An Optimality-Theoretic Analysis of Binomials in Chintang Ritual Language*

Annegrit Vorberg[a], Balthasar Bickel[b], Martin Gaenszle[c], Gereon Müller[a], Goma Banjade[d], Netra P. Paudyal[a], Toya N. Bhatta[d], and Ichchha P. Rai[d]

[a]University of Leipzig
[b]University of Zurich
[c]University of Vienna
[d]Chintang and Puma Documentation Programme, Kathmandu

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Abstract

This paper addresses binomial formation, a fixed noun combination type, in Chintang, a Kiranti (Tibeto-Burman) language of Nepal. Binomial formation is characteristic of and frequent in ritual language, a distribution shared with other languages of the Kiranti group. Binomials have irreversible and fixed order and are subject to several preferences on the distribution of phonological properties over their component parts (or 'limbs'); other properties, such as prosody, do not appear to be strongly constrained (unlike in European languages for which binomials have been studied). The most prominent characteristic is a preference for placing the phonetically prominent segments /s/ and /a/ in the first syllable of the first limb. This paper develops a set of phonological constraints on binomial formation and models these in Optimality Theory in order to explain the observed patterns.

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1 Chintang and Kiranti ritual language

Chintang is a Tibeto-Burman language and belongs to the Eastern branch of the Kiranti language family. It is spoken on one of the southern foothills of the Himalayas in Eastern Nepal. There are two villages which are inhabited by Chintang-speaking people, namely Chintang and Ahale, both located in the Dhankuta District, Koshi Zone. The total population is made up of approximately 4,000 to 5,000 speakers, most of whom grow up bilingually or trilingually, using the local *lingua franca* Nepali in various domains of their daily life and in some cases also the neighboring Kiranti language Bantawa. There are two dialects: *Mulgā̃ũ* and *Sambugā̃ũ*.

The binomial expressions that are addressed here appear almost exclusively in ritual language. Like in other Kiranti societies, the rituals of the *Muddum* (or *Mundum*) religion play a great role in the everyday life of the Chintang people. They are performed by various kinds of priests or by knowledgeable elders (*wattoŋ*) of the village community and cover the whole range of rituals that occur in their life-cycle. Within the rituals a distinct language is used and in Chintang this is typically chanted in high speed.[1] The ritual language itself consists of many ritual expressions, especially what are called binomials (Allen 1978). In most cases, these are combinations of nouns or adjectives; combinations of verbs are attested in very few cases of uncertain status. If a priest mentions the offering or the god he wants to offer to, he has to use the ritual name. Most verb forms used in the rituals belong to the ordinary language and many words and morphemes in the ritual as well as in the normal language are borrowed from Nepali (Gaenszle et al. 2005).

For the present analysis, we have extracted a sample set of 100 binomials from the ritual language corpus for deeper analysis (listed in the Appendix).

2 Phonological properties of Chintang

Table 1 summarizes the consonant phonemes in Chintang. Every plosive except the glottal stop also has an aspirated counterpart, which is written as a digraph.

	bilabial	alveolar	alveolar-pal.	velar	glottal
Plosive	p ph b bh	t th d dh	c ch	k kh g gh	ʔ
Nasal	m	n		ŋ	
Fricative		s			h
Trill		r			
Lateral appr.		l			
Glide	w (labiovelar)		y		

Table 1: Phonemic consonants in Chintang

What is written as /c/ and /ch/ are phonetically realized as palatalised versions of the affricates [ts] and [ts^h]. The voiced counterparts to /c/ and /ch/ are limited to

[1] It is possible that this performance feature was borrowed from Brahminical tradition (see Gaenszle et al. 2005) since it is not charactersitic of the Mundum religion in general and not typically found in other Kiranti societies.

borrowings from Nepali, the Indo-Aryan lingua franca of the area; we write them as /j/ and /jh/. We exclude these borrowed phonemes from the following because they do not play a role in constraining the structure of binomial expressions.

Table 2 shows the vocalic phonemes in Chintang. Length is not distinctive.

i	ɨ	u
e		o
	a	

Table 2: Phonemic vowels in Chintang

In addition to these, there are five diphthongs, viz. /ei, ai, oi, ui, au/, as well as their nasalised counterparts /eĩ aĩ oĩ uĩ aũ/.

In underlying representation, a syllable in Chintang can be composed of a vowel (V) alone, a vowel with a consonant (VC and CV), or a CVC sequence, but V-initial syllables are never realized as such. When they occur in initial position of a prosodic word, they receive a prothetic glottal stop; when they occur in non-final position, V-initial morphemes are resyllabified with preceding consonants or merge with preceding vowels (based on a series of specific deletion and vowel coalescence rules; see Bickel et al. 2007).

As far as we can determine, syllable weight plays no active role in Chintang and there appears to be no minimal weight constraint (so that minimal words can consist of a single short vowel). Feet consist of two syllables and play an important role in the distribution of metrical stress and the formation of verb forms (Bickel et al. 2007).

3 Binomial expressions and their analysis

Like ritual language in general, binomials are used only by initiated ritual authorities. Semantically, the binomials are sometimes fairly transparent, but often they are synchronically opaque and meanings are not so much an issue of compositional semantics but of exegesis by ritual experts and etymological investigation. In this paper we limit our attention entirely to phonological properties and refer to semantic aspects only occasionally (but see Gaenszle et al. 2005 and Rai 2007 for analyses of the semantics and pragmatics of Chintang binomials).

Binomials are irreversible in their formation, suggesting the presence of rules or constraints that determine the order of the parts. In the following, we first present the overall structure of the forms and then focus on the analysis of the first syllables. Finally, we discuss the phonological features that play a role in the formation.

3.1 The structure

A binomial in Chintang is composed of two parts or 'limbs' (Allen's 1978 term). The limbs always occur in the same order — a property of a frequent subtype of binomials that occurs in many languages of the world and that was identified early on by (Malkiel 1959:113) as 'irreversible binomials'. This property of irreversibility also holds of binomials in Chintang. Moreover, the limbs require each other, and it is virtually impossible that one limb can occur on its own.

Syntactically, binomials behave like ordinary noun phrases and show the same distribution of phrasal morphology like these. Case markers, such as *-beʔ*, are phrasal suffixes in Chintang and therefore are invariably attached to the end of binomials or of coordinate noun phrases. This is illustrated by the locative case marker *-beʔ* ∼ *-peʔ* for a binomial in (1-a), compared to an ordinary coordinate noun phrase in (1-b) and an ordinary NP with a nominal modifier in (1-c):[2]

(1) a. wadhaŋmi phokcekmi=beʔ...
a.ritual a.ritual=LOC ...
C-RL C-RL=C ...
'In the Wadhangmi ritual ...' *Burhahang_01.15*

b. Terathum Taplejuŋ=beʔ=ŋa u-ta-no
a.place a.place=LOC=MED 3nsS-come-NPST
N N=C=C C-C-C
'They come from Tehrathum and Taplejung.' *Story_chintang.060*

c. siŋ taŋ cok=peʔ lɨg-ad-e=pho
wood tree branch=LOC climb.up-TEL-PST=REP
C C C=C C-C-C=C
'He climbed up the branch of a tree.' *story_demon.082*

Coordination can be left unmarked as in (1-b), but it can also be coded by a symmetrical use of the comitative marker *nɨŋ*. This is shown for a binomial in (2-a) and an ordinary noun phrase in (2-b):

(2) a. thaŋna=nɨŋ meʔna=nɨŋ
friends.and.relatives=COM friends.and.relatives=COM
C-RL=C C-RL=C
ko-noʔ=ko dokani pasari=beʔ
walk.around-NPST=NMLZ shop shop=LOC
C-C=C C-RL C-RL=C
'the various shops that friends and relatives walk around' *Burhahang_01.17*

b. gaʔwa pa=nɨŋ gaʔwa ma=nɨŋ=pho siŋ taŋ=be
crow male=COM crow female=COM=REP wood tree=LOC
C C=C C C=C=C C C=C
u-yu-wakt-a-ce=pho
3nsS-be-IPFV-PST-d=REP
C-C-C-C(M)-C=C
'There was a male crow and a female crow on the tree.' *khebak_tale.084*

[2] Examples are identified by their record number in the text from which they are taken; e. g. *Burhohang_01.15* is from record 15 in the text *Burhohang_01*. Detailed metadata on all cited texts are accessible through the DoBeS archive portal (`http://corpus1.mpi.nl/ds/imdi_browser/`); the data themselves are available at the same portal, but only on request. In the examples, we also include the source language or source register of each morpheme in the glosses: 'C-RL' for Chintang ritual language, 'C' for Chintang, 'C(M)' and 'C(S)' for dialect-specific forms from Mulgãũ and Sambugãũ, respectively, and 'N' for borrowings from Nepali.

Turning to phonological features, a striking characteristic of Chintang binomials is that they almost always have the same number of syllables in their limbs. If the first limb has two, three or up to four syllables, the second one will have the same number, as in examples (3) and (4); exceptions to this rule are very rare and show no clear pattern of preference (e.g. *sahadusa gardusa* and *dasahari tabari*). There is no constraint on the number of syllables to be found like in many Indo-European languages (Malkiel 1959, 149-151), where the number of syllables in each part of the binomial stays the same or rises (Behaghel 1924, Malkiel 1959).

(3)

laŋka	heŋka	li-ma	mahaʔ
upside.down	upside.down	be-INF	should.not
C-RL	C-RL	C-C	C

'Let it not be upside down.' *Burhahang_01.38*

(4)

hoʔwala	koʔwala	senca	bara-ce	hate	num-saŋa	a-khatt-u-m-cum
loss	loss	death	death-ns	avoidance	do-CVB	2-take-3P-2nsA-ns
C-RL	C-RL	C-RL	C-RL-C	N	C-C	C-C-C-C-C

'You go on protecting us from death.' *wal_yupung02.251*

Not only do they share the same number of syllables, they also often have identical elements. For example, the majority of binomials share the structure of the last syllable. Binomials with more than two syllables can also have two identical syllables at the end of each limb, like the binomial *hoʔwala koʔwala* in example (4). These two characteristics of binomials show that the ritual language of Chintang tends to favor parallel structures. The binomial is the smallest unit of this parallelism. Other manifestations are types of syntactic parallelisms, shown through repetition of certain verbal forms or repetition of whole sentences (cf. Jakobson 1966:399 and Fox 1977 on parallelism in general and Allen 1978 on parallelism in Kiranti binomials).

The parallelism in binomial formation also extends to prosodic structure. According to Rai (2007), stress invariable falls on the first syllable of each limb, in perfect symmetry:

(5)

ˈsoloĩwa	ˈlamloĩwa	gar=i
calabash	calabash	do=EMPH
C-RL	C-RL	N=C

'(He has) offered the calabash.' *Burhahang_01.12*

However, limbs do not have to always only occur in pairs; expressions with three, four or even six limbs are also possible in Chintang, so-called multinomials (Gaenszle et al. 2005).

In (6) the final two syllables stay identical (*-saya* 'soul') through an entire sequence of limbs, and they form the heads of the binomial parts. The first element, whether from Nepali, everyday Chintang, or the ritual language of Chintang, modifies the semantic meaning of each limb.

(6)

makkham	saya	thumsuŋ	saya	diluŋ	saya	hatti	saya	ghoda	saya
earth	soul	tree	soul	stone	soul	elephant	soul	horse	soul
C-RL	C-RL	C-RL	C-RL	C-RL	C-RL	N	C-RL	N	C-RL

miri	saya	*Budhohang_d.91*
tail	soul	
C	C-RL	

3.2 The first syllable

As noted in the preceding section, the final syllables of limbs tend to be identical, all differences being chiefly limited to the structure of the initial syllable. The question that arises is to what extent the phonological structure of these syllables affects the formation of the entire binomial. The initial syllable of a binomial limb can have the surface form CVC or CV(V), i. e. it can be closed or open (where the initial consonant is underlying or the result of regular word-initial glottal stop prothesis). Both possibilities appear about equally often: half of the first syllables of the first part are open and the other half have closed syllables; the same is true in the second part. This suggests that syllable weight makes no difference in determining the order of the limbs, in contrast to what has been argued for Indo-European languages (e.g. Ross 1980). This is also confirmed by the fact noted in the preceding section that there is no contrast between short and long vowels in Chintang, and that syllable weight does not seem to play a major role elsewhere in the grammar of the language.

A similar picture can be seen if we look at the onset of the first syllables. As there are no consonant clusters inside the syllable, there remains only the difference between unaspirated and aspirated onsets. The analysis of binomials shows that the amount of aspirated plosives in the onset of the first limb equals the amount of them in the onset of the second limb. In both cases they account for about 18% of onset consonants. No constraints concerning the size of the onset of the first syllable exist in Chintang. This is again different from what is known about binomial formation in other languages, especially European languages, where onset type and size are important conditions determining the order of binomials or multinomials (Ross 1980, Lenz 1999).

3.3 Consonants and vowels in Chintang binomials and comparison to everyday language

The linguistic elements that determine the order of binomials seem to be the onset consonants and the vowels in the initial syllables of the limbs. These two factors will be discussed in the following sections, where we compare the distribution in binomials with the distribution in ordinary language in order to establish the extent to which ritual language is special in these regards.

3.3.1 Consonants

The analysis of the sample of binomials reveals a distribution of consonants in the onset of the first limb that is shown in Table 3. A statistical comparison with the everyday-language distribution of initial consonants in Chintang (Table 4) suggests that the distribution of segments is not significantly different, except for a frequency increase of /s/ in binomials ($p < .001$, permutation test on all consonants, based on the Maximum Residuals statistic; cf. Zeileis et al. 2007): 22% of /s/ among binomials (N=100) contrast with only 6.5% among everyday words (N=2,914).

The second limb shows a different distribution of initial consonants, as shown by Table 5. There are no statistically significant deviations from the distribution of segments in everyday language, but there are slight trends towards increased frequencies of velar and voiceless bilabial consonants and towards a preponderence of /m/ (though still statistically non-significant).

	bilabial	alveolar	alveolar-pal.	velar	glottal
Plosive 50%	p ph b bh 8% 1%	t th d dh 13% 3%	c ch 13%	k kh g gh 6% 1%	ʔ 5%
Nasal 12%	m 5%	n 4%		ŋ 3%	
Fricative 26%		s 22%			h 4%
Trill 3%		r 3%			
Lateral appr. 1%		l 1%			
Glide 8%	w (labiovelar) 7%		y 1%		

Table 3: Percentage of initial consonants in the first limb

	bilabial	alveolar	alveolar-pal.	velar	glottal
Plosive 57%	p ph b bh 11% 5%	t th d dh 9% 4%	c ch 9%	k kh g gh 10% 2%	ʔ 7%
Nasal 10%	m 6%	n 4%		ŋ less than 1%	
Fricative 11%		s 6%			h 5%
Trill 3%		r 3%			
Lateral appr. 6%		l 6%			
Glide 4%	w (labiovelar) 2%		y 2%		

Table 4: Percentage of initial consonants in regular Chintang

	bilabial	alveolar	alveolar-pal.	velar	glottal
Plosive 65%	p ph b bh 17% 6%	t th d dh 11% 2%	c ch 9%	k kh g gh 12% 5%	ʔ 3%
Nasal 14%	m 13%	n 0%		ŋ 1%	
Fricative 8%		s 4%			h 4%
Trill 3%		r 3%			
Lateral appr. 7%		l 7%			
Glide 3%	w (labiovelar) 2%		y 1%		

Table 5: Percentage of initial consonants in the second limb

Comparing the distributions of initial (Table 3) and second-position (Table 5) syllables reveals a significant frequency increase of /s/ in the initial position (permutation test $p < .001$). Other frequency deviations are not individually significant statistically, but there is a possible trend towards increase frequencies of labial and velar plosives, /m/ and /l/ in the second position.[3]

The next question to be asked is whether the initial consonants in the first and second limb correlate with each other. A noticeable correlation is the fact that in 36% of binomials starting with /s/, the bilabial nasal follows. Furthermore, if the first limb starts with /c/ or /k/, or their aspirated variants, then the second limb will almost without exception start with a plosive. What cannot be confirmed at this point is the correlation between alveolar consonants proposed by (Rai 2007).

Considering the coda of the first syllable, it is striking that the second limb displays a nasal in 26% of the cases, whereas in the first limb this is true only with 15% of the binomials.

3.3.2 Vowels

In this section we analyse the vowels that appear in the single-vowel nucleus of the first syllable of a binomial (Table 6). There is a statistically significant difference in the frequencies of /a/ between everyday language and binomials (Table 7). Compared to the base frequency of 34% in everyday language, binomials show an increased frequency of 50% in initial position ($p < .05$, permutation test on all vowels) and of 47% in non-initial position ($p < .10$).

Comparing nuclei of initial (Table 6) and non-initial (Table 8) syllables, there is no statistically significant frequency difference but there are trends to the effect that /i/, /o/ and /ɨ/ are slightly more frequent in initial and /e/ and /u/ slightly more frequent in non-initial position of binomials.

[3] The absence of statistical significance could be due the small cell frequencies in our sample; we therefore report non-significant trends as well.

i 15%	ɨ 2%	u 15%
e 3%		o 15%
	a 50%	

Table 6: Percentage of vowels in the first limb

i 10%	ɨ 8%	u 19%
e 13%		o 15%
	a 34%	

Table 7: Percentage of vowels in the first syllable in regular Chintang

i 8%	ɨ 1%	u 23%
e 10%		o 10%
	a 47%	

Table 8: Percentage of vowels in the second limb

The overall distribution suggests the following pattern: if /u/ or /o/ form the nucleus of the first limb, then in many cases an /a/ will follow in the first syllable of the second limb.

4 Optimality-Theoretic Analysis

This section recasts some of the generalizations observed in the preceding in terms of Optimality-Theoretic constraints (Kager 1999, Prince & Smolensky 2004). We propose six constraints that suffice to determine the order of almost all binomials. We first explain the constraints and their order and then apply the constraints to a set of examples, demonstrating how they capture the observed orderings.

4.1 The constraints

The constraints all refer to binomials with the structure $\alpha\beta$, with α as the first limb and β as the second limb. Since the order of the two limbs is determined by the vowels and consonants in the first syllable of each limb, the constraints refer to this features. Two of them determine the consonants in the onset, three constraints refer to vowels in the first syllables and one constraint is about the structure of the entire first syllable. The candidates that we consider are the existing binomials (in the order $\alpha\beta$ and $\beta\alpha$) and every possible candidate that does not fulfill the requirements stated in the constraints violates them (marked by an asterisk in the tableaux below). In other words, the constraints constitute the conditions that a binomial has to fulfill ideally. The constraints are ranked in a specific order, and they can conflict with one another. If a binomial violates one constraint with the order $\alpha\beta$ and another constraint with the order $\beta\alpha$, then the violation of the constraint with the higher position in the ranking will be fatal. The constraints are all violable; the optimal candidate is the one with the least costly violations.

The six constraints are the following:

C(s): If one limb starts with /s/, this limb will be in position α.

C(plos): If one limb starts with a voiceless plosive, this limb will be in position β.

CVN: If the first syllable of a limb has the structure CVN, then the limb will be in position β.

V(*e,*ɨ): There is no /e/ or /ɨ/ in the nucleus of the first syllable in α.

V(u): If there is a /u/ in the nucleus of a limb, this limb will be in position β.

V(a): If the nucleus of a limb is an /a/, this limb will be in position α.

Although there are significant frequency differences involving /l/ as well as /o/ and /i/, we do not propose contraints involving these segments. Including such constraints invariably leads to larger and more complex constraint sets (with at least ten constraints), and after exploring various subsets we conclude that the six constraints proposed here provide the most parsimonious solution given the data.

4.2 The ranking of the constraints

We propose the following constraint ranking:

(7) C(s) $\succ$ V(*e,*ɨ) $\succ$ V(u) $\succ$ C(plos), CVN $\succ$ V(a).

C(s) dominates all other constraints and a violation of this constraint always incurs a fatal violation (marked with an exclamation mark), prohibiting the offending binomial structure to surface. If the first constraint is not violated, then the next constraints can be decisive and so on. The following tableaux show that the constraints and their ranking capture all structures in the data.

The first constraint C(s) ensures the order of binomials like *sɨnɨŋ dapnɨŋ* (and not **dapnɨŋ sɨnɨŋ*) in Tableau 1. Although the /ɨ/ in the nucleus of the first limb should be avoided, the second constraint V(*e, *ɨ) has no effect, because it is ranked below C(s). In this binomial, the /ɨ/ has to be in the first limb, because the constraint with the highest ranking excludes the order of *dapnɨŋ sɨnɨŋ*. The same can be said about the binomial *senca bara* with /e/ in the first limb in Tableau 2.

	C(s)	V(*e,*ɨ)	V(u)	C(plos)	CVN	V(a)
☞ sɨnɨŋ dapnɨŋ		*				*
dapnɨŋ sɨnɨŋ	*!					

Tableau 1 *sudhar_daijo.006*

	C(s)	V(*e,*ɨ)	V(u)	C(plos)	CVN	V(a)
☞ senca bara		*			*	*
bara senca	*!					

Tableau 2 *wal_yupung02.251*

In Tableau 3 the constraint that forbids /ɨ/ and /e/ in the first syllable plays a decisive role. The third constraint V(u) prefers a /u/ in the nucleus of the second limb, but because V(*e, *ɨ) is ranked higher, the violation of this constraint excludes the order *berichoŋ tuplachoŋ*.

	C(s)	V(*e,*ɨ)	V(u)	C(plos)	CVN	V(a)
☞ tuplachoŋ berichoŋ			*	*		
berichoŋ tuplachoŋ		*!				

Tableau 3 *Burhahang_01.06*

The third constraint V(u) is ranked above C(plos) because of the binomial in Tableau 4. A /u/ in the second limb is not as important as the prominent vowel /a/ in the first limb. So the order of *tayuwa muluwa* is the optimal output candidate.

	C(s)	V(*e,*ɨ)	V(u)	C(plos)	CVN	V(a)
☞ tayuwa muluwa				*		
muluwa tayuwa			*!			*

Tableau 4 *sudhar_hang.54*

The fourth constraint C(plos) prefers the order of *dokani pasari*, because the voiceless plosive ought to be in the second limb (cf. Tableau 5). There is no binomial where the constraint C(plos) plays a decisive role, whereas CVN prefers the other candidate. Therefore these two constraints can be ranked the same.

	C(s)	V(*e,*ɨ)	V(u)	C(plos)	CVN	V(a)
☞ dokani pasari						*
pasari dokani				*!		

Tableau 5 *celi_azik_01015*

Tableaux (6 and 7) present two more binomials that provide justification for the existence of the remaining constraints.

	C(s)	V(*e,*ɨ)	V(u)	C(plo)	CVN	V(a)
☞ phokturi taŋsuri						*
taŋsuri phokturi					*!	

Tableau 6 *dasa_walung.014*

	C(s)	V(*e,*ɨ)	V(u)	C(plo)	CVN	V(a)
☞ casum khiwa						
khiwa casum						*!

Tableau 7 *dasa_walung.140*

5 Discussion and conclusions

The properties of binomial formation in Chintang ritual language follow from the interaction of a small number of constraints. Prominent elements like /s/ and /a/ prefer to stand in the prominent position of the first syllable of the first limb. It is striking that this formation seems to be highly regular. There are exceptions for sure; they are listed in the appendix. But apart from that, how can it be explained that such a marginal subpart of the language obeys such strict regularities? Is there any benefit to this?

Different explanations are possible. There could be a functional motivation to form ritual expressions by the regular use of a few rules. The ritual knowledge is learned by elders with the appropriate age (at least 40-45), who have undergone a period of initiation (cf. Gaenszle 2002:57ff on the Mewahang, another Kiranti group with a similar set of binomials.) Learning a new language is easier if there are some clear rules to follow. The regular formation of the binomials in Chintang helps the ritual experts to remember them.

But this raises the question why the regularities of ritual language seem to have no impact on everyday language: why do the six constraints have no influence on the formation of regular words in Chintang? An answer to this is suggested by the fact that ritual language is strongly marked by pervasive parallelism in structure. There is no comparable feature in everyday language, so there must be a different constraint ranking. As a result, other and higher-ranked constraints produce ordinary Chintang structures. These constraints in turn do not play a significant role in ritual language, which means that they are inactive when a speaker switches to ritual language. In this latter area, the style of the language is an important factor and this is produced via the six constraints that were presented here. These are active here in the formation of the smallest unit of parallelism, the binomials.

If this is so, binomial formation appears to be primarily characterized by the fact that it is a *special*, deviating type of noun-noun combination. This property of being special fits with the other requirements of Chintang ritual language. The language is used to address a deity that has to be pleased (Gaenszle et al. 2005). This intention is not only fulfilled through the offering of rice grains, leaves and beer but also through the use of what is considered the only correct language for this purpose. Overall, Chintang ritual language is characterized by the occurrence of many nominals, of parallel structures on the syntactic and phonological level and especially by the use of the right names for the objects to offer and to address the deity. The majority of these expressions are binomials (but there are also various other types of ritual expressions), which almost always are two words, referring to the same object. They contribute to the parallel structure by having the same number of syllables and often ending in the same rhyme. So the binomials mark Chintang ritual language as a special register of speech, appropriate to its purpose. This utterance of ritual names not only pleases the deity, but also revitalizes the social order (Gaenszle

2002:46). The nouns, especially binomials, "represent a transcendent aspect of the signified object" and are not only simple arbitrary signs but embody a meaning (Gaenszle 2002:161). The formal properties of the ritual language, especially the binomials, contribute to that significance of ritual language. A good ritual authority is characterized by his elaborate and creative use of ritual expressions and especially the binomials.

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Appendix: Binomials in Chintang ritual language

The following lists the binomials that follow the six constraints and their order.

ambira legura
aŋmikheĩchummikheĩ
apcihaŋ bupcihaŋ
aturu kamturu
athamsatto remsatto
baraji iswosti
casum khiwa
casumnɨŋ chembinɨŋ
chãya chuya
chikhimtaŋma puwaŋtaŋma
chinemchu pondurusi
damchama epchama
dasahari tabari
dokani pasari
goduri lamsuri
hoʔwala koʔwala
hullatha bullatha
khapcuru peimaru
kokhala thaŋkala
kokcoĩkhancoĩ
kokcoŋ khancoŋ
laŋka heŋka
malloŋma manthama
mamawa humlawa
maŋbopmi taŋmaʔmi
miʔma chakma
nambopmi khambopmi
namnemalu chunemalu
nikasa ukasa
ŋabme chubme
ŋachita panchutti
ŋacomma khencomma
panari guwari
panalichoŋ guwalichoŋ
poluwa pakuwa
phokcekma lasima
phokturi taŋturi
rimi pami
risipcoŋ pholokcoŋ
sadusa ŋadusa
sadusi godusi
sahadusa gardusa
sakawa muyuwa
sakbala soila
sama suma
sariloŋma kokulo
senca bara
sencikha toŋloŋha
sibicoŋ meŋmacoŋ
sibdo hobdo
sikeko makeko
simalam mamalam
sipkhãwa dalaũwa
sippaula pakula
sirjana gurjana
siritaŋma muntaŋma
sɨkhala makhala
sɨnɨŋ dapnɨŋ
soloĩwa lamloĩwa
sukuda madap
sukthuŋma lapthuŋma
taŋwachakkhacha khiwachakkhacha
thaŋna meʔna
tubasa taŋphusa
tuplachoŋ berichoŋ
tuplaya beriya
tupla beri
wacuru curiya
wadhaŋmi phokcekmi
wahila mɨksɨla
wahila tappula
warila kundala
yakcuri cumari

Exceptions are listed in the following. The last two examples (*wahuʔluŋ wateluŋ* and *waroŋ wattoŋ*) have identical first syllables, so no constraint produces a violation to them. There is further investigation needed to find rules, that determine their order:

cikhimla puwaŋla
chembinɨŋ casumnɨŋ
choworo loworo
chubaklu payalu
chubakma pabakmako
chubakri kamsuri
cubuŋla papuŋla
cumuŋlo papula
hamluŋ samaluŋ
haŋbara tubara
khopcoŋ khapcoŋ
khuwakhen taptikhen
maŋchana michana
narakha suwakha
pakhandi makhandi
phuwasa tamphukpa
poluwa pakuwa
remsatto thamsatto
tayuwa muluwa
thaŋkala yaŋkala
toŋbaloŋ pipaloŋ
toŋtoŋwa rimrimwa
toŋtaiʔma lasima
tubasa rakpasa
thuppi hili
wahuʔluŋ wateluŋ
waroŋ wattoŋ