

Compositional and constructional reduplication in Kam-Tai languages¹

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Direct compositionality is a property of empirical data (and of grammatical frameworks) where the meaning of an expression can be reliably computed from the meanings of its parts (Jacobson 2002). Using empirical data from Kam and Northern Zhuang, two Kam-Tai languages spoken in the P.R. of China, I define the notions of compositional and constructional reduplication rules. A rule is compositional if the host construction does not manifest selectional restrictions on the embedded output of the rule. By contrast, a reduplication rule is constructional if there are selectional restrictions. Based on the descriptive insights of this study and on Jacobson's two types of (direct) compositionality, I define four different degrees of compositionality that a morphosyntactic operation may exhibit: strong compositionality, weak compositionality, weak constructionality (non-compositionality) and strong constructionality.

Keywords: Compositionality, constructionality, reduplication, Kam-Tai, Kam, Northern Zhuang

1. Introduction

Reduplication rules have been abundantly discussed in recent years. Much of the debate has focused on phonological and morphological issues.

¹ Research underlying this article was partially supported by the City University of Hong Kong in the form of two Strategic Research Grants (Project Nos. 7001921 and 7002188). I wish to express my gratitude to four native speakers and linguists: Wei Shuguan (Northern Zhuang), Li Xulian (Northern Zhuang), Wu Shihua (Kam) and Yang Chengxing (Kam). My gratitude extends to two FoL reviewers for their constructive criticism. Warm regards go to Noel Johnston and Amanda Huensch for valuable editorial comments.

Correspondence Theory (e.g. McCarthy & Prince 1994, 1995) and Morphological Doubling Theory (Inkelas & Zoll 2005) are two theoretical frameworks which have dominated the argument. Very few scholars have analyzed the syntax of reduplication rules. In an influential paper, Lidz (2001) scrutinized the process of echo reduplication in Kannada within the framework of Distributed Morphology (Halle & Marantz 1993) with a goal to address the more general issue of the status of morphological rules within the generative architecture. He demonstrated that echo reduplication may apply to words, parts of words and whole syntactic phrases and thereby poses serious difficulties for various lexicalist frameworks which assume that some or (in their extreme form) all morphological processes take place in the lexicon before the application of syntactic and phonological rules. To various extents, the lexicalist stance is inherent in works of Chomsky (1981), Di Sciullo & Williams (1987) and Anderson (1992). On the basis of the Kannada data, Lidz rejected the lexical approaches and instead hypothesized that reduplication applies at different places of the generative architecture (hence the name *Distributed Morphology*): at the terminal (word) and non-terminal (phrasal) levels.

These discussions surrounding the lexicalist hypothesis in the generative framework are related in an obvious way to a more general topic in linguistics that has been the focus of discussion in recent years, namely, the notion of compositionality. Gottlob Frege (1884: x), in his *Grundlagen der Arithmetik*, was credited to have first raised the issue of compositionality in the following terms (for a discussion on the historical origin of this principle, see Janssen 1997):

(1) **Definition** Frege's Principle of Compositionality

The meaning of a sentence is a function of the meanings of its words and the way they are combined syntactically.

The lexicalist hypothesis (at least in its strongest form) includes reduplication and other morphological processes within the lexicon which amounts to a rejection of any compositional property for reduplication. Conversely, Distributed Morphology not recognizing any systemic role for the lexicon is presumed to reserve a much higher degree of compositionality for morphological processes.

As Frege's Principle of Compositionality depends on the type of syntactic and semantic framework adopted, certain scholars, such as Janssen (1997) and Dowty (2007), have resisted providing an *a priori* definition of

compositionality. Instead, they propose an inductive, bottom-up, approach, which investigates individual phenomena before constructing a theory of compositionality.

This is the programmatic frame in which I intend to assess the syntactic data on reduplication put forward in this paper. These data originate from two Kam-Tai languages² which exhibit an array of reduplication rules falling into two groups. One set of reduplication rules appears to be *compositional*, while the other group of rules is non-compositional or, as I call them, *constructional*. In Section 2, I lay out my understanding of the notion of compositionality (and constructionality). The relevant reduplication rules in Kam-Tai languages are analyzed in detail in Sections 3 and 4. In Section 5, I connect these rules with Jacobson's system of direct compositionality.

2. The notions of compositionality and constructionality

Most innovative conceptualizations in syntactic theory were motivated by certain sets of empirical data for which they proved to be particularly appropriate. For instance, the notions of D- and S-structure and transformation are particularly suited for analyzing passive constructions. Similarly, idioms and idiomatic expressions have spurred the theoretical notion of construction which is at the heart of Construction Grammar in its different versions.

It appears that scholars who have worked on reduplication from various angles have always adopted a format of analysis that is (either knowingly or unknowingly) imported from Theoretical Computer Science through the notion of *rewrite rule*.³ A rewrite rule consists of two strings A and B

² The Kam-Tai language group, together with Hlai (Li) and Geyang, forms the family of Kadai languages (see e.g. Edmondson & Solnit 1988: 4–5, 1997: 2). Kam is the autonym of native speakers belonging to the Dong nationality whose residence area is in the Guizhou, Guangxi and Hunan provinces of the P.R. of China. There are ca. 1.5 million native speakers of Kam. Northern Zhuang is one of the officially recognized dialects of the Zhuang nationality. There are ca. 18 million native Zhuang people residing in the Guangxi and Yunnan provinces of the P.R. of China. Genetically, Zhuang is a member of the subgroup of Tai languages to which Thai (the national language of Thailand) also belongs. The data in this paper are the outcome of multiyear fieldwork undertaken by the author in these languages. It is the first time reduplication patterns have been scrutinized in these languages.

³ In Automata Theory (within Theoretical Computer Sciences) rewrite rules are used to generate context-free languages. The familiar phrase-structure rules in Chomsky's Genera-

(of sounds, letters or other) and an arrow “ \rightarrow ” which is interpreted as an instruction to replace every occurrence of A by B. The rule is abbreviated as $A \rightarrow B$. A is called the *input* of the rewrite rule and B its *output*. This kind of wording is transparent in various, mainly phonological, models on reduplication. For instance, Correspondence Theory (McCarthy & Prince 1994, 1995) within Optimality Theory explicitly involves the notion of input and output in its design. Similarly, Morphological Doubling Theory (Inkelas & Zoll 2005) is a procedural model, which, at its core, processes an input (or more precisely two inputs) and produces an output.

Correspondence Theory and Morphological Doubling Theory have developed general theories that calculate the output of the reduplication (rewrite) rule as a function of its input. My point of departure in this article is radically different. As Kam-Tai languages involve fairly regular reduplication rules, nothing remarkable can be theorized at the phonological level. Rather, I will be interested in the syntactic, semantic and pragmatic constraints that operate at the clausal level in which the reduplicated item is embedded. It is at the clausal level that we encounter a problem of compositionality. The phenomenon is empirical in nature and can be described independently of the particular syntactic framework adopted. This compositionality problem will be described below and for this purpose we need to posit the following notions and notations.

- (2) **Notation** For each reduplication rule $R: \text{INP}(R) \rightarrow \text{OUTP}(R)$, let $\text{INP}(R)$ and $\text{OUTP}(R)$ be the strings of elements on the left-hand and right-hand of R, called the *input* and *output* of R.

The kind of reduplication rules that I examine in this article look like those spelled out in (3). The input and output are provided with pre-theoretical phonological and lexical labels.

- (3) **Examples**
- a. $R: N \rightarrow NN$ where N is a monosyllabic input noun;
 - b. $R: A \rightarrow A_1A_1A_2A_2$ where $A = A_1A_2$ is a disyllabic input compound of adjectives;
 - c. $R: v \rightarrow v_1v_2v_1v_2$ where $v = v_1v_2$ is a disyllabic input compound of verbs.

tive Grammar framework constitute examples of rewrite rules. Rewrite rules can be invoked to generate a variety of formal objects, such as mathematical functions, natural languages or even music. For a general definition of rewrite rules in Automata Theory see Mateescu & Salomaa (1997) and Rich (2008: 204–205).

6. Conclusion

I started this article by defining the notions of compositional and constructional morphological rules in the way they seem to trigger the reduplication patterns of Kam-Tai languages. More than 20 reduplication patterns of Northern Zhuang and Kam were cataloged according to the distinction of compositional/constructional reduplication rules. Based on the insights of these rules and Jakobson's notion of direct compositionality, I have distinguished four degrees of compositionality that a syntactic or morphological rule may exhibit: strong compositionality (not attested in the Kam-Tai data), weak compositionality, weak constructionality ('non-compositionality') and strong constructionality ('non-compositionality').

Appendix

In this appendix I supplement the exposition of previous sections with additional data on various reduplication schemes (centered on nouns, verbs and adjectives). The information displayed below is first-hand elicited data assembled with various native speakers in several rounds.

Supplement to Section 3.1.1 (monosyllabic count nouns, classifiers and measure words)

Table A1. Reduplication of count nouns

Northern Zhuang			Kam		
hau ²⁴	hau ²⁴ hau ²⁴	'every country fair'	ai ⁵⁵	ai ⁵⁵ ai ⁵⁵	'every country fair'
tam ³¹	tam ³¹ tam ³¹	'every pond'	təm ³³	təm ³³ təm ³³	'every pond'
ba:n ⁵⁵	ba:n ⁵⁵ ba:n ⁵⁵	'every village'	cai ³³	cai ³³ cai ³³	'every village'
pja ²⁴	pja ²⁴ pja ²⁴	'every rock'	pja ⁵⁵	pja ⁵⁵ pja ⁵⁵	'every rock'
ɣi ⁵⁵	ɣi ⁵⁵ ɣi ⁵⁵	'every stream'	kui ³²³	kui ³²³ kui ³²³	'every stream'
ti:k ³³	ti:k ³³ ti:k ³³	'every place'	toi ³³	toi ³³ toi ³³	'every place'
doŋ ²⁴	doŋ ²⁴ doŋ ²⁴	'every forest'	ta ³²³	ta ³²³ ta ³²³	'every forest'
ɣek ³⁵	ɣek ³⁵ ɣek ³⁵	'every pot'	tao ⁵⁵	tao ⁵⁵ tao ⁵⁵	'every pot'
te:p ³³	te:p ³³ te:p ³³	'every small plate'	tip ³¹	tip ³¹ tip ³¹	'every small plate'
tui ⁴²	tui ⁴² tui ⁴²	'every bowl'	tui ³¹	tui ³¹ tui ³¹	'every bowl'
ha:p ³³	ha:p ³³ ha:p ³³	'every box'	hap ⁵⁵	hap ⁵⁵ hap ⁵⁵	'every box'
kvi ³³	kvi ³³ kvi ³³	'every chest'	tui ³³	tui ³³ tui ³³	'every chest'
ɕon ³¹	ɕon ³¹ ɕon ³¹	'every word'	suŋ ³⁵	suŋ ³⁵ suŋ ³⁵	'every word'

Table A2. Classifier and measure word reduplication

N. Zhuang	Kam	Meaning	N. Zhuang	Kam	Meaning
an ²⁴	nɛn ⁵⁵	general	an ²⁴ an ²⁴	nɛn ⁵⁵ nɛn ⁵⁵	'every...'
pou ⁴²	mɯŋ ³¹	for human	pou ⁴² pou ⁴²	mɯŋ ³¹ mɯŋ ³¹	'every...'
tu ³¹	tu ¹¹	for animate	tu ³¹ tu ³¹	tu ¹¹ tu ¹¹	'every...'
ko ²⁴	koŋ ⁵⁵	for trees	ko ²⁴ ko ²⁴	koŋ ⁵⁵ koŋ ⁵⁵	'every...'
tiu ³¹	tiu ¹¹	1-dim	tiu ³¹ tiu ³¹	tiu ¹¹ tiu ¹¹	'every...'
bau ²⁴	paŋ ³³	2-dim	bau ²⁴ bau ²⁴	paŋ ³³ paŋ ³³	'every...'
ɛa:ŋ ³¹	ka ⁵³	for vehicles	ɛa:ŋ ³¹ ɛa:ŋ ³¹	ka ⁵³ ka ⁵³	'every...'
tu ⁵⁵	koŋ ⁵⁵	for flowers	tu ⁵⁵ tu ⁵⁵	koŋ ⁵⁵ koŋ ⁵⁵	'every...'
fa:k ²¹	pak ³²³	for things with handle	fa:k ²¹ fa:k ²¹	pak ³²³ pak ³²³	'every...'
ɛaŋ ⁴²	ɛoŋ ¹¹	'layer'	ɛaŋ ⁴² ɛaŋ ⁴²	ɛoŋ ¹¹ ɛoŋ ¹¹	'every layer'
ho ³³	toŋ ⁵³	'section'	ho ³³ ho ³³	toŋ ⁵³ toŋ ⁵³	'every section'
kou ³³	təu ³³	'pair'	kou ³³ kou ³³	təu ³³ təu ³³	'every pair'
fan ³³	wən ³⁵	'part'	fan ³³ fan ³³	wən ³⁵ wən ³⁵	'every part'
kjoŋ ³⁵	təu ¹¹	'group'	kjoŋ ³⁵ kjoŋ ³⁵	təu ¹¹ təu ¹¹	'every group'
ɣoi ⁴²	təu ¹¹	'string'	ɣoi ⁴² ɣoi ⁴²	təu ¹¹ təu ¹¹	'every string'
lei ⁴²	li ³¹	'500 meter'	lei ⁴² lei ⁴²	li ³¹ li ³¹	'every 500 m'
man ³¹	k ^h vai ⁴⁵³	'Yuan'	man ³¹ man ³¹	k ^h vai ⁴⁵³ k ^h vai ⁴⁵³	'every Yuan'

Supplement to Section 3.1.4 (monosyllabic dynamic and iterative verbs in Northern Zhuang)

Table A3. Submorphemic epenthetic reduplication of monosyllabic verbs indicating speed

ai ²⁴	'cough'	ai ²⁴ au ³⁵	'cough quickly'	fou ²⁴	'rub'	fou ²⁴ fau ³⁵	'rub quickly'
eu ⁵⁵	'break'	eu ⁵⁵ au ³⁵	'break quickly'	vat ³⁵	'dig'	vat ³⁵ vau ³⁵	'dig quickly'
i:t ³⁵	'stretch'	i:t ³⁵ au ³⁵	'stretch quickly'	ve ³³	'draw'	ve ³³ vau ³⁵	'draw quickly'
o:k ³⁵	'exit'	o:k ³⁵ au ³⁵	'exit quickly'	θak ³³	'wash'	θak ³³ θau ³⁵	'wash quickly'
pan ³⁵	'turn'	pan ³⁵ pau ³⁵	'turn quickly'	θi ⁵⁵	'write'	θi ⁵⁵ θau ³⁵	'write quickly'
pin ³⁵	'change'	pin ³⁵ pau ³⁵	'change quickly'	eat ³⁵	'wipe'	eat ³⁵ əau ³⁵	'wipe quickly'
pjaj ³⁵	'walk'	pjaj ³⁵ pau ³⁵	'walk quickly'	euk ³⁵	'tie'	euk ³⁵ əau ³⁵	'tie quickly'
bin ²⁴	'fly'	bin ²⁴ baui ³⁵	'fly quickly'	jan ⁴²	'raise'	jan ⁴² jan ³⁵	'raise quickly'
tam ⁵⁵	'weave'	tam ⁵⁵ tau ³⁵	'weave quickly'	jam ⁵⁵	'cut'	jam ⁵⁵ jam ³⁵	'cut quickly'
tik ²⁵	'kick'	tik ²⁵ tau ³⁵	'kick quickly'	jin ⁴²	'roll'	jin ⁴² jam ³⁵	'roll quickly'
dek ³⁵	'throw'	dek ³⁵ dau ³⁵	'throw quickly'	hak ³³	'learn'	hak ³³ hak ³⁵	'learn quickly'
kai ⁴²	'push'	kai ⁴² kau ³⁵	'push quickly'	lum ³¹	'forget'	lum ³¹ lau ³⁵	'forget quickly'
ke ³⁵	'count'	ke ³⁵ kau ³⁵	'count quickly'	ma ⁵⁵	'grow'	ma ⁵⁵ mau ³⁵	'grow quickly'
k'a ³⁵	'pass'	k'a ³⁵ kau ³⁵	'pass quickly'	nin ²⁴	'move'	nin ²⁴ naui ³⁵	'move quickly'
kja ²⁴	'add'	kja ²⁴ kau ³⁵	'add quickly'	nip ³³	'sew'	nip ³³ naui ³⁵	'sew quickly'
fat ⁵⁵	'sprinkle'	fat ⁵⁵ fau ³⁵	'sprinkle quickly'	ɲau ³¹	'shake'	ɲau ³¹ ɲau ³⁵	'shake quickly'

Table A4. Submorphemic epenthetic reduplication of monosyllabic verbs indicating speed and vividness

eu ⁵⁵	'break'	eu ⁵⁵ i ⁵⁵ eu ⁵⁵ au ³⁵	'break quickly'
pin ³⁵	'change'	pin ³⁵ pi ⁵⁵ pin ³⁵ pau ³⁵	'change quickly'
tik ²⁵	'kick'	tik ²⁵ tj ⁵⁵ tik ²⁵ tau ³⁵	'kick quickly'
ke ³⁵	'count'	ke ³⁵ ki ⁵⁵ ke ³⁵ kau ³⁵	'count quickly'
fat ⁵⁵	'sprinkle'	fat ⁵⁵ fj ⁵⁵ fat ⁵⁵ fau ³⁵	'sprinkle quickly'
lum ³¹	'forget'	lum ³¹ lj ⁵⁵ lum ³¹ lau ³⁵	'forget quickly'
ɲau ³¹	'shake'	ɲau ³¹ ɲj ⁵⁵ ɲau ³¹ ɲau ³⁵	'shake quickly'

Table A5. Morphemic epenthetic reduplication of monosyllabic verbs indicating manner

θat ⁵⁵	‘jump’	θat ⁵⁵ ja ²⁴ θat ⁵⁵ ja:p ³³	‘jump around in disorderly manner’
kun ²⁴	‘eat’	kun ²⁴ ja ²¹ kuun ²⁴ ja:p ³³	‘eat in disorderly manner’
jau ⁵⁵	‘look’	jau ⁵⁵ ja ²¹ jau ⁵⁵ ja:p ³³	‘look in disorderly manner’
pai ²⁴	‘go’	pai ²⁴ ja ²¹ pai ²⁴ ja:p ³³	‘go in disorderly manner’
k’e ⁵⁵	‘cut (rice)’	k’e ⁵⁵ ja ²¹ k’e ⁵⁵ ja:p ³³	‘cut (rice) in disorderly manner’
vat ³⁵	‘dig’	vat ³⁵ ja ²¹ vat ³⁵ ja:p ³³	‘dig in disorderly manner’
ku ³³	‘do’	ku ³³ ja ²¹ ku ³³ ja:p ³³	‘do in disorderly manner’

Supplement to Section 3.1.5 (gradable adjectives that denote a material property)

Table A6. Reduplication of monosyllabic adjectives in Northern Zhuang

hau ³⁵	‘dry’	hau ³⁵ hau ³⁵	‘very dry’	pum ³¹	‘cloudy’	pum ³¹ pum ³¹	‘very cloudy’
da:t ³⁵	‘hot’	da:t ³⁵ da:t ³⁵	‘very hot’	hon ³⁵	‘empty’	hon ³⁵ hon ³⁵	‘very empty’
bon ²⁴	‘loose’	bon ²⁴ bon ²⁴	‘very loose’	hum ³¹	‘itchy’	hum ³¹ hum ³¹	‘very itchy’
a:k ³⁵	‘strong’	a:k ³⁵ a:k ³⁵	‘very strong’	in ²⁴	‘painful’	in ²⁴ in ²⁴	‘very painful’
pak ³³	‘tired’	pak ³³ pak ³³	‘very tired’	lun ³¹	‘round’	lun ³¹ lun ³¹	‘very round’
cin ³⁵	‘straight’	cin ³⁵ cin ³⁵	‘very straight’	nak ⁵⁵	‘heavy’	nak ⁵⁵ nak ⁵⁵	‘very heavy’
co ³¹	‘young’	co ³¹ co ³¹	‘very young’	yim ²⁴	‘full’	yim ²⁴ yim ²⁴	‘very full’
feu ³¹	‘shallow’	feu ³¹ feu ³¹	‘very shallow’	van ²⁴	‘sweet’	van ²⁴ van ²⁴	‘very sweet’
kap ³³	‘narrow’	kap ³³ kap ³³	‘very narrow’	ho ⁵⁵	‘poor’	ho ⁵⁵ ho ⁵⁵	‘very poor’
ket ³³	‘stingy’	ket ³³ ket ³³	‘very stingy’	heu ²⁴	‘blue’	heu ²⁴ heu ²⁴	‘very blue’
ham ³¹	‘bitter’	ham ³¹ ham ³¹	‘very bitter’	ha:u ²⁴	‘white’	ha:u ²⁴ ha:u ²⁴	‘very white’
kuut ³³	‘dense’	kuut ³³ kuut ³³	‘very dense’	hen ⁵⁵	‘yellow’	hen ⁵⁵ hen ⁵⁵	‘very yellow’

Table A7. Reduplication of monosyllabic adjectives in Kam

k'an ⁵⁵	'bright'	k'an ⁵⁵ k'an ⁵⁵	'very bright'	tik ³²³	'full'	tik ³²³ tik ³²³	'very full'
k'ut ³⁵	'lazy'	k'ut ³⁵ k'ut ³⁵	'very lazy'	ton ¹¹	'round'	ton ¹¹ ton ¹¹	'very round'
e ³²³	'stupid'	e ³²³ e ³²³	'very stupid'	nem ⁵⁵	'black'	nem ⁵⁵ nem ⁵⁵	'very black'
ljak ³⁵	'cold'	ljak ³⁵ ljak ³⁵	'very cold'	ja ⁴⁵³	'red'	ja ⁴⁵³ ja ⁴⁵³	'very red'
p'an ³⁵	'tall'	p'an ³⁵ p'an ³⁵	'very tall'	jai ³³	'sharp'	jai ³³ jai ³³	'very sharp'
jai ³²³	'long'	jai ³²³ jai ³²³	'very straight'	k'a ³²³	'hard'	k'a ³²³ k'a ³²³	'very hard'
ljai ⁵⁵	'far'	ljai ⁵⁵ ljai ⁵⁵	'very far'	lai ⁵⁵	'good'	lai ⁵⁵ lai ⁵⁵	'very good'
t'ok ³⁵	'narrow'	t'ok ³⁵ t'ok ³⁵	'very narrow'	hat ⁵⁵	'salty'	hat ⁵⁵ hat ⁵⁵	'very salty'
jem ⁵⁵	'deep'	jem ⁵⁵ jem ⁵⁵	'very deep'	nən ⁵⁵	'foul'	nən ⁵⁵ nən ⁵⁵	'very foul'

Table A8. Northern Zhuang: Disyllabic Adjectives

AABB		ABAB	
a:ŋ ³⁵ ja:ŋ ³¹	'happy'	a:ŋ ³⁵ a:ŋ ³⁵ ja:ŋ ³¹ ja:ŋ ³¹	tuuk ³³ eaŋ ³¹
ŋut ⁵⁵ ŋeu ⁵⁵	'crooked'	ŋut ⁵⁵ ŋut ⁵⁵ ŋeu ⁵⁵ ŋeu ⁵⁵	ho ⁵⁵ θou ³³
kum ³¹ kam ³¹	'perfect'	kum ³¹ kum ³¹ kam ³¹ kam ³¹	ja:k ³⁵ ja:u ⁵⁵
la:u ⁴² θat ³³	'honest'	la:u ⁴² la:u ⁴² θat ³³ θat ³³	ja:k ³⁵ ja:u ⁵⁵ ja:k ³⁵ ja:u ⁵⁵
vun ²⁴ hei ⁵⁵	'glad'	vun ²⁴ vun ²⁴ hei ⁵⁵ hei ⁵⁵	

Table A9. Kam: Disyllabic Adjectives

AABB		ABAB	
wo ³⁵ jep ¹³	'clean'	wo ³⁵ wo ³⁵ jep ¹³ jep ¹³	saŋ ⁵⁵ k'h ¹³
ken ³¹ kat ⁵⁵	'tidy'	ken ³¹ ken ³¹ kat ⁵⁵ kat ⁵⁵	lai ⁵⁵ pai ³¹ lai ⁵⁵ pai ³¹
con ¹¹ cu ³³	'perfect'	con ¹¹ con ¹¹ cu ³³ cu ³³	ho ¹¹ ei ⁵⁵ ho ¹¹ ei ⁵⁵
t'ij ³⁵ t'ui ¹³	'clear'	t'ij ³⁵ t'ij ³⁵ t'ui ¹³ t'ui ¹³	it ³²³ saɪ ³²³ it ³²³ saɪ ³²³
teŋ ⁵⁵ jai ³²³	'long-term'	teŋ ⁵⁵ teŋ ⁵⁵ jai ³²³ jai ³²³	

Supplement to Section 4.1.3 (expectation-raising verb reduplication)

Table A12. Reduplication of disyllabic Verbs in Northern Zhuang (AB - AABB)

Disyllabic verb	Meaning	Reduplicated disyllabic verb	Meaning
θat ⁵⁵ tiu ⁴⁴	'jump'	θat ⁵⁵ θat ⁵⁵ tiu ⁴⁴ tiu ⁴⁴	'jump constantly around'
pi ²⁴ pu:n ³⁵	'sway'	pi ²⁴ pi ²⁴ pu:n ³⁵ pu:n ³⁵	'sway constantly'
pok ⁵⁵ pjo:n ⁵⁵	'go back on word'	pok ⁵⁵ pok ⁵⁵ pjo:n ⁵⁵ pjo:n ⁵⁵	'go constantly back on words'
pu:k ³⁵ ca:m ²⁴	'question'	pu:k ³⁵ pu:k ³⁵ ca:m ²⁴ ca:m ²⁴	'constantly question'
ca:n ²⁴ kja ⁵⁵	'pretend'	ca:n ²⁴ ca:n ²⁴ kja ⁵⁵ kja ⁵⁵	'repeatedly pretend'
tau ³¹ kja ³⁵	'swagger'	tau ³¹ tau ³¹ kja ³⁵ kja ³⁵	'constantly swagger'
lei ⁴⁴ la:n ³³	'show interest'	lei ⁴⁴ lei ⁴⁴ la:n ³³ la:n ³³	'repeatedly show interest'
ha ⁵⁵ yum ³¹	'yawn'	ha ⁵⁵ ha ⁵⁵ yum ³¹ yum ³¹	'constantly yawn'
ka:i ²⁴ cau ⁴²	'sell and buy'	ka:i ²⁴ ka:i ²⁴ cau ⁴² cau ⁴²	'constantly sell and buy'

Table A13. Reduplication of disyllabic Verbs in Kam (AB - AABB)

Disyllabic verb	Meaning	Reduplicated disyllabic Verb	Meaning
hat ¹³ hau ⁵³	'threaten'	hat ¹³ hat ¹³ hau ⁵³ hau ⁵³	'constantly threaten'
wui ³⁵ tam ¹³	'wander'	wui ³⁵ wui ³⁵ tam ¹³ tam ¹³	'constantly wander'
siu ³⁵ san ⁴⁵³	'spread'	siu ³⁵ siu ³⁵ san ⁴⁵³ san ⁴⁵³	'constantly spread'
pon ¹¹ pu ³³	'serve'	pon ¹¹ pon ¹¹ pu ³³ pu ³³	'constantly serve'
ca ³⁵ ciu ¹³	'lack'	ca ³⁵ ca ³⁵ ciu ¹³ ciu ¹³	'constantly lacking'
pek ¹³ pu ³³	'flatter'	pek ¹³ pek ¹³ pu ³³ pu ³³	'constantly flatter'
ca ¹¹ ham ⁴⁵³	'sound out'	ca ¹¹ ca ¹¹ ham ⁴⁵³ ham ⁴⁵³	'constantly question'
ljuk ³¹ wen ³⁵	'offend'	ljuk ³¹ ljuk ³¹ wen ³⁵ wen ³⁵	'constantly offend'

Table A14. Reduplication of disyllabic Verbs in Kam (AB - ABAB)

Disyllabic verb	Meaning	Reduplicated disyllabic Verb	Meaning
tean ⁵⁵ ten ³²³	'live=eat and dress'	tean ⁵⁵ ten ³²³ tean ⁵⁵ ten ³²³	'live and live'
lau ³¹ lep ³¹	'cheat'	lau ³¹ lep ³¹ lau ³¹ lep ³¹	'cheat and cheat'
liŋ ³¹ saɪ ⁵⁵	'grant'	liŋ ³¹ saɪ ⁵⁵ liŋ ³¹ saɪ ⁵⁵	'grant and grant'
təu ⁵³ tom ⁵⁵	'confound'	təu ⁵³ tom ⁵⁵ təu ⁵³ tom ⁵⁵	'confound and confound'
seŋ ⁵⁵ m'a ⁵³	'take offense'	seŋ ⁵⁵ m'a ⁵³ seŋ ⁵⁵ m'a ⁵³	'take offense over offense'

Supplement to Section 4.2.2 (ideophone constructions)

Table A15. Reduplication of nominal ideophones in Northern Zhuang and Kam

Northern Zhuang		Kam	
puun ²⁴	'hair'	puun ²⁴ nam ²⁴ nam ²⁴	'hairy'
fon ⁴⁴	'dust'	fon ⁴⁴ fan ²⁴ fan ²⁴	'dusty'
lu:t ²¹	'blood'	lu:t ²¹ jen ²⁴ jen ²⁴	'bloody'
ŋan ⁴²	'silver'	ŋan ⁴² jan ²⁴ jan ²⁴	'shiny'
ni:n ⁴²	'sinew'	ni:n ⁴² na:n ⁴² na:n ⁴²	'sinewy'
ɣam ³³	'water'	ɣam ³³ ɣa:k ⁵⁵ ɣa:k ⁵⁵	'watery'
ɣin ²⁴	'stone'	ɣin ²⁴ ɣan ³³ ɣan ³³	'stony'
ɣum ²⁴	'weed'	ɣum ²⁴ ɣam ²⁴ ɣam ²⁴	'weedy'
on ²⁴	'thorn'	on ²⁴ ot ⁵⁵ ot ⁵⁵	'thorny'
jou ⁴²	'oil'	jou ⁴² jup ²¹ jup ²¹	'oily'
		ta ⁵⁵ jap ¹¹ jap ¹¹	'blinking'
		k ⁵⁵ ten ¹¹ ui ³²³ ui ³²³	'smoky'
		puɪ ⁵⁵ həp ³¹ həp ³¹	'fiery'
		lap ³²³ jap ³¹ jap ³¹	'flashing'
		pa ⁵³ nəm ³³ nəm ³³	'leafy'
		nəm ³¹ ŋ ^w an ³¹ ŋ ^w an ³¹	'turbulent'
		lan ³³ peɪ ⁵⁵ peɪ ⁵⁵	'wavy'
		p ^h at ¹³ jin ³²³ jin ³²³	'bloody'
		puŋ ³³ p ^h ɛɪ ³¹ p ^h ɛɪ ³¹	'dusty'
		wa ³⁵ nəm ³³ nəm ³³	'flowery'
		ɛy ⁵⁵	'eye'
		smo ⁵⁵ k ⁵⁵	'smoke'
		fi ⁵⁵ r ⁵⁵	'fire'
		li ⁵⁵ ght ⁵⁵ ni ⁵⁵ ŋ	'lightening'
		l ⁵⁵ ɛaf ⁵⁵	'leaf'
		w ⁵⁵ ɛt ⁵⁵ r ⁵⁵	'water'
		w ⁵⁵ ɛv ⁵⁵	'wave'
		b ⁵⁵ l ⁵⁵ ud ⁵⁵	'blood'
		d ⁵⁵ ust ⁵⁵	'dust'
		f ⁵⁵ l ⁵⁵ ow ⁵⁵ r ⁵⁵	'flower'

Table A16. Reduplication of verbal ideophones in Northern Zhuang

Verb	Gloss	Verb-ideophone	Gloss	Reduplication of IDE
ai ²⁴	'cough'	ai ²⁴ ep ³³ ep ³³	'cough lightly and slowly'	must
pan ³¹	'grind'	pan ³¹ kja:t ³⁵ kja:t ³⁵	'grind loudly (big objects)'	must
pat ⁵⁵	'sweep'	pat ⁵⁵ θa ³¹ θa ³¹	'sweep loudly'	must
put ³⁵	'run'	put ³⁵ ɣop ³³ ɣop ³³	'run with strength'	must
tai ⁵⁵	'cry'	tai ⁵⁵ fu:t ⁵⁵ fu:t ⁵⁵	'cry with sobbing'	must
tiu ⁴⁴	'jump'	tiu ⁴⁴ pum ³¹ pum ³¹	'jump and leap'	must
ɣiu ²⁴	'laugh'	ɣiu ²⁴ num ⁵⁵ num ⁵⁵	'laugh gently'	can
ka:n ⁵⁵	'talk'	ka:n ⁵⁵ pet ³⁵ pet ³⁵	'talk like a waterfall'	must
bin ²⁴	'fly'	bin ²⁴ fon ²⁴ fon ²⁴	'fly with loud noise'	must
na:n ³³	'sit'	na:n ³³ ɲok ⁵⁵ ɲok ⁵⁵	'sit still'	must
ɣam ⁵⁵	'fell'	ɣam ⁵⁵ tak ⁵⁵ tak ⁵⁵	'fell with a loud dak-dak noise'	must
ɣi:n ⁴²	'roll'	ɣi:n ⁴² di ²⁴ di ²⁴	'roll constantly'	must
ɣiu ²⁴	'laugh'	ɣiu ²⁴ ha ³¹ ha ³¹	'laugh with a haha'	must
θan ³¹	'tremble'	θan ³¹ kju:k ³³ kju:k ³³	'tremble with fear'	must
θau ³⁵	'try'	θau ³⁵ ɲup ⁵⁵ ɲup ⁵⁵	'try again and again'	must
ven ⁵⁵	'hang'	ven ⁵⁵ na:n ²⁴ na:n ²⁴	'hang and expose'	must
ɣat ³³	'cut with scissors'	ɣat ³³ kju:t ³³ kju:t ³³	'cut with blunt scissors'	must

Table A17. Reduplication of verbal ideophones in Kam

Verb	Gloss	Verb-ideophone	Gloss	Reduplication of IDE
p ^h a ⁵⁵	'weave'	p ^h a ⁵⁵ ɕet ¹³ ɕet ¹³	'weave very quickly'	can
p ^h ɛk ⁵⁵	'whip'	p ^h ɛk ⁵⁵ set ³²³ set ³²³	'whip repeatedly'	must
it ³¹	'bite'	it ³¹ ŋa ³³ ŋa ³³	'chew to the bone'	must
wum ³¹	'drink'	wum ³¹ ot ³¹ ot ³¹	'drink noisily'	must
pɛn ⁵³	'dress up'	pɛn ⁵³ koŋ ¹¹ koŋ ¹¹	'dress stunningly'	must
pən ³²³	'fly'	pən ³²³ həm ³¹ həm ³¹	'fly in swarms'	must
t ^h am ¹³	'walk'	t ^h am ¹³ t ^h et ³⁵ t ^h et ³⁵	'walking and hopping'	can
p ^h iu ⁵⁵	'jump'	p ^h iu ⁵⁵ t ^h oŋ ³⁵ t ^h oŋ ³⁵	'leaping'	can
ho ³¹	'roll'	ho ³¹ non ³²³ non ³²³	'keep on rolling'	must
tok ⁵⁵	'fall'	tok ⁵⁵ t ^h əm ³⁵ t ^h əm ³⁵	'fall with a splash'	must
tən ¹¹	'stand'	tən ¹¹ təm ⁵³ təm ⁵³	'stand firmly'	must
ɕəŋ ⁴⁵³	'miss'	ɕəŋ ⁴⁵³ ŋui ³⁵ ŋui ³⁵	'strongly miss somebody'	must
nən ³³	'remember'	nən ³³ tək ³⁵ tək ³⁵	'recall constantly'	must
ko ⁵⁵	'laugh'	ko ⁵⁵ li ⁵⁵ li ⁵⁵	'giggling'	must
jaŋ ⁵⁵	'sigh'	jaŋ ⁵⁵ həi ³¹ həi ³¹	'sigh deeply'	must
lən ⁴⁵³	'snap'	lən ⁴⁵³ k ^h wɛk ³⁵ k ^h wɛk ³⁵	'snap fingers loudly'	must
aŋ ³²³	'speak'	aŋ ³²³ mun ⁵³ mun ⁵³	'speak eloquently'	must

Table A18. Reduplication of adjectival ideophones in Northern Zhuang

Adjective	Gloss	Adjective-ideophone	Gloss	Reduplication
a:ŋ ³⁵	'joyful'	a:ŋ ³⁵ jek ³⁵ jek ³⁵	'childish and overjoyed'	must
pak ³³	'tired'	pak ³³ fo ³¹ fo ³¹	'very tired'	must
pi ³¹	'fat'	pi ³¹ po:t ³³ po:t ³³	'fat and round'	must
ɕo ³¹	'young'	ɕo ³¹ ɕut ³³ ɕut ³³	'young and tender'	must
tum ³¹	'wet'	tum ³¹ tam ³¹ tam ³¹	'very wet'	must
feu ³¹	'shallow'	feu ³¹ fut ³³ fut ³³	'very shallow'	must
k ^v a:ŋ ³⁵	'wide'	k ^v a:ŋ ³⁵ mja:ŋ ²⁴ mja:ŋ ²⁴	'wide and vast'	must
ham ³¹	'bitter'	ham ³¹ ŋa:m ³⁵ ŋa:m ³⁵	'very bitter'	must
ha:u ²⁴	'white'	ha:u ²⁴ θek ³⁵ θek ³⁵	'white and clean'	must
ho ⁵⁵	'poor'	ho ⁵⁵ ha:ŋ ³⁵ ha:ŋ ³⁵	'poor and miserable'	can
i:k ³⁵	'hungry'	i:k ³⁵ ŋa:u ³⁵ ŋa:u ³⁵	'hungry with empty belly'	must
lap ⁵⁵	'dark'	lap ⁵⁵ θaŋ ²⁴ θaŋ ²⁴	'pitch-dark'	must
ma:n ³³	'spicy'	ma:n ³³ θak ³³ θak ³³	'extremely spicy'	must
mo ³⁵	'new'	mo ³⁵ θa:k ³⁵ θa:k ³⁵	'brand-new'	must
niu ²⁴	'sticky'	niu ²⁴ na:ŋ ³⁵ na:ŋ ³⁵	'very sticky'	must
ɣim ²⁴	'full'	ɣim ²⁴ ɣa:t ³³ ɣa:t ³³	'full to the crack'	must
θo ³³	'straight'	θo ³³ noŋ ²⁴ noŋ ²⁴	'bolt upright'	must

Table A19. Reduplication of adjectival ideophones in Kam

Adjective	Gloss	Adjective-ideophone	Gloss	Reduplication
an ¹¹	'messy'	an ¹¹ iu ³¹ iu ³¹	'completely messy'	must
ət ⁵⁵	'dense'	ət ⁵⁵ eu ⁵⁵ eu ⁵⁵	'overcrowded'	must
k ^w a ³²³	'hard'	k ^w a ³²³ təŋ ³²³ təŋ ³²³	'extremely'	must
ma ³²³	'soft'	ma ³²³ məm ³³ məm ³³	'mushy'	can
p ^h aŋ ³⁵	'tall'	p ^h aŋ ³⁵ ŋaŋ ⁵³ ŋaŋ ⁵³	'tall and upright'	must
sək ⁵⁵	'steep'	sək ⁵⁵ sem ⁵⁵ sem ⁵⁵	'very steep'	can
pu ⁵⁵	'swollen'	pu ⁵⁵ pəp ⁵⁵ pəp ⁵⁵	'tautly swollen'	must
k ^h o ³⁵	'slippery'	k ^h o ³⁵ k ^h wəŋ ⁴⁵³ k ^h wəŋ ⁴⁵³	'very slippery'	can
əm ⁵³	'violet'	əm ⁵³ ui ⁵⁵ ui ⁵⁵	'deep violet'	can
mun ¹¹	'foggy'	mun ¹¹ puŋ ³³ puŋ ³³	'fog-grey, mist-grey'	must
kəm ⁵³	'quiet'	kəm ⁵³ kiu ⁵⁵ kiu ⁵⁵	'dead quiet'	must
k ^h wan ³⁵	'sweet'	k ^h wan ³⁵ nəm ³³ nəm ³³	'very sweet'	must
ut ¹³	'hot'	ut ¹³ həp ³¹ həp ³¹	'feverish' (for body temperature)	must
jim ⁴⁵³	'cool'	jim ⁴⁵³ ji ¹³ ji ¹³	'pleasantly cool'	must
lai ⁵⁵	'good'	lai ⁵⁵ ti ³³ ti ³³	'extremely good'	must
əm ³⁵	'confused'	əm ³⁵ u ³²³ u ³²³	'very confused'	can
məŋ ³¹	'happy'	məŋ ³¹ k ^w e ⁵⁵ k ^w e ⁵⁵	'happy-go-lucky'	must

Abbreviations

1P PL	first-person plural
1P SG	first-person singular
2P PL	second-person plural
2P SG	second-person singular
3P PL	third-person plural
3P SG	third-person singular
ADJ	adjective
CL	classifier
COLL	collectivizer
COP	copular
COV	coverb
COV:pass	coverb with gloss
DEM	demonstrative
DEM:DIST	demonstrative: distal
DEM:MED	demonstrative: medial
DEM:PROX	demonstrative: proximal
DP	dynamic perfect
EXCL	exclamation

GO	inchoative particle
IDE	ideophone
LOC	location
LOC:at	location with gloss
N	noun
NEG	negation particle
NEG IMP	negative imperative
NP	noun phrase
NUM	numeral
NUM:9	numeral with its value
PASS	passive
QUANT	quantifier
QUANT:all	quantifier with gloss
RES	resultative particle
RES:get	resultative particle with gloss
SYL	syllable
V	verb
VP	verb phrase

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received: 12 March 2009
resubmission invited: 6 July 2009
resubmission received: 5 August 2009
accepted: 19 October 2009