An LFG Analysis of Pronominal Binding in Mandarin Chinese

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MAIN POINTS

➢ Different verbs in Mandarin Chinese affect the binding possibilities of pronouns. Therefore pronominal binding constraints can be lexicalized.

➢ Verbs like "ganxie" ("to thank") take a finite complement clause, and the subject of the embedded clause cannot be co-indexed with the matrix subject.

➢ In contrast, verbs like "zhidao" ("to know") do not have this constraint.

➢ The Binding Principles cannot account for this contrast without any extra stipulation.

➢ A lexicalized approach based on how control is handled in LFG can account for this contrast more economically, which also has other advantages over a more structural constraint.

PRIMARY DATA

The pronoun in Example 1 cannot be bound by the matrix subject (Shen & Dong 2004, Hu and Shi 2006):

Example 1:

小王$_i$感谢 [$_{IP}$ 他$_{*i/j}$ 做得对]
Xiǎo Wáng$_i$ gǎnxiè [$_{IP}$ tā$_{*i/j}$ zuò de duì]
Xiao Wang thank he do COMP correct
Xiao Wang$_i$ thanks that he$_{*i/j}$ did the right thing.
The pronoun cannot be bound by the matrix subject.

Corpus evidence:

A search of a large-scale corpus of Modern Chinese shows that out of 150 instances of pronominal binding of *ta*, 30 sentences conform to the binding relations similar to Example 1. No exceptions are found.

Hu and Shi (2006) argue that Example 1 is a control structure. However, the embedded IP is a tensed clause. In general, aspect is grammatically expressed in Chinese, while tense is often fixed via the combination of aspect and various factors, e.g. discourse, and time words. Hsieh (2002) argues that Chinese does have grammatical tense, and *huì* "will" marks relative future tense.

张三$_i$让他帮了忙
Zhāngsān ràng tā bāng-le-máng
Zhangsan ask he help-ASP-help
Zhangsan asked him to help.

*张三$_i$让他会帮忙
*Zhāngsān ràng tā huì bāngmáng
Zhangsan ask he will help

Verbs like "ràng" ("to ask, to let, to demand") can thus be argued to be indeed control verbs, because it is not compatible with grammatical tense. However the embedded clause with a matrix verb like "ganxie" is compatible with the future tense "hui".

张三感谢他帮了忙
Zhāngsān gǎnxiè tā bāng-le-máng
Zhangsan thank he help-ASP-help
Zhangsan thanks that he helped.

张三感谢他会帮忙
Zhāngsān gǎnxiè tā huì bāngmáng
Zhangsan thank he will help
Zhangsan thans that he will help

These two sentences are structurally similar. In contrast to the "future" tense in the second sentence, the first sentence can be argued to be a finite clause as well. Thus "ganxie" is not a typical control verb in Chinese.

ISSUES AND A POSSIBLE SOLUTION

Pronominal binding in general can be accounted for by the Binding Principles:

- Principle A: An anaphor must be bound in its governing category (usually the lowest IP or DP; α binds β if α c-commands β, and α and β co-indexed).
- Principle B: A pronoun must be free in its governing category.
- Principle C: R-expressions must be free.

Note that Principle B does not say anything about the binding possibilities outside the local domain. But it can be inferred that the pronoun can be either bound or free outside the local domain.

With regard to Example 1, Hu & Shi (2006), drawing on Reinhart & Reuland (1993), argue that pronominal binding should be explained in terms of theta structure of the semantic predicate, rather than argument structures, and they argue that sentences like Example 1 are handled by Principle B, via a control structure.

[Xiǎo Wáng$_i$ gǎnxiè tā$_{*i/j}$ [$_{IP}$ PRO zuò de duì]

However as shown above, verbs like "ganxie" do not involve a control structure. Thus one may say that the binding domain for Example 1 is just the matrix IP. But only verbs like "ganxie" ("to thank") have this domain, while other types of verbs such as "zhidao" ("to know") does not have such a wide domain.

张三$_i$知道他$_{i/j}$帮助了李四
Zhāngsān$_i$ zhīdào tā$_{i/j}$ bāngzhù-le Lǐsì.
Zhangsan know he helped Lisi
Zhangsan$_i$ knew that he$_{i/j}$ helped Lisi.

Thus if we want to use the Binding Principles, we have to make it refer to two different types of verbs. Intuitively, verbs like "ganxie" form one category because the kind of action denoted by such verbs is not usually applied to oneself, but rather points outwards. Therefore let us add the feature [±directional] to the lexical entries of "ganxie" and "zhidao" :

GANXIE [+directional]; ZHIDAO [-directional]

Revised Binding Principle B: A pronoun must be free in its governing category if the matrix verb is [-directional]. Otherwise, a pronoun must be free in the matrix IP.

A LEXICAL APPROACH

Dalrymple (1993) argues that there are a set of universally available constraints regarding anaphora, and specific lexical items can select specific combinations of such constraints. For example, in Marathi and Norwegian, there are several anaphors (simplex or compound) and they have different structural requirements.

Bresnan et al. (1985) give lexically-specified constraints in terms of the following features:

±SUBJ   Bound by/free from a SUBJ
+NUCLEAR   Bound in the minimal complete nucleus
-NUCLEAR   Free in the minimal nucleus

English pronouns are –NUCLUEAR, since they cannot appear in the same nucleus with its antecedent.

John$_i$ sees him$_{*i/j}$.

However these constraints are specified for the anaphors and pronouns. In our Example 1, with the verb of "ganxie", it is not the pronoun "ta" that should have a lexical constraint, but rather the verb "ganxie".
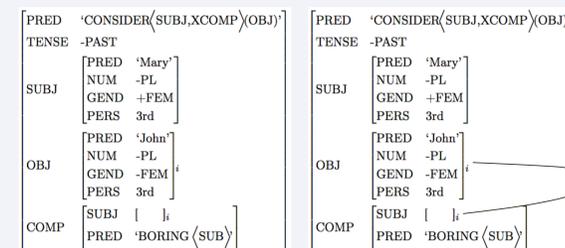
If we can make use of the lexicalized constraints mentioned here for verbs somehow, it would be a straightforward solution.

According to Neidle (1994, 1996), in Control structures, the relation is expressed by a control equation:

Mary considers John boring.

$consider$ V
(↑ PRED) = 'CONSIDER⟨ SUBJ, XCOMP⟩ (OBJ)'
(↑ OBJ) = (↑ XCOMP SUBJ)

This constraint "is indicated formally by either coindexing the two f-structures that are set equal, or by drawing an arrow from one to the other".
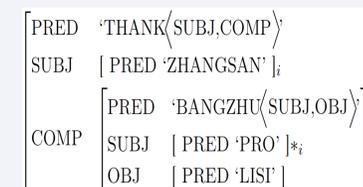
$$\begin{bmatrix} \text{PRED} & \text{'CONSIDER⟨SUBJ,XCOMP⟩(OBJ)'} \\ \text{TENSE} & \text{-PAST} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Mary'} \\ \text{NUM} & \text{-PL} \\ \text{GEND} & \text{+FEM} \\ \text{PERS} & \text{3rd} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'John'} \\ \text{NUM} & \text{-PL} \\ \text{GEND} & \text{-FEM} \\ \text{PERS} & \text{3rd} \end{bmatrix} \\ \text{COMP} & \begin{bmatrix} \text{SUBJ} & |_i \\ \text{PRED} & \text{'BORING⟨SUB⟩} \end{bmatrix} \end{bmatrix}$$

Thus I propose that Example 1 can be similarly accounted for. The lexical entry for "ganxie" :   The f-structure of "ganxie":

$ganxie$ V
(↑ PRED) = 'THANK⟨ SUBJ,COMP⟩'
(↑ SUBJ) ≠ (↑ COMP SUBJ)

$$\begin{bmatrix} \text{PRED} & \text{'THANK⟨SUBJ,COMP⟩'} \\ \text{SUBJ} & [\quad]_i \\ \text{COMP} & [\text{SUBJ} \ [\quad] \ *_i] \end{bmatrix}$$

The corresponding f-structure of Example 1 is: (Note here "PRO" stands for "pronoun", and it is not the same as "PRO" in control.

$$\begin{bmatrix} \text{PRED} & \text{'THANK⟨SUBJ,COMP⟩'} \\ \text{SUBJ} & [\text{PRED 'ZHANGSAN'}]_i \\ \text{COMP} & \begin{bmatrix} \text{PRED} & \text{'BANGZHU⟨SUBJ,OBJ⟩'} \\ \text{SUBJ} & [\text{PRED 'PRO'}]*_i \\ \text{OBJ} & [\text{PRED 'LISI'}] \end{bmatrix} \end{bmatrix}$$

ADVANTAGES OF THIS LFG APPROACH

- This solution does not resort to structural factors, and hence does not create two different binding domains. Also all the information is specified in one place, i.e. in the lexicon, instead of two different places. Verbs like "zhidao" ("to know") simply do not have this constraint in their lexicon.

- This lexicalized negative constraint helps with the resolution of pronominal co-reference since it immediately rules out one possibility. Combining this constraint with the usual structural constraint that can rule out the co-indexing of the pronoun with the noun phrase within the same local clause, it can be quickly determined what the pronoun refers to.

Zhangsan ganxie ta bangzhu Lisi.
Zhangsan thank he help Lisi
Zhangsan thanks him for helping Lisi.

There are three possible indexing possibilities for the pronoun "ta": Lisi, Zhangsan, or someone else.

>>The pronoun cannot be co-indexed with Lisi according to the structural constraint, e.g. as in the Binding Principles.
>>>The pronoun cannot be co-indexed with Zhangsan according to the lexical constraint of the verb ganxie
>>>>Then the pronoun should be indexed with someone else in the discourse, determined by discourse constraints.

- The f-structures in LFG can be interpreted semantically via a system of linear logic such as proposed by Dalrymple et al. (1997). I will deal the semantic system in my future research.

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CONTACT AND COMMENTS

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