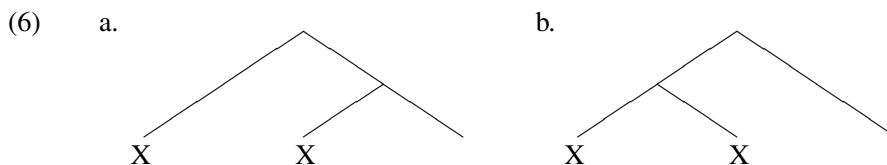
2.3. Syntactic analysis

When we deal with word duplication (in particular, repetition), a syntactic analysis becomes necessary. For instance, the example in (5) below requires a constituent analysis.

(5) *amai amai Busun* [father father (person.name)] ‘father of Amai Busun’³

In (5), the word *amai* ‘father’ occurs consecutively. However, the semantic possessors and the syntactic properties of the two *amais* are completely different.

While the possessor of the first *amai* is the following phrase [*amai Busun*], the possessor of the second *amai* is the following word *Busun*. Furthermore, the phrase *amai amai Busun* can be paraphrased as *amai ah* [father his] ‘his father’ by substituting the enclitic =*ah* for the last two words, but a one-word paraphrase is not possible for the first two words (*amai amai*). These facts suggest that the constituent structure of *amai amai Busun* be (6a), not (6b) in which the two *amais* (Xs) serve as a constituent.

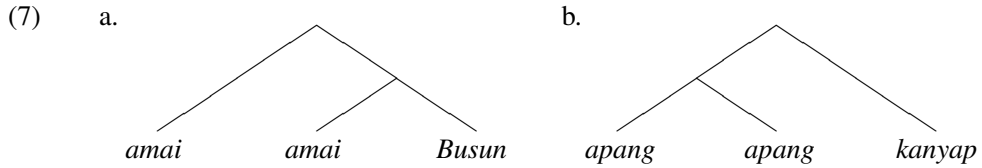


Any structure where consecutive words are not in a sister relation, as in (6a), cannot be analyzed as duplication. On the other hand, the two daughter nodes of a duplicated structure must be in a sister relation as shown in (6b).

The phrase *apang apang kanyap* [seed seed vegetable] ‘many vegetable seeds’, for instance, involves word duplication. (7) shows the difference in structure between this

³ In this example, I translated *amai Busun* (lit. ‘Father-of-Busun’) as a proper name ‘Amai Busun’ because it is sufficiently well-established as a term of address. Teknonyms are usual, and the term of address *amai Busun* in (5) refers to a male person (full name: Yahudi N. Sandy) who has Busun as his first-born child.

phrase and (5).



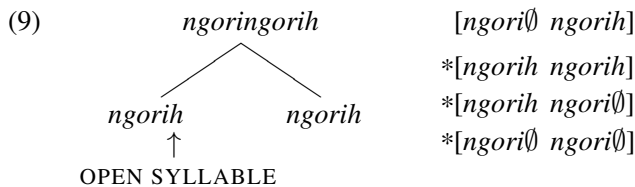
3. Constraints/Rules in reduplication

3.1. Phonological characteristics

As mentioned in the beginning of section 2.1, each node of a duplicated structure (represented in (1)) is evaluated by different phonological constraints. Specifically, the first daughter node of a reduplicated structure is subject to the phonological constraint (8), but the second daughter node is not.

- (8) Within a reduplicated structure, the last syllable of the segment string in the first daughter node must be an open syllable.

The example *ngoringorih* ‘(plural actors) to drink (tea)’ takes *ngorih* ‘to drink’ as its input. The output [*ngori*∅ *ngorih*] is optimal, but all other candidates for an output such as *[*ngorih* *ngorih*], *[*ngorih* *ngori*∅] or *[*ngori*∅ *ngori*∅] are not. The morpho-semantic structure and the phonological constraint of the optimal output are shown in (9). The last coda consonant of the first string of segments in a reduplicated structure will be deleted in accordance with the constraint in (8) and the ones which maximally restrict the application of epenthesis, metathesis, contraction and others.⁴



If the first string of segments in a reduplicated structure has an open syllable at the end, final consonant deletion does not apply, as in (3b), *duhiduhi*.

The constraint stated in (8) is partly parallel to the general phonotactic constraints for prosodic words in Kadorih. For example, the segmental makeup of tetrasyllabic monomorphemic words is CV.CV.CVC.CVX where C and X in the last two syllables are optional and antepenultimate syllables must be open.⁵

⁴ Of course, optimal outputs are determined by a much larger set of constraints.

⁵ Trisyllabic monomorphemic words may contain a closed antepenultimate syllable. The segmental makeup in this case is CVN.DV.CVC, where N and D represent nasals and homorganic voiced stops respectively, and Cs in the final syllable are optional: *hon.je.nan* ‘second cousin’, *man.do.hung* ‘*Solanum ferox*’, *kan.du.ang* ‘brother’, *ngan.da.i*

- (10) a. CV.CV.CVC.CVC *ka.la.bam.bang* ‘butterfly’
 b. CV.CV.CVC.CV *ka.la.pah.pa* ‘a species of tree (used for firewood)’
 c. CV.CV.CV.CVC *ko.lo.ja.ling* ‘poll parrot’
 d. CV.CV.CV.VC *ha.ra.ma.ung* ‘tiger’

Another important phonological constraint in reduplication is the one imposed on possible inputs. Minimal prosodic words in Kadorih have at least two syllables. Prosodic words such as *ngorih* above have two syllables, which can be regarded as appropriate inputs for reduplication in Kadorih. On the other hand, clitics such as *ih* ‘just’ are inappropriate inputs since they cannot by themselves constitute a bisyllabic prosodic word. Monosyllabic inputs cannot be reduplicated (**i-ih* or **ih-ih*).

Furthermore, ‘extended prosodic words’ which consist of a clitic and another element, for instance, *ngorihih* ‘just drink’ (*ngorih=ih*) cannot be reduplicated either: **ngorih-ngorihih* is never observed.⁶

In sum, inputs for reduplication must have at least two syllables, and must not be ‘extended’ through the addition of a clitic.

3.2. Morphological characteristics

In this subsection, trisyllabic inputs are taken into consideration in addition to bisyllabic inputs shown in the previous sections.

- (11) *golumbang* ‘wave’ → *golumba-golumbang* ‘many waves’
kadiling ‘surrounding’ → *kadili-kadiling* ‘to circle many times’
mahanoi ‘male’ → *mahano-mahanoi* ‘many male (animals)’
sarongin ‘cold’ → *sarongi-sarongin* ‘very cold’

In the case of trisyllabic monomorphemic words as given in (11), deletion applies to the last coda consonants of first strings of segments. Other patterns of reduplication marked with an asterisk in (12) are not allowed.

- (12) $*\sigma\$\sigma-\sigma\$\sigma\sigma$ $\sigma\$\sigma\sigma-\sigma\$\sigma\sigma$ $*\sigma\$\sigma\sigma-\sigma\sigma$

**go\$lu-go\$lumbang* *go\$lumba-go\$lumbang* **go\$lumba-\$lumbang*
**ka\$di-ka\$diling* *ka\$dili-ka\$diling* **ka\$dili-\$diling*
**ma\$ha-ma\$hanoi* *ma\$hano-ma\$hanoi* **ma\$hano-\$hanoi*
**sa\$ro-sa\$rongin* *sa\$rongi-sa\$rongin* **sa\$rongi-\$rongin*

(hereafter boundaries between antepenultimate and penultimate syllables
 will be indicated by a dollar sign: $\sigma\$\sigma\sigma$)

Examples in (12) seem to confirm that the constraint stated in (8) can be extended to trisyllabic inputs. If only bisyllabic inputs are taken into consideration, one may

‘day (archaic)’.

⁶ Reduplicated outputs may co-occur with an object (*ngori-ngorih kuhpi* ‘(plural actors) drink several cups of coffee’). However, phrases consisting of a verb and an object are not usually duplicated (**ngorih kuhpi ngorih kuhpi*).

conclude that reduplication in Kadorih is carried out up to the second vowel. However, this idea should be discarded since the pattern $*\sigma\sigma\text{-}\sigma\sigma\sigma$ (e.g. $*go\$lu\text{-}go\$lumbang$) is not acceptable. In addition, no segment in the second string can be deleted (the pattern $*\sigma\sigma\sigma\text{-}\sigma\sigma$ (e.g. $*go\$lumba\text{-}\$lumbang$) is not acceptable).

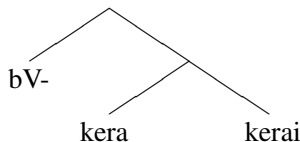
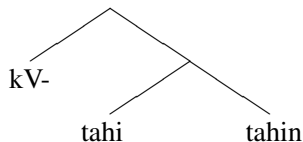
However, we find reduplicated outputs in which the segments in the second string seem to be deleted. This is the case for polymorphemic inputs. The segments *ba* in (13a) and *ka* in (13b) cannot be realized in the respective second strings.

- (13) a. $ba\$kerai$ ‘(to have) rash’
 → $ba\$kera\text{-}kerai$ ‘(multiple people) to have rash’
 $*ba\$ke\text{-}ba\$kerai$ $*ba\$kera\text{-}ba\$kerai$ $ba\$kera\text{-}\$kerai$
- b. $ka\$tahn$ ‘period’ → $ka\$tahi\text{-}\$tahn$ ‘very long time’
 $*ka\$ta\text{-}ka\$tahn$ $*ka\$tahi\text{-}ka\$tahn$ $ka\$tahi\text{-}\$tahn$
- (14) a. $anak=ah$ *uras* **$bakera\text{-}kerai$** *kobaiu* *eam* *rasuk*
 child=his all **rash-(reduplication)** because not appropriate
 uku-i.
 food-his
 ‘All his children had rash because the foods didn’t suit them’.
- b. *dalou* **$katahi\text{-}tahn$** *bosai* *ku=tuh*.
 excessive **period-(reduplication)** husband my=this
 ‘My husband (hasn’t come back) for too long’.

The pattern $\sigma\sigma\sigma\text{-}\sigma\sigma$ (e.g. $*go\$lumba\text{-}\$lumbang$) is not acceptable, in (12) above, whereas only this pattern is acceptable in (13). The reason for these facts should be attributed to the difference in their morphological statuses. The inputs in (12) are all monomorphemic, but those in (13) are polymorphemic. The segment string *bakera* in (13a) includes an intransitivizing prefix *bV-* (where V represents /a/ or /o/ in free variation), and *katahin* in (13b) includes *kV-*, a prefix which derives an abstract noun.

- (15) a. (kerai) → $ba\text{-}kerai$ [(intransitivizer)-kerai] ‘(having) rash’
 → $ngerai$ [(verbalizer)-kerai] ‘to cause rash’
- b. *tahi* ‘(time) long’ → $ka\text{-}tahi\text{-}n$ [(nominalizer)-long-(linker)] ‘period’

Almost all reduplicated outputs which show the pattern $\sigma\sigma\sigma\text{-}\sigma\sigma$ (e.g. $ba\$kera\text{-}\$kerai$) have a derivational prefix such as *bV-/kV-* in their initial syllables (some exceptions will be considered at the end of this subsection). A prefix in these examples should be seen as attached to reduplicated outputs ($\sigma\sigma\sigma\text{-}\sigma\sigma$), not as part of inputs. The diagrams in (16) below show the basic morphological structures of (14a) and (14b).

- (16) a. 
- b. 

This analysis has the advantage of accounting for the superficial difference observed in reduplication patterns. At any rate, the constraint stated in (8) impinges on any pattern of reduplication in Kadorih, either $\sigma\sigma\sigma\text{-}\sigma\sigma$ (13), $\sigma\sigma\sigma\sigma\text{-}\sigma\sigma$ (11), or $\sigma\sigma\text{-}\sigma\sigma$ (9).⁷

Basically, reduplication of polymorphemic words is structurally complex as seen in (16). However, it is not complex in the case of polymorphemic words which include an affix such as the nasal prefix N- or infix -Vn-. They can be only reduplicated like monomorphemic words. For example, both *nguan* ‘to do’ and *k<an>uan* ‘to be done’ are derived from the base *kuan*, both *ngitot* ‘to deliver’ and *k<an>itot* ‘to be delivered’ are derived from *kitot*. Reduplicated outputs of these kinds of polymorphemic words imply that there are plural actors, and the pattern of reduplication is simple in the same manner as in the case of monomorphemic words.

(17)	Inputs	(X = an actor/actors)	Outputs	(Y = actors)
a.	<i>nguan</i>	‘(X) do(es)’	<i>ngua-nguan</i>	‘(Y) do’
b.	<i>ka\$nuan</i>	‘be done (by X)’	<i>ka\$nuan-ka\$nuan</i>	‘be done (by Y)’
c.	<i>ngitot</i>	‘(X) deliver(s)’	<i>ngito-ngitot</i>	‘(Y) deliver’
d.	<i>ka\$nitot</i>	‘be delivered (by X)’	<i>ka\$nitot-ka\$nitot</i>	‘be delivered (by Y)’

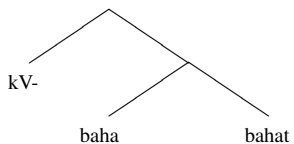
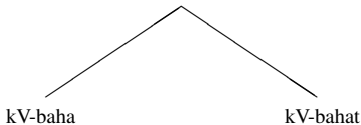
Monomorphemic words cannot exhibit patterns which are highly specific to polymorphemic words illustrated in (13). However, there are only two exceptions in my corpus: *ba\$lihka-\$lihkat* ‘near the side (of something)’ that is formed by reduplicating *ba\$lihkat* ‘side’, and *ngo\$lomi-\$lomi* ‘all night long’ formed from *ngo\$lomi* ‘night’.

⁷ Interestingly, some inputs may be reduplicated by two different patterns with different meanings. (i) shows one of such words (*bahat* ‘heavy’, *kobahat* ‘weight’).

(i)	$*\sigma\sigma\text{-}\sigma\sigma\sigma$	$\sigma\sigma\sigma\text{-}\sigma\sigma\sigma$	$\sigma\sigma\sigma\text{-}\sigma\sigma$
	$*ko\$ba\text{-}ka\$bahat$	$ko\$baha\text{-}ka\$bahat$	$ko\$baha\text{-}\$bahat$
a.	<i>dalou</i>	<i>ko-baha-bahat</i>	<i>kacu=tuh.</i>
	excessive	(nominalizer)-heavy-heavy	wood=this
		‘This wood is too heavy (to carry)’.	
b.	<i>kobaha-kobahat</i>	<i>tuh=ih.</i>	
	weight-weight	this=just	
		[For the answer to the question ‘how much will we carry?’, while pointing out an object at hand]	
		‘Just (about the same) weight as this’.	

The example *ko-baha-bahat* in (i-a) above is the word in which a derivational prefix attached to the reduplicated output *baha-bahat*. It carries an intensive meaning as *ka-tahi-tahin* in (13b) does. On the other hand, *kobaha-kobahat* in (i-b) is the reduplicated output of *kobahat* ‘weight’ (an abstract noun derived from an adjective *bahat* ‘heavy’). It means that there are several objects that are semantic possessors of ‘weight’.

These two patterns differ morphologically as shown in (ii) below. Speaking broadly, the reduplicated output in (i-a) is used to indicate the property which is denoted by the adjective (*bahat*), whereas the one in (i-b) is used to imply the plurality of individuals (objects) which are associated with the noun (*kobahat*).

(ii)	a.		b.	
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These reduplicated outputs may be due to analogy. They may be affected by the high frequency of the prefixes *bV-* and *ngV-*. Cases like these need further research.

3.3. Morphosyntactic characteristics

Generally, a word can be assigned to a word class on the basis of its morphosyntactic distribution and constructions. In terms of word classes, it is possible to inquire (i) which word classes have reduplicated members and (ii) which do not. This subsection gives an overview of Kadorih reduplication with respect to these questions.

Members of the open classes —nouns, verbs and adjectives— in Kadorih are appropriate inputs to reduplication. In general it appears that most closed classes —demonstratives, interrogative pronouns, numerals, adpositions, auxiliaries, adverbs— may also be inputs to reduplication.

Personal pronouns cannot be reduplicated.

- (18) **ahku-ahku* (I I), **ihko-ihko* (you you), **io-io* (he he), **ihka-ihkai* (we we (exclusive)), **ihto-ihto* (we we (inclusive)), **ihka-ihkam* (you you), **iro-iroh* (they they)

Demonstratives are usually not reduplicated, but non-proximate locational indicators may be inputs to reduplication as in (20).

- (19) **ihku-ihkuh* (this this), **kolitu-kolituh* (like.this like.this), **atu-atuh* (that that), **kolatu-kolatuh* (like.that like.that), **ihi-ihi* (that that), **ori-orih* (that that), **kodori-kodorih* (like.that like.that), **ohto-ohtoi* (here here)

- (20) a. *ahi* ‘there’ → *ahi-ahi* ‘a bit far’
 b. *anai* ‘there, exist’ → *ana-anai* ‘a bit far, much’
 c. ***ana-anai*** *ihko ngina=ah kobaiu buan jaat.*
there-there you to.keep=it because odor bad
 ‘(Hogwash, etc.) the smell is so unpleasant that you should keep it a bit far away’.

While not all demonstratives are used for reduplication, all interrogative pronouns can be reduplicated to derive indefinite pronouns (*amoh* ‘where’, *amo-amoh* ‘somewhere, anywhere’. See also section 4.2).

Reduplication of numerals indicates distributivity of individual entities (*tolu-tolu* ‘every three ..., three by three’). However, classifiers or nouns functioning as classifiers cannot be reduplicated.

- (21) a. classifier: **tolu kunga-kungan* (three (animal animal))
 b. nouns functioning as classifiers:
 **tolu bahta-bahtang* (three (long.object long.object), *bahtang* ‘trunk’),
 **tolu behti-behti* (three (person person), *behti* ‘body’).

Adpositions are not reduplicated, but some nouns functioning as prepositions such

as *kolou* ‘like’⁸ can be reduplicated as in (23).

- (22) a. Prepositions: **aa-aang* (at at), **tahka-tahkan* (from from)
 b. Postposition: **kai-kai* (by by)
- (23) *ulun ijo nanjung orih kolo-kolou ulun barat.*
 person (relativizer) to.walk that **like-like** person west
 ‘That person who walked looked much like a westerner’.

Auxiliaries are usually not reduplicated except for a very few of them. For example, an imperfective indicator *honong* is reduplicated to express ‘(a work, etc.) halfway and remaining’ (*hono-honong*). On the other hand, adverbs which show similar distribution as auxiliaries are usually reduplicated.

Conjunctions, particles, and interjections cannot be reduplicated.

- (24) a. Conjunctions: **tuta-tutang* (and and), **kalawu-kalawun* (then then)
 b. Particles: **ka-ka* (also also), **po-poh* (you.see! you.see!)
 c. Interjections: **aga-agai* (Ouch Ouch), **bo-boh* (Mercy! Mercy!)

In Kadorih, nouns, verbs, adjectives, interrogative pronouns, numerals, and adverbs can be reduplicated, but most other word classes tend not to be reduplicated.

4. Description on meaning/function

Repetition and reduplication in Kadorih are formally different, with the former producing phrases and the latter making up words (see section 2.2). Moreover, they also differ with respect to their meanings/functions. In this section, word duplication in Kadorih will be characterized in terms of meaning/function.

4.1. Duplication of verbs and adjectives

Reduplication of verbs or adjectives can express plurality, intensivity, and diminution. See (13a/14a) and (17) for examples of plurality.

(25) and (26) show examples of reduplication of verbs and adjectives respectively.

The reduplicated outputs in (25) imply immature/deficient states or actions.

- (25) a. *bolum* ‘to be alive’ *bolu-bolum* ‘to be seemingly alive’
 b. *mutah* ‘to answer’ *muta-mutah* ‘to provide unconvincing answers’
 c. *nangui* ‘to swim’ *nangu-nangui* ‘to thrash one’s paws in water’

The reduplicated outputs in (26) imply a lesser degree of shallowness, bitterness, blackness, and drunkenness.

⁸ The noun *kolou* means ‘matter, situation’: e.g. *kolou koturunan ekai* [situation descendant our] ‘the lineage of our family’.

- (26) a. *tocah* ‘dry, shallow’ *toca-tocah* ‘dry-ish, shallow-ish’
 b. *poi* ‘bitter’ *poi-poi* ‘bitter-ish’
 c. *mitom* ‘black’ *mito-mitom* ‘somewhat black’
 d. *busou* ‘drunk’ *buso-busou* ‘somewhat drunk’

These kinds of changes in meanings through reduplication can be characterized as ‘diminution’. Reduplication which expresses diminution (diminutive reduplication) in Kadorih adds the meaning ‘loosely’ or ‘seemingly’ to verbs, and ‘somewhat’ or ‘-ish’ to adjectives.⁹ Diminutive reduplication of any word class except verbs/adjectives is not productive.

- (27) a. *ahku mese-meseu nokuh sungoi Bolihkoi.*
 I **to.paddle-to.paddle** to river Marikoi
 ‘I leisurely paddled to Marikoi River’. (*meseu* ‘to paddle’)
 b. *bua katimun=tuh moso-mosom nanyam=ah.*
 fruit cucumber=this **sour-sour** feeling=its
 ‘This cucumber is sourish’. (*mosom* ‘sour’)

(27) illustrates the use of diminutive reduplication of a verb/adjective in a sentence. On the other hand, repetition of verbs/adjectives can only express ‘plurality’ or ‘intensity’: *meseu meseu* ‘(plural actors) paddle’, *mosom mosom* ‘(very) sour (for many kinds of food)’.

It should be noted that outputs of diminutive reduplication cannot occur in an imperative sentence. Reduplicated outputs in imperative sentences can only carry intensive meaning as shown in (28).

- (28) a. *ayu, mese-meseu=ndai!*
 Let’s! **to.paddle-to.paddle**=(perfective)
 ‘Hey, **paddle seriously** now!’ (not ‘paddle leisurely’)

⁹ A function which can be seen as ‘diminution’ may often be described as ‘attenuation’, ‘approximation’, ‘imitative’, or ‘moderation’. In general, it adds the meaning ‘small’ (not ‘large’) or ‘-like’ to nouns.

Many cross-linguistic studies of duplication since Key (1965) and Moravcsik (1978) have contributed to our general understanding of iconicity in duplication. They have described iconic duplication focusing mainly on ‘increase’ or ‘continuity’ in meaning: an increase in form corresponds with an increase in meaning. Meanwhile, both ‘perfect aspect’ and ‘diminution’ are usually not regarded as iconic (Wiltshire & Marantz 2000: 561) because, in fact, the increase/continuity in form does not correspond with perfectiveness or diminution.

However, there is still room for suspecting that even diminution may be an iconic interpretation although it has not been considered to be so. Kouwenberg & LaCharité (2005: 540) claim that “the diminutive interpretation of reduplication essentially represents [...] an iconic interpretation”.

It is reasonable to say that ‘dispersion in form corresponds with dispersion in meaning’ as is the case with ‘distributivity’ (“[t]he use of reduplication to express distributivity is clearly of iconic motivation”, Gil 2005b: 222). Kouwenberg & LaCharité (2005: 540) make an important point concerning the possibility of applying the concept ‘dispersion’ to diminution, and conclude that reduplication can iconically express diminution through a certain extension of available interpretations. Further research will be required to examine to what extent their conclusion allows us to better understand the relationship between duplication and iconicity.

- b. *ngua-i moso-mosom=ih!*
 to.make-it **sour-sour**=just
 ‘Just make it **more sour!**’ (not ‘sourish’)

Reduplication of verbs/adjectives can express diminution in declarative sentences (27), but cannot do so in imperative ones (28).

4.2. Duplication of interrogative pronouns

Reduplication of interrogative pronouns can produce indefinite pronouns.

- (29) a. *amoh* ‘where’ *amo-amoh* ‘somewhere, anywhere’
 b. *iai* ‘who’ *ia-iai* ‘someone, anyone’
 c. *inon* ‘what’ *ino-inon* ‘something, anything’
 d. *mira* ‘when’ *mira-mira* ‘sometime, anytime’
 e. *ombai* ‘why’ *omba-ombai* ‘for any reason’
 f. *pira* ‘how much’ *pira-pira* ‘some, any’

The indefinite pronouns can only be used in declarative/negative sentences (30a), but not in interrogative ones (30b). Thus, in *wh*-questions, duplication of interrogative pronouns can only express the meanings such as ‘plurality’ or ‘intensity’.

- (30) a. *aang lowu=tuh nyaro ia-iai.*
 in village=this there.isn’t **who-who**
 ‘No **one** in this village’.
 b. *iai iai ijo karas boho=ah?*
who who (relativizer) enough noisy=its
 ‘**Who (+ plural)** make a lot of noise?’

4.3. Duplication of nouns: its various meanings and conventionalization

Duplication of nouns in Kadorih has a variety of functions in comparison with the duplication of verbs and adjectives.

Most reduplicated outputs of nouns which denote individual entities carry the meanings of ‘plurality’. They can be substituted with repeated outputs without changing the meaning as in (31) because repetition of the identical nouns can also express the same meanings.

- (31) *patio-pation* (= *pation pation*) *uras tarang ngolomi=tuh.*
star-star all clear night=this
 ‘All stars appear clearly tonight’.

In the case of terms for flora and fauna, plurality or variety are expressed mainly by repetition: e.g. *bihtik bihtik* ‘(many, or a variety of) ants’, *kambang kambang* ‘(many, or a variety of) flowers’.

As for temporal nouns for example, duplication of *ngolomi* ‘night’ produces *ngolomi ngolomi* and *ngolomi-(ngo)lomi*, both of which mean ‘all night long’. However, this is not always the case: while the repeated output of *ngohkos* ‘morning’ means ‘**every** morning’, the reduplicated output *ngohko-ngohkos* means ‘**early** morning’. In addition, noun reduplication can occasionally indicate diminution: reduplication of a locational noun *tohun* ‘middle’ produces *tohu-tohun* ‘**around** the middle of’.

Duplication of nouns not only yields an entity-denoting output (in which case the meanings are ‘plurality’), but also a property-denoting output (‘intensivity’ or ‘diminution’) and even an action-denoting output (‘plurality’ or ‘diminution’).

- (32) a. entity-denoting outputs: *patio(n) pation* ‘stars’, *bihtik bihtik* ‘ants’
 b. property-denoting outputs: *ngolomi (ngo)lomi* ‘all night long’, *ngohko-ngohkos* ‘early morning’, *tohu-tohun* ‘around the middle of’
 c. action-denoting outputs: *pande-pander* ‘(plural actors) to talk’ (*pander* ‘talk’), *tahpi-tahpih* ‘to use something as a sarong’ (*tahpih* ‘sarong’)

What is peculiar to noun reduplication in Kadorih is that it may bring out somewhat conventionalized meanings for a small number of outputs. Conventionalization of meaning is not observed for other word classes. Yet this is a rather marginal phenomenon in the language in that it is infrequent in discourse and there are very few examples available — *ahpui* ‘fire’, *bahiu* ‘wind, air’, and *bahtang* ‘trunk’.

- (33) a. **ahpu-ahpui** *naing pander=ah bahkas orih.*
fire-fire word talk=his male that
 ‘That man’s talk is **extraordinary**’.
- b. **bahi-bahiu** *nanyam=ah ondou=tuh, tou ahkan uhcan.*
wind-wind feeling=its day=this can (future) rain
 ‘It feels **cool** today, we may be in for some rain’.
 (it does not necessarily imply that it is windy.)
- c. **bahta-bahtang** *butui asu-k=rih, eam=ku taa-i narai*
trunk-trunk belly dog-my=that (negative)=I know-it what
ijo uku-i.
 (focus) food-his
 ‘My dog is round as a trunk, I don’t know what he ate’.

Reduplication of *ahpui* ‘fire’ indicates extraordinariness or remarkableness as in (33a), that of *bahiu* ‘wind, air’ indicates coolness as in (33b), and that of *bahtang* ‘trunk’ indicates round-/thick-/full-ness as in (33c). They all have relevance to particular metaphors of ‘fire’, ‘wind’, and ‘trunk’, and meanings indicated by the reduplicated outputs are highly specific semantically and not entirely predictable from the semantics of their inputs.

5. Word classes and reduplication

The phenomenon of reduplication are often discussed with reference to word classes. In some languages, reduplication of verbs or nouns can have a reciprocal function, and reduplication of interrogative pronouns can produce indefinite pronouns. Conversely, reciprocal reduplication is impossible with numerals, and indefinite reduplication with verbs. In this respect, it is significant to describe reduplication in terms of word classes. Additionally, Kiyomi (1995) points out that in Malayo-Polynesian languages, “if a language has reduplication, it most likely includes verb reduplication”, and “[t]he part of speech *verb* is necessary to describe this tendency”. Thus, “properties of reduplication should be considered in terms of parts of speech” (Kiyomi 1995: 1165; f.n. 5). However, this section shows that, in Kadorih, word class is not a useful notion to describe reduplicated *outputs*, and that clausal functions are more relevant to (re)duplicated *outputs* than word classes.

In general, most descriptive linguists adopt a variety of language-internal grammatical distributions as the criteria to define word classes (see Evans 2000). In Kadorih, a host of a possessive suffix/enclitic is a noun, a word with a voice affix is a verb, and a host of a superlative prefix is an adjective. These are sufficient (morphological) conditions to determine word classes in Kadorih. On the other hand, there are syntactic conditions as well: a noun can be followed by a demonstrative, a verb can follow an auxiliary, and an adjective can modify a preposed noun. However, these syntactic criteria are only circumstantial conditions. Contrarily, some morphological adjectives can be followed by demonstratives, some morphological nouns can follow auxiliaries, and some morphological verbs can modify preposed nouns as in (34). Thus, syntactic distribution alone is not sufficient to determine word classes in Kadorih, and should not be used on its own for that purpose.

- (34) a. *oko* =*tuh* ‘this old person’
 old this (=*oko* is morphologically an adjective because
 [**adjective**] [demonstrative] it can be the host of a superlative prefix.)
- b. *honong* *ninyam* ‘being immature’
 (imperfective) *kid* (*ninyam* is morphologically a noun because
 [auxiliary] [**noun**] it can be the host of a possessive enclitic.)
- c. *nuhpi* *mahtoi* ‘a death dream’
 dream *to.die* (*mahtoi* is morphologically a verb because
 [noun] [**verb**] it has the voice prefix *N-*.)

It is difficult to apply the morphological criteria introduced above in order to determine word classes of reduplicated *outputs* in Kadorih: although *tohun* can be morphologically determined as a noun mainly on the basis of a possessive suffixation (*tohu-i*

[middle-its] ‘middle of it’), the word class of its reduplicated output cannot be determined since it is never suffixed (**tohu-tohu-i*); The output *mese-meseu* ‘paddle leisurely’ in (27a) has a voice prefix *N-* (*N-beseu* [N-paddle]), but, strictly speaking, it is impossible to say that this reduplicated output is morphologically a verb because the morphological head of this output is not the prefix *N-*; The word class of a reduplicated output cannot be determined for *moso-mosom* ‘sourish’ in (27b) because of the impossibility to attach a superlative prefix to it (**poko-moso-mosom*, cf. *poko-mosom* ‘the sourest’). There is no morphological distribution for determining a word class of a reduplicated *output*.

However, clausal functions of duplicated outputs differ from one another. Each output can bear limited clausal functions — argument, predicate, or adjunct — in a clause.

An output of reduplication of verbs usually functions as a predicate, and never as an argument. Some reduplicated outputs of stative verb can function as adjuncts as in (35).

- (35) *ulun Bolihkoi eam puji ngubur kolunon bolu-bolum.*
 people Marikoi not (experience) to.bury human **to.be.alive-be.alive**
 ‘People in Marikoi have never buried a human being while (s)he was still alive’.

An output of reduplication of adjectives functions as an adjunct or predicate, and never as an argument. The reduplicated output *moso-mosom* functions as an adjunct meaning ‘(in a way that it will be) more sour’ in (28b); On the other hand, it functions as a predicate meaning ‘sourish’ in (27b). Similarly, (36a) illustrates a reduplicated output which functions as an adjunct, and (36b) shows an output which functions as a predicate.

- (36) a. *ohcin atuh nyakawit=ah isu-isung bele asu kuma-i.*
 fish that to.hang=it **high-high** lest dog to.eat-it
 ‘Hang the fish higher in order to keep it from being eaten by a dog’.
 b. *lohpu=ku isu-isung isut umba emu.*
 house=my **high-high** a.little with yours
 ‘My house is a little higher than yours’.

Among outputs of duplication of nouns, repeated outputs may often be substituted with reduplicated counterparts as shown in (31), *pation pation* with *patio-pation*. In this case, both repeated and reduplicated outputs behave as arguments in a clause. However, there are some cases in which reduplicated outputs function only as predicates and repeated counterparts function only as arguments. Of course, these two kinds of outputs are not interchangeable in a clause.

- (37) a. *pander pander camat nanai uras morong.*
talk talk subdistrict.head a.moment.ago all straight
 ‘All words of the subdistrict head are true’.

- b. *ihkai pande-pander nahiiu inai Wawan=tuh*
 we (exclusive) **talk-talk** concerning mother (person.name)=this
ijo baas yaro buli lohpu.
 (relativizer) habitually there.isn't to.return house
 'We talked about Wawan's mother who rarely comes home'.

The reduplicated output *pande-pander* '(plural actors) to talk' in (37b) is an intransitive predicate which requires an argument. On the other hand, outputs which function as transitive predicates can be found; e.g. *tahpi-tahpih* 'to use something as a sarong' in (38). The repeated counterpart of this word is *tahpih tahpih* 'many sarongs' that cannot be substituted with the reduplicated one.

- (38) *tahpi-tahpih anduk ahkan mondui.*
sarong-sarong towel for to.bathe
 'Use the towel as a sarong for your bathing'.

Reduplicated outputs of temporal and locational nouns may function as adjuncts in a clause. (39) is such an example.

- (39) *Ikin rajin nanjung ngolomi-lomi.*
 (person name) habitually to.walk **night-night**
 'Ikin habitually goes out all night long'.

In Kadorih, the duplicated outputs show different tendencies and possibilities of clausal function (see the table in (40) below). This means that although the word class affiliation of reduplicated *outputs* is not clear, in the case of *inputs* it is useful for predicting the possible clausal functions/distributions of their outputs, and that clausal functions are more relevant to duplicated outputs than word classes. In other words, the syntactic distribution should be used to characterize duplicated *outputs* in Kadorih.

(40)

inputs	clausal functions of duplicated outputs		
	argument	predicate	adjunct
verb	—	✓	(✓)
adjective	—	✓	✓
noun	✓	✓	(✓)

6. Conclusion

In this article, I dealt with a wide spectrum of topics which should be part and parcel of any descriptive framework applied to word duplication. Through the descriptions of word duplication in Kadorih, I found phonological, morphological, syntactic, and semantic characteristics of duplicated structures.

The importance of the distinction between repetition and reduplication was demonstrated in section 2. It is necessary to take into account the repetition/reduplication distinction when we treat word duplication in terms of form and function. In Kadorih, diminution and indefiniteness can arise through reduplication, but not through repetition.

In section 4.1, I described duplication of verbs and adjectives, which can express plurality, intensivity, and diminution. In section 4.2, I showed that reduplication of interrogative pronouns produces indefinite pronouns. I suggested in section 4.3 that duplication of nouns in Kadorih has a variety of functions, namely, it yields entity-, property-, and action-denoting outputs which express ‘plurality’, ‘intensivity/diminution’, and ‘plurality/diminution’ respectively. So, it is natural that we found such a broad syntactic distribution for duplication of nouns at the end of section 5.

Finally, I claimed that, in Kadorih, word class is not a useful notion to describe reduplicated *outputs*, but the word classes of *inputs* are useful for predicting the possible clausal functions/distributions of their outputs. At the same time, it appears that the clausal functions of outputs — argument, predicate, and adjunct — should also be described in order to provide a comprehensive account.

References

- Evans, Nicholas. 2000. “Word classes in the world’s languages”. In Geert Booij, Christian Lehmann, & Joachim Mugdan (ed.) *Morphologie: Ein internationales Handbuch zur Flexion und Wortbildung*, volume 1, chapter 72. Berlin/New York: Walter de Gruyter. pp. 708–732.
- Gil, David. 2005a. “From repetition to reduplication in Riau Indonesian”. In *Studies on Reduplication*, ed. by Bernhard Hurch, volume 28 of *Empirical Approaches to Language Typology*. Berlin: Mouton de Gruyter. pp. 31–64.
- . 2005b. “Distributive Numerals”. In Dryer, Matthew S. & Haspelmath, Martin (ed.) *The World Atlas of Language Structures*, chapter 54. Oxford/New York: Oxford University Press. pp. 222–225.
- Hurch, Bernhard (ed.) 2005. *Studies on Reduplication*, volume 28 of *Empirical Approaches to Language Typology*. Berlin: Mouton de Gruyter.
- Inkelas, Sharon. 2006. “Reduplication”. In *Encyclopedia of Language & Linguistics*, ed. by Keith Brown (Editor in chief), volume 10. Oxford: Elsevier, 2nd edition. pp. 417–419.
- & Cheryl Zoll. 2005. *Reduplication: Doubling in Morphology*, volume 106 of *Cambridge Studies in Linguistics*. Cambridge: Cambridge University Press.
- Key, Harold. 1965. “Some semantic functions of reduplication in various languages”. *Anthropological Linguistics* 7 (3). pp. 88–102.
- Kiyomi, Setsuko. 1995. “A new approach to reduplication: A semantic study of noun and verb reduplication in the Malayo-Polynesian languages”. *Linguistics* 33 (6). pp. 1145–1167.
- Kouwenberg, Silvia & Darlene LaCharité. 2005. “Less is more: Evidence from diminutive reduplication in Caribbean Creole languages”. In *Studies on Reduplication*, ed. by Bernhard Hurch, volume 28 of *Empirical Approaches to Language Typology*. Berlin: Mouton de Gruyter. pp. 533–545.
- Lewis, M. Paul (ed.) 2009. *Ethnologue: Languages of the World*, 16th edition. Dallas, Tex.: SIL International. Online version: <http://www.ethnologue.com/> [Accessed 2011/9/3].
- Marantz, Alec. 1982. “Re reduplication”. *Linguistic Inquiry* 13. pp. 483–545.
- Moravcsik, Edith A. 1978. “Reduplicative constructions”. In *Universals of Human Language*, ed. by Joseph H. Greenberg, volume 3, Word Structure. Stanford: Stanford University Press. pp. 297–334.

Wiltshire, Caroline & Alec Marantz. 2000. "Reduplication". In *Morphologie: Ein internationales Handbuch zur Flexion und Wortbildung*, ed. by Geert Booij, Christian Lehmann, & Joachim Mugdan, volume 1, chapter 57. Berlin/New York: Walter de Gruyter. pp. 557–567.

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