REFLEXIVITY WITHOUT APPARENT MARKING:

THE CASE OF MASHAN ZHUANG

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Abstract

This paper analyzes the distribution of nominals in Zhuang, a Tai-Kadai language spoken in southwestern China. Zhuang, like many Tai-Kadai and Southeast Asian languages, displays binding phenomena in which pronouns and names can be bound, thus having consequences for the binding theory (e.g. Chomsky 1981, Radford 1997, Reuland 2001, Buring 2005), in particular whether or not these facts of Zhuang violate principles of the classical binding theory. Two main approaches explaining how these facts are aligned with binding theory (e.g. Lasnik 1991 and Lee 2003) are discussed before proposing a functional-predicational approach based on Lexical-Functional Grammar (LFG) analyses of binding (e.g. Bresnan 2001, Dalrymple 1993) to explain some intricate binding relations in Zhuang.

1 Introduction

1.1 Binding in Languages without Surface Reflexivization

Among some of the most salient facts of binding in Zhuang are cases in which pronouns and names can be bound to their antecedents, thus challenging principles B and C of the binding theory as espoused in works such as Chomsky (1981), Radford (1997), Reuland (2001), Reuland and Everaet (2001), and Buring (2005). These are illustrated in (1) and (2)[1].

(1) $Gou1_i$ $maeng4$ $gou1_i$
     1.SG   like/love 1.SG
     'I like/love myself.'

(2) $Da6Gin6_i$ $raem3$ $da6Gin6_i$
     personal name   cut   personal name
     'Gin cut herself.' (This is usually said by a third party.)

Interestingly enough, these cases are not limited to Zhuang alone. Other Southeast Asian languages like Thai (Lasnik 1991, Lee 2003), Vietnamese and Hmong

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[1] These distributional patterns obtain in the Qinzhou dialect of Zhuang only if one includes the unintentionality marker *tik*:

i.	*?Guz*	*honx*	*guz*		ii.	*Guz*	*honx*	*tik*	*guz.*
	1.SG	hit	1.SG			1.SG	hit	TIK	1.SG
	Intended: 'I hit me (unintentionally).'					'I hit me (unintentionally).'			
iii.	*Guz*	*honx*	*tik*	*sahga.*	iv.	*Guz*	*honx*	*tik*	*guz sahga.*
	1.SG	hit	TIK	self		1.SG	hit	TIK	1.SG self
	'I hit myself (unintentionally).'					'I hit myself (unintentionally).'			

(Mortensen 2003), and the Mexican language, Zapotec (Black 2000, Lee 2003), also exhibit such phenomena. The issue is how to deal with the binding theory in the face of such data showing binding phenomena without reflexivization and making the distinction between anaphors and pronouns quite fuzzy. Proposals have been made in the literature to address this issue. As early approaches, Lasnik (1991) and Black (2000), among others, proposed a parametric approach to this issue, such that Principle C would be parametrized, thus behaving differently in Thai and Zapotec from the way the principle applies in other languages with overt reflexivization. Another approach, espoused by Lee (2003) and Mortensen (2003), has been to suggest that the pronouns and R-expressions that are bound to earlier pronouns and R-expressions in this way are not pronouns and names at all but are instead bound variables spelled out as copies of their antecedents. Questions may be asked about each of these two proposals. First, it is not clear how to parametrize Principle C, such that it is satisfied differently across languages. For one thing, the empirical evidence of NPs being co-indexed by other NPs is just too daunting to explain away. And even if we were to find a neat solution to explain away these clear cases of bound R-expressions, one would still have difficulties accounting for Principle B violations. For the second approach in the literature, there is an inherent problem in the denial that the pronouns and R-expressions we see clearly and overtly are not actually pronouns and names but are actually bound variables spelled out as copies of their antecedents.

In this paper, I show that an alternative (and hopefully better) way to handling binding relations is to interpret binding in functional-predicational terms, in which I abstract away from distinguishing between terms such as reflexives and pronouns, and in which I interpret binding, not just in phrase structure terms, but more importantly in functional structure terms, where I look more closely at argument relations within the event structure. Under this approach all three principles of the classical binding theory would be adhered to.

1.2 Fieldwork in Guangxi

With the above statement of our position in the debate about binding in languages without obvious reflexives, I now turn to brief statements about the particular dialect of Zhuang from which data were collected through fieldwork (Bodomo in preparation for a grammar book, Bodomo 2010, Bodomo 2007, Bodomo and Pan 2007, and Pan 2010). Zhuang, a Tai-Kadai language, is spoken in southwestern China, particularly in the Guangxi Zhuang Autonomous Region of the PRC. The dialect under study here is the Mashan dialect of Mashan county. Mashan county lies north of Nanning, capital

of the autonomous region. Baishan Town, the capital of Mashan county is about 126km kilometers from Nanning. The towns and localities visited for fieldwork in the county are: Baishan Town, Jinchai and the village of Nadang. Mashan Zhuang, spoken by about 480 000 people, forms part of the group of northern Zhuang dialects which may not always be mutually intelligible with southern Zhuang dialects. Most people, especially the older generation, speak Zhuang, but there is a linguistic variety known as Guiliu, a variety of Mandarin, that is spoken by most people as a lingua franca in the county. Of course, Mandarin is the official language, as in all parts of the PRC and, as such, is used in most official contexts: offices, official bus stations, mass media, etc.

1.3 The Structure of (Mashan) Zhuang

Zhuang is a configurational language with an SVO word order, but like Chinese (Cantonese, Mandarin, etc.), it has a quite flexible word order. The sentence in (3) illustrates the SVO word order in the language.

(3) *Ha3   bou4   vun3   ndaem1   fae4*[2]
     five   CL   person plant   tree
     'Five people plant trees.'

IP
DP — I'
ha3 bou4 vun3   I   VP
                      Ø   ndaem1 fae4
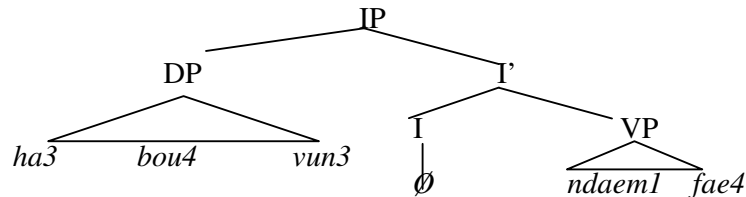
Zhuang, like Mandarin and other sinitic languages, has very little morphology. Phonologically, the dialect under study is well-known for its dental fricatives:

(4) *Ae1ba5 gou1   yw5   van6seu3   son1   saw1*
     father   1.SG   at   primary school   teach book
     'My father teaches at a primary school/My father is a primary school teacher.'

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[2] All the Zhuang data in this paper are romanized. The preliminary romanization scheme is based on the work of our research group members. The number after a syllable is the tone for that syllable. There are eight tones altogether: 1 = 53, 2 =11, 3 = 35, 4 = 24, 5 = 33, 6 = 42. Tones 7 and 8 are checked tones ending with a stop /p/, /t/ or /k/. Tone 7 is for syllables ending in a voiceless stop and tone 8 is for syllables ending in a voiced stop.

1.4 Organization of the Paper

I will first present aspects of the pronominal system of Zhuang. Then I will examine each of the Principles A, B, and C of the classical binding theory (Chomsky 1981). Following this, I will represent A-binding phenomena in LFG, leading to what I call a functional-predicational account of binding relations in Mashan Zhuang.

2 The Pronominal System of Mashan Zhuang and Structural Binding

Pronominal systems around the world are often described and differentiated among each other along the lines of grammatical features such as person, number, gender and overt case. As the table of personal pronouns in (5) and the sentences in (6) and (7) show, Zhuang encodes neither gender nor overt case.

(5)

Person ⟍ Number	Singular	Plural
1st Person	*gou*	*raw (Inclusive)*
		dou (Exclusive)
2nd Person	*meng*	*sou*
3rd Person	*de*	*gyongde*

(6) *Gou1   maeng4   meng2*
     1.SG   like/love   2.SG
     'I like/love you.'

(7) *Meng2   maeng4   gou1*
     2.SG   like/love   1.SG
     'You like/love me.'

More crucially, Zhuang does not have an overt reflexive marker, *-self*.

(8) a. *Gou1$_i$ raem3   gou1$_i$.*
       1.SG   cut   1.SG
       'I cut myself.'
    b. *Mwng2$_i$ raem3   Mwng2$_i$.*
       2.SG   cut   2.SG
       'You cut yourself.'
    c. *De1$_i$ maeng4   de1$_{i/j}$.*
       3 SG   like/love 3 SG

Interpretation 1: 'S/he$_i$ likes/loves him/her$_j$.'
Interpretation 2: 'S/he$_i$ likes/loves himself/herself$_i$.'

2.1 Principle A in Zhuang

At first blush, the data from Zhuang reflexive binding pose a serious threat to the classical principle A.

First, there do not seem to be reflexive pronouns in the language, so the principle is irrelevant, one would say (indeed, Principle A appears irrelevant and it is rather Principle B that apparently is being violated here):

(9) *Gou$_i$ maeng4 gou1$_i$*
    1.SG   like/love 1.SG
    'I like/love myself.'

However, it turns out that Mashan Zhuang has at least two ways of addressing Principle A phenomena.

2.1.1 Reflexive Marker Borrowing from Mandarin

(10) *Gou1$_i$ raem3   gou1   sei6gei3$_i$*   (Mandarin Zhuang)
     1.SG   cut   1.SG   self
     'I cut myself.'

Mashan Zhuang and presumably most northern Zhuang dialects often borrow the Mandarin (and Mandarin-based dialects like Guiliu) reflexive marker, *sei6gei3* to express reflexivity as shown in (10) above. In this case then principle A is "rescued" or, in reality, made relevant in Zhuang.

Further, and interestingly enough, on a second look at the strategies for expressing reflexivity even if reflexives are unexpressed, it looks as if there is 'reflexive-drop' in Zhuang, as illustrated in (11), where a gap is created from the unexpressed or dropped reflexive:

(11) *Gou1*   ---   *maeng4 gou1*
     1.SG   like/love 1.SG
     'I like/love myself.'

The clearest and most unambiguous way to express reflexivity, according to speakers,

is the addition of what looks like a reflexive marker: *gag8*, as shown in (12):

(12) *Gou1   gag8   maeng4 gou1*
     1.SG   self   like/love 1.SG
     'I like/love myself.'

It would seem then that indeed reflexive pronouns exist in the language, except that there is extraction/displacement of the reflexive particle away from the pronoun, as shown in (13) and (14):

Underlying:
(13) [*Gou1   maeng4 gou1   gag8*]
     1.SG   like/love 1.SG   self
     'I like/love myself.'
becoming:
(14) *Gou1   gag8   maeng4 gou1   ____*
     1.SG   self   like/love 1.SG
     'I like/love myself.'

One might, however, say that *gag8* is not a reflexive but an emphatic particle indicating that it is the subject/agent and no one else who is performing the action expressed by the verb. Actually, there are two instances of *gag8* in the language. It is thus possible to posit two lexical entries for *gag8* in the Zhuang lexicon:

(15) a.   *gag8*[1]
           - meaning 'only' as in *gou1 gag8 nwn2* 'I am the only one sleeping'; and
      b.   *gag8*[2]
           - the reflexive as in *gou1 gag8 maeng4 gou1*, meaning 'I like/love myself' but not 'I am the only one who likes me'.

The first strategy, involving reflexive particle borrowing from Mandarin or Mandarin-based dialects, would pose no problems to configurational treatments of Principle A in Zhuang.

2.1.2 Reflexive Particle Extraction/Disposition: A problem for Configurational Binding

However, the strategy of having 'gag' adjacent to the pronoun would need some amount of explanation in a structural analysis since *gou1* and *gag8* are no longer in c-command relations but indeed, together, form part of the same NP.

2.1.2.1 Principle B

Despite the apparent cases of (9) where we have a reflexive anaphor behaving like a pronominal, Principe B does not seem to be under any threat in Zhuang, as it is quite clear that prominals must be free in their binding domains (indeed, it may be Principle C that is being violated in (16), but see below). The sentences are indeed out when pronouns are bound in their binding domains, as shown in (16) below

(16) a. *De1*   *maeng4*   *Penny.*
        3.SG   like/love personal name
        'S/he likes Penny.'

    b. * *De1$_i$*   *maeng4*   *Penny$_i$.*
        3.SG   like/love personal name
        Intended: 'S/he likes Penny.'

However, because of the breakdown in complementarity between reflexives (if they are at all to be called like that) and pronouns, there can sometimes be problems in explaining principle B in Zhuang. Consider the following:

(17) a. *Mwng2* *gang3* *Penny$_i$*   *maeng4* *de1$_j$.*
        2.SG   say   personal name like   3.SG$_j$
        'You say that Penny likes him/her (someone else).'
    b. *Mwng2* *gang3* *Penny$_i$*   *maeng4* *de1$_i$.*
        2.SG   say   personal name like   3.SG
        Preferred interpretation: 'You say that Penny likes him/her.'
        Possible but dispreferred interpretation: 'You say that Penny likes herself.'

While (17a) is a clear case of principle B renditions, the same cannot be said of (17b), where there is a dispreferred and unusual interpretation interfering with the preferred reading (a principle B rendition).

Again, as with Principle A, Zhuang adopts a number of strategies to address this. One of them is to use the Mandarin Chinese particle *sei6gei3* to indicate cases where a reflexive (Principle A) but not a pronominal (Principle B) reading is intended:

(18) *Mwng2   gang3   Penny$_i$ maeng4   de1   sei6gei3$_i$.*
    2.SG   say   personal name like/love   3.SG   self
    'You say that Penny likes/loves herself.'

Thus, it can be said that in cases where *sei6gei3* is not used, the preferred readings of sentences such as (17a) are Principle B readings.

2.1.2.2 Principle C

Principle C requires an R-expression to be free, but this is clearly not the case in Zhuang as sentences such as (19) are attested in the field data:

(19) *Da6Gin6$_i$ raem3   da6Gin6$_i$*
    personal name   cut   personal name
    'Gin cut herself.' (This is usually said by a third party.)

Again, as with the other two principles, the use of *sei6gei3* is preferred to the use of the bound full NP (which clearly is against Principle C). The following in (20a), (20b) and (20c) are in order of preference in the expression of reflexivity:

(20) a.   *Da6Gin6$_i$ maeng4   de1 sei6gei3$_i$* (most preferred)
          personal name   like/love   herself
          'Gin likes/loves herself.'
    b.   *Da6 Gin6$_i$ maeng4   Da6Gin6$_i$*
          personal name   like/love   personal name
          'Gin likes/loves herself'
    c.   *Da6 Gin6$_i$ maeng4   de1$_i$* (least preferred)
          personal name   like/love   her
          'Gin likes/loves herself.'

Even in English, Principle C is largely falsified with identity statements such as *Mary$_i$ is Jesus' mother$_i$*. What is surprising in Zhuang is that even full NPs behave like reflexives as shown in (19) above.

2.1.2.3 Restrictions on bound R-expressions and pronouns

It is not the case that R-expressions and pronouns can be freely bound in the language. It is also known that for those languages like Thai and Zapotec that bind R-expressions and pronouns, this binding is not unrestricted. On the basis of this works such as Lee (2003) claim that what is actually happening is not a Principle violation. This conclusion is based on Reinhart and Reuland (1991) which indicates that reflexive predicates represent functions mapping a single argument to both argument positions.

First, as Lee notes and as we see here throughout, R-expressions can only be bound by identical elements, what Lee (2003) terms the Identical Antecedent Requirement:

(21) Dei_i yaw $Daegin_{j*i}$
     3.SG   look.PERF   Daegin
     'He$_i$ looked at Daegin$_{j*i}$.'

(22) $Daegin_i$ gyae $lausae_{j*i}$
     Daegin   like.HAB   teacher
     'Daegin$_i$ likes the teacher$_{j*i}$

Lee (2003) shows that pronouns and even wh-traces (thus showing weak crossover effects) cannot be locally bound by R-expressions in Zapotec, but actually as we have seen here so far, this is possible in Zhuang (23), except that it is a far less preferred reading to when it is not bound and instead disambiguated with *seigei* (as 24):

(23) ?$Daegin_i$ gyae de_i.
     Daegin   like/love 3.SG
     'Daegin$_i$ likes/loves herself$_i$.'

(24) $Daegin_i$ gyae   de $seige_i$.
     Daegin   like/love 3.SG   self
     'Daegin$_i$ likes/loves herself$_i$.'

It would therefore seem that there are still real cases in which I can say that either Principle B or Principle C is under apparent violation in Zhuang.

2.2 Long Distance Reflexives

A further challenge to the approach taken by classical binding theory is that Principles

A, B, and C cannot account for phenomena where an anaphor and its antecedent are far apart, sometimes several clauses away, from each other and thus cannot be in a c-command relationship. This is often referred to as long distance binding and languages like Japanese, Scandinavian languages and Mandarin exhibit this phenomenon. The Norwegian example in (25), taken from (Bresnan 2001) below illustrates long distance binding:

(25) *Jon$_i$*   *bad*   *oss*   *snakke*   *om*   *seg$_i$*
     John   asked   us   to speak   about   self
     'John asked us to speak about him.'

Long distance binding is quite pervasive in Zhuang. Anaphoric pronouns like *de1* can be bound by an antecedent from several clauses far afield, just as in (26).

(26) *Da6Gin6$_i$*   *heu6*   *ba2ma5*   *de1*   *gang3*   *de1$_i$*
     personal name   ask   mother   3.SG   say/speak   3.SG
     'Gin asked her mother to speak about her.'

These may not be classical cases of long distance binding as in Scandinavian as the *de1* here cannot be used for long distance binding when *sei6gei3* is added to it:

(27) **Da6Gin6$_i$*   *heu6*   *ba2 ma5*   *de1i*   *gang3*   *de1$_i$*   *sei6gei3*
     personal name   ask   mother   3.SG   say/speak   3.SG   self
     Intended: 'Gin asked her mother to speak about herself.'

If there is a *sei6gei3* expression it must be bound in the same clause:

(28) *Da6Gin6*   *heu6*   *ba2 ma5*   *de1$_i$*   *gang3*   *[de1*   *sei6gei3]$_i$*
     personal name   ask   mother   3.SG   say/speak   3.SG   self
     'Gin asked her mother to speak about herself.'

Even referentials can be bound by an R-expression not within the same clause, again violating Principle C.

(29) *Da6gin6$_i$*   *heu6*   *ba2ma5*   *de1$_i$*   *gang3*   *Da6Gin$_i$*
     personal name   ask   mother   3.SG   say/speak   personal name
     'Gin asked her mother to speak about Gin (her).'

2.3 Section Conclusion

This section of the paper has presented an overview of the pronominal system of Zhuang and described how the nominals in this system respond to the principles of binding theory. I have noticed that the concept of overt reflexivity is hard to maintain in Zhuang. There are hardly any reflexives in Zhuang, as we know them in other languages. We have noticed a number of strategies used to address reflexive binding in Zhunag and to differentiate it from pronominal binding. This includes (i) borrowing the particle *sei6gei3* from Mandarin, and (ii) the use of the particle *gag8*. I have also noted that, like Mandarin and other languages, Zhuang exhibits, albeit a limited case of, long-distance binding. In section 3, we propose a formal treatment of binding in Zhuang.

3. Functional-Predicational Binding

A major problem with the classical binding theory is that when structural notions like c-command and binding domain are used to define binding, which is not only a structural (syntactic) notion, but as well a semantic/functional notion, problems arise in generalizing rules and principles across languages.

In this part of the paper I will propose an analysis and formalization of binding in Zhuang based on notions developed in the formal grammatical framework of Lexical-Functional Grammar (LFG), as contained mainly in Bresnan (2001). This is what we call a functional-predicational approach to binding, based on the idea that we need to understand the predicate-argument relations of an event in order to understand how it is represented at the functional structure (f-structure).

3.1 Basic Concepts in LFG Binding

Since binding is more than just a structural phenomenon, LFG treatments of binding emphasize the functions encoded by a predicate which is at the centre of the binding event. One concept that is important here is the notion of relational hierarchy as shown in (30):

(30) Relational Hierarchy
$$\text{SUBJ} > \text{OBJ} > \text{OBJ}_\theta > \text{COMPL} > \text{ADJUNCT}$$

This is supposed to be a universal hierarchy, a concept first proposed by Keenan and
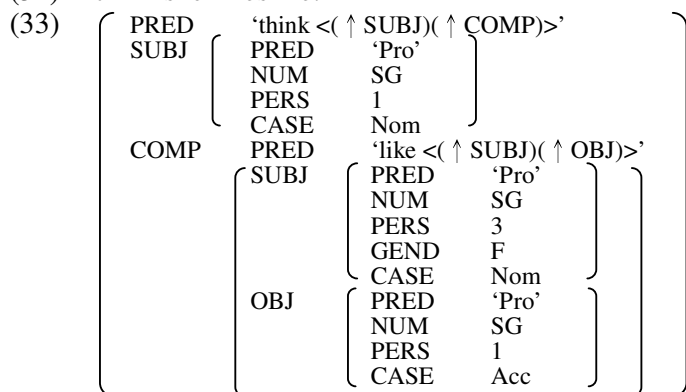
Comrie (1977) to show the prominence relations between grammatical roles/functions across languages. According to this hierarchy, subjects are more prominent than objects, which are in turn more prominent than complements with adjuncts and other non-argument functions being least prominent. This notion is exploited by Bresnan (2001) to define the notion of syntactic rank as shown in (31):

(31) Syntactic Rank (Bresnan 2001:213)

'A locally outranks B if A and B belong to the same f-structure and A is more prominent than B on the relational hierarchy. A outranks B if A locally outranks some C which contains B.'

The notion of syntactic rank replaces the structural notion of c-command, and the illustrations later on will show how this is done. Another structural notion needing replacement is that of the governing domain. Rather than talking of government domain in structural notions of clausehood, the domain in which binding is deemed to occur is within the nucleus of the predicate and its argument functions, hence the name functional-predicational binding. The following English sentence (32) illustrates the notion of syntactic rank in (31). The diagram in (33) is the f-structure of (32).

(32) I think she likes me.

(33)
$$
\begin{bmatrix}
\text{PRED} & \text{'think} <(\uparrow \text{SUBJ})(\uparrow \text{COMP})>\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{CASE} & \text{Nom} \end{bmatrix} \\
\text{COMP} & \begin{bmatrix} \text{PRED} & \text{'like} <(\uparrow \text{SUBJ})(\uparrow \text{OBJ})>\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \\ \text{CASE} & \text{Nom} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{CASE} & \text{Acc} \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

(34) Nucleus (Bresnan 2001:213)

'Given an f-structure, the nucleus of f is the subset of f consisting of the PRED element and all of the elements whose attributes are functions designated by the PRED.'

The nucleus is defined in Bresnan (2001) as shown in (34). This notion is rather apt for describing a-binding, which is what co-referentiality in formal accounts is all about. Another attractive notion of LFG binding is the idea of abstracting away from distinguishing between reflexives and pronouns by introducing a concept of [+/- NUCLEAR]. This is especially advantageous for our Zhuang data where the same

formal item can serve as a reflexive or a pronominal. The concept of [+/- NUCLEAR] is introduced as shown in (35).

(35) The [Nuclear +/-] Feature (Bresnan 2001)
This feature is part of the lexical property of nominals.
a. Anaphors or nuclear pronouns have [NUCLEAR +].
b. Pronouns or nonnuclear pronouns have [NUCLEAR -].
c. Referring expressions do not have a value for this feature. They are governed by the negative existential constraint –(↑NUCLEAR).

The term exploits the notion of feature structures that is central in computational approaches to grammar. The feature [+/- NUCLEAR] is posited as part of the lexical properties of nominals, such that referentially dependent or bound nominals like *himself, herself, gou, gou sei6gei3, de1, de1 sei6gei3* are [+NUCLEAR] while referentially independent or non-bound nominals like *him, her, de1*, are [-NUCLEAR].

A final notion necessary for the definition of binding is the notion of indexation. The structural notion of encoding indices is maintained, as in (36), but is encoded as part of the feature specification of a nominal, such that if two nominals have the same indices, they co-refer and take part in what I will call a 'binding unification'.

(36) The [Index *i*] Feature (Bresnan 2001)
This is another feature in the lexical entries of nominals.

With the ingredients above we can now define binding in the LFG perspective as shown in (37):

(37) Definition of LFG binding
A binds B if (i) A outranks B, and (ii) (A INDEX) = (B INDEX)

In section 3.2, I now illustrate the principles of binding based on this new notion of *functional-predicate argument binding*.

3.2 A Functional Rendition of Principles A, B, and C
The basic binding principles in LFG are as follows:
(38) Binding Principles in LFG (Bresnan 2001)
a. Principle A:
A nuclear (reflexive) pronoun must be bound in the minimal nucleus that

contains it and a subject outranking it.

b. Principle B:

A nonnuclear pronoun must be free in the minimal nucleus that contains it.

c. Principle C:

(Other) nominals must be free.

I can now illustrate a representation and formalization of Principles A, B and C with the Zhuang sentences in (39)-(41):

(39) a.   *Gou1$_i$*   *raem3*   *gou1$_i$*

     1.SG   cut   1.SG

     'I cut myself.'

b.
$$
\begin{bmatrix}
\text{PRED} & \text{'raem3} <(\uparrow \text{SUBJ})(\uparrow \text{OBJ})>\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{NUCL} & - \\ \text{INDEX} & i \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{NUCL} & + \\ \text{INDEX} & i \end{bmatrix}
\end{bmatrix}
$$

(40) a.   *de1$_i$*   *maeng4*   *de1$_{i/j}$*

     3.SG   like/love   3.SG

     'S/he likes/loves herself/himself/her/him'

b.
$$
\begin{bmatrix}
\text{PRED} & \text{'maeng4} <(\uparrow \text{SUBJ})(\uparrow \text{OBJ})>\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{NUCL} & - \\ \text{INDEX} & i \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{NUCL} & +/- \\ \text{INDEX} & i/j \end{bmatrix}
\end{bmatrix}
$$

(41) a.   *Da6gin6$_i$*   *raem3*   *da6gin6$_i$*

     personal name   cut   personal name

     'Gin cut Gin (herself).'

b.
$$
\begin{bmatrix}
\text{PRED} & \text{'raem3} <(\uparrow \text{SUBJ})(\uparrow \text{OBJ})>\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Da6gin6'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \\ \text{NUCL} & - \\ \text{INDEX} & i \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Da6gin6'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \\ \text{NUCL} & - \\ \text{INDEX} & i \end{bmatrix}
\end{bmatrix}
$$

(42) a. *De1ᵢ*   *gang3*   *Carmenⱼ*   *maeng4* *gou1ₖ*
       3.SG   say   personal name like/love 1.SG

    'S/he said Carmen likes me.'

b.
$$
\begin{bmatrix}
\text{PRED} & \text{'gang3 <(↑ SUBJ)(↑ COMP)>'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{NUCL} & - \\ \text{INDEX} & i \end{bmatrix} \\
\text{COMP} & \begin{bmatrix} \text{PRED} & \text{'like <(↑ SUBJ)(↑ OBJ)>'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Carmen'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 3 \\ \text{GEND} & \text{F} \\ \text{INDEX} & j \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'Pro'} \\ \text{NUM} & \text{SG} \\ \text{PERS} & 1 \\ \text{NUCL} & - \\ \text{INDEX} & k \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$
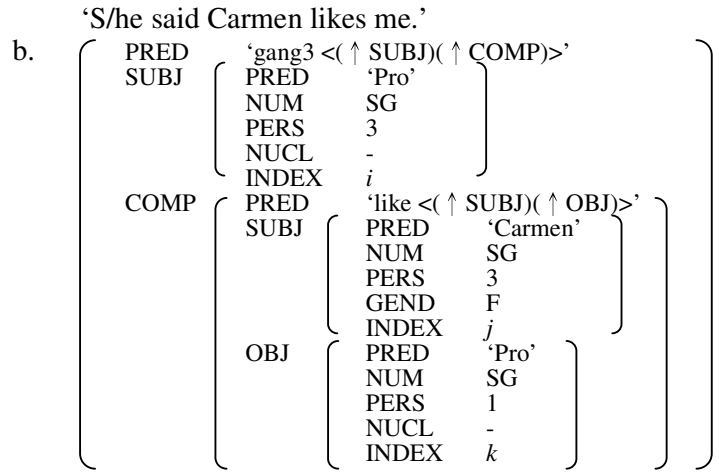
In (42b), the matrix SUBJ outranks the (COMP SUBJ) and the (COMP OBJ). Since the three functions all have different indices, the SUBJ does not bind the (COMP SUBJ) or the (COMP OBJ). The (COMP SUBJ) *Carmen*, which is a full NP, is free and therefore Principle C is satisfied. The (COMP OBJ) *gou1* is also free as, having a different index, it is not bound by the (COMP SUBJ) although the (COMP SUBJ) does outrank it. Both nonnuclear pronouns *de1* and *gou1* are free and so, Principle B is satisfied also.

3.3 Further Issues

In this section of the paper I touch on various issues that may be considered in a further analysis of binding in Zhuang.

3.3.1 *Long-Distance Anaphora*

What we have seen and represented so far in this section involves argument binding within a strict governing domain (c-command/syntactic rank).

However, there are reflexives that live a 'double life' meaning 'they can be locally bound, similar to English, herself; or they can find an antecedent outside their minimal clause' (Buring 2005:72). As seen in section 2.2, Zhuang, like Mandarin, Cantonese, Japanese and the Scandinavian languages manifests issues of long

distance anaphora. Long distance anaphora challenge classical notions of binding. The sentence in (43), repeated from (26) illustrates this notion.

(43) *Da6Gin6$_i$ heu6   [ba2ma5 de1]$_j$ gang3   de1$_i$*
    personal name ask   mother   3.SG   say/speak   3.SG
    'Gin asked her mother to speak about her.'

(44) *Da6Gin6$_i$ sieng3   Daeg8Bin5$_j$ maeng4   de1$_{i/*j}$*
    personal name hope   personal name   like/love   3.SG
    'Gin hopes that Bin likes/loves her.'

There have been two approaches to the representation and formalization of long distance anaphora in the literature, movement and non-movement approaches. Most movement approaches analyze these such that the reflexive moves back into the local binding domain of the antecedent. (The claim is that this is a more unified account for both short and long distance anaphora, something like clitic climbing.) Some analyses posit a much larger syntactic domain of binding (Progovac 1992, Manzini and Wexler 1987). Others claim that LDR fall outside the domain of sentence grammar, and should be treated as a matter of speaker view (logophoricity) (Hellan 1988, Kuno 1987).

The question now is, how do I analyse this in a functional-predicational binding approach? With an extended notion of syntactic rank I can represent the Zhuang long distance anaphoric relations as follows:

(45)
```
PRED   'heu6 <( ↑ SUBJ)( ↑ COMP)>'
SUBJ   PRED      'Da6gin6'
       NUM       SG
       PERS      3
       GEND      F
       INDEX     i
COMP   PRED      'gang3 <( ↑ SUBJ)( ↑ OBJ)>'
       SUBJ      PRED      'ba2ma5 <( ↑ POSS)>'
                 NUM       SG
                 PERS      3
                 GEND      F
                 INDEX     j
                 POSS      PRED      'Pro'
                           NUM       SG
                           PERS      3
       OBJ       PRED      'Pro'
                 NUM       SG
                 PERS      3
                 NUCL      +
                 INDEX     i
```

In (45), the matrix SUBJ outranks the (COMP SUBJ) and the (COMP OBJ). The (COMP SUBJ) *ba2ma5 de1* is a full NP and is free because it has a different index. Principle C is satisfied. The (COMP OBJ), being a nuclear pronoun, is bound by the matrix SUBJ because it is outranked by and shares the same index with the matrix

SUBJ. Principle A is satisfied also.

3.3.2 *Distribution of Gag8 'Self': Emphatic Reflexive?*

In the literature, mention has been made of complex reflexives, some of which are used as emphatic reflexives, such as:

(46) *I, myself, went there!*

There is a particle in Zhuang, *gag8*, as seen in section 2.1.1, whose distribution and functions I am still not sure of at this point. We suspect that it is partly an emphatic and partly some kind of reflexive particle. At this point, we just note a few of the facts of its distribution:

The use of *gag8* is the most 'natural' way of expressing reflexives, according to our field informant. But it is worth noting that the interpretation is more like 'It is ____ who hurt self.' A question may be asked if this is topicalization, rather than reflexivisation.

(47) *gou1ᵢ*   *gag8*   *raem3*   *gou1ᵢ*
     1.SG   self   cut   1.SG
     'It was I who cut myself.'

(48) *mwng2ᵢ*   *gag8*   *raem3*   *mwng2ᵢ*
     2.SG   self   cut   2.SG
     'It was you who cut yourself.'

(49) *de1ᵢ*   *gag8*   *raem3 de1ᵢ*
     3.SG   self   cut   3.SG
     'It was s/he who cut himself/herself.'

(50) *raeu2ᵢ gag8*   *raem3 raeu2ᵢ*
     1.PL   self   cut   1.PL
     'It was we who cut ourselves.'

(51) *sou1ᵢ*   *gag8*   *raem3 sou1ᵢ*
     2.PL   self   cut   2.PL
     'It was you who cut yourselves.'

(52) *gyoeng5 de1ᵢ*   *gag8*   *raem3*   *gyoeng5 de1ᵢ*
     group   that   self   cut   group   that
     'It was they who cut themselves.'

(53) *gou1ᵢ   *gag8*   *raem3 gou1*   *gag8ᵢ*
     1.SG   self   cut   1.SG   self

Intended: 'I cut myself.'

(54) *gou1ᵢ   raem3 gou1   gag8ᵢ

    1.SG   cut   1.SG   self

    Intended: 'I cut myself.'

Furthermore, *gag8* cannot be 'self' because it cannot appear in the OBJ position. However, it may turn out that *gag8* means 'alone' and this may be compared with a language like Cantonese, as shown in (55):

(55) a. *Ngo5   zi6gei2   zyu6*

    1.SG   self   live

    'I live alone.'

    b. *Ngo5   jat1   go3   jan4 zyu6*

    1.SG   one   CL   person   live

    'I live alone.'

Finally, it is worth noting that one cannot use this particle in conjunction with all verbs, especially those that involve reciprocal actions or actions in which one needs two participants, such as with the verb "quarrel". This is shown in (56):

(56) *Gou1   gag8   do6ceng1*

    1.SG   self   quarrel

3.3.3 Disambiguation Through Social Status Pronouns

It is possible that some of the complementarity between reflexives and pronominals can be salvaged by specific social status pronominals, which are very characteristic of the Zhuang language and society:

(57) a.   *De1ᵢ   maeng4   daeg8de1*ᵢ/ⱼ*

        3.SG   like/love   3.SG.M

        'S/he likes him (*himself).'

    b.   *de1ᵢ   maeng4   daeg8de1ⱼ*

        3.SG.F   like/love   3.SG.M

        'She likes him.'

(58) *De1*   'that/it/he/she'

    Daeg8de1   'the/that boy'

    Da6de1   'she/ that girl'

| *Ae1de1* | 'that man (who has a child)' |
| *Ba2de1* | 'that woman (who has a child)' |

Again, at this point it is still too preliminary to explore the role of social-status coded pronominals in the binding theory.

4. Conclusion

In this paper, I have provided a description and proposed a formalization of Zhuang in terms of the binding theory. A number of issues have been raised. It has been shown that Zhuang and other Southeast Asian languages such as Thai, Vietnamese and Hmong, along with Zapotec, a language spoken in Mexico, exhibit a peculiar form of binding phenomena in which pronouns and names can be bound, in apparent contravention of binding Principles B and C. Two main approaches, which I term the parametric approach and the anaphoric variable approach have been advanced to explain how the binding principles can be adhered to. In this paper, I have proposed a functional-predicational approach as a new (and hopefully better) approach to understanding issues of binding in Zhuang and related languages. I have reinterpreted binding principles in terms as presented in Bresnan (2001), illustrated in (29) and repeated as (59).

(59) Binding Principles in LFG (Bresnan 2001)
   b. Principle A:
      A nuclear (reflexive) pronoun must be bound in the minimal nucleus that contains it and a subject outranking it.
   b. Principle B:
      A nonnuclear pronoun must be free in the minimal nucleus that contains it.
   c. Principle C:
      (Other) nominals must be free.

Based on this reinterpretation of binding in functional-predicational terms, where emphasis is placed on the argument functions in the event structure, several aspects of nominal and pronominal distribution in Zhuang can be explained in relation to the binding theory.

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