

An Optimality-Theoretic Account of Mandarin Complex Reflexive 'ta-ziji' (s/he-self)

Haihua Pan Jianhua Hu

City University of Hong Kong

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An Optimality-Theoretic Account of Mandarin Complex Reflexive ‘ta-ziji’ (s/he-self)¹

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1. Introduction

As noted in Pan (1995, 1998), non-contrastive complex reflexive *ta-ziji* (s/he-self) in Chinese (i) can have a long-distance (LD) bound antecedent; (ii) allows non-c-command/sub-command antecedents; and (iii) observes some kind of blocking effect. In this paper we will show that the binding properties exhibited by *ta-ziji* can be best explained if we adopt an Optimality-theoretic (OT) account of reflexivization. We think that the blocking effect of *ta-ziji* can be derived from the prominence constraint which stipulates that the binding of a reflexive to α will be blocked by an intervening NP β iff β is not less prominent than α . After listing different constraints that regulate the interpretation of reflexives, we find that it is necessary to make a distinction between hard constraints and soft constraints, and in this aspect, we deviate from the standard OT hypothesis in the sense that all constraints are violable. Under our analysis, hard constraints are inviolable through all languages, and hence, they do not vary from language to language, whereas soft constraints are violable, and their different rankings play an active role in accounting for the different binding properties of reflexives in different languages.

2. The Binding Properties of *Ta-ziji*

Although *ta-ziji* cannot be bound across the local animate subject in (1), it can skip the local inanimate subject in (2), as noted in Pan (1998).

- (1) *John_i zhidao Bill xihuan ta-ziji_i
know like he-self
John knows that Bill likes himself.
- (2) a. John_i shuo naben shu hai-le ta-ziji_i
say that book hurt-Perf he-self
John said that that book hurt himself.
- b. John_i shuo naben shu fang zai ta-ziji_i de jiali
say that book put at he-self DE home

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John said that that book was put at his home.

Sentences like (2) show that the Chinese reflexive *ta-ziji* is constrained not by an absolute locality condition like Chomsky's (1981) Binding Condition A, but by a relative one, and thus exhibits properties fundamentally different from English reflexives like *himself*, which must be constrained by an absolute locality condition, as demonstrated below (Pan 1998: 774):

- (3) a. *John_i said that book hurt himself_i
b. *John_i knew that debt brought himself into bankruptcy_i

The following sentences show that *ta-ziji* can also skip an animate subject, though it cannot skip a human subject.

- (4) John_i shuo yitiao gou zai ta-ziji_i de fangjian shuijiao
say one dog at he-self DE room sleep
John said that a dog was sleeping in his room.

Although *ta-ziji* must find a compatible NP as its antecedent and can thus skip an incompatible inanimate or animate but nonhuman subject NP, it cannot skip an incompatible human subject NP, as shown below:

- (5) *John_i juede wo xihuan ta-ziji_i.
think I like he-self
John thinks I like him.

Besides, as shown in (6), *ta-ziji* can also have a sub-commanding antecedent, like the bare reflexive *ziji*, which, according to Tang (1989), can be bound to a sub-commanding antecedent, as shown in (7), with the definition of *sub-command* given in (8).

- (6) John_i xie de shu gei ta-ziji_i dailai-le xuduo mafan.
write DE book to he-self bring-Perf many trouble
The book that John wrote brought a lot of troubles to him.

- (7) a. John_i de jiao'ao hai-le ziji_i.
DE pride hurt-Perf self
John's pride hurt him.
b. John_i xie de shu gei ziji_i dailai-le xuduo mafan.
write DE book to self bring-Perf many trouble
The book that John wrote brought a lot of troubles to him.

(8) β sub-commands α iff β is contained in an NP that c-commands α or that sub-commands α , and any argument containing β is in subject position.

Although *ta-ziji* may be bound by a sub-commanding antecedent, neither sub-command nor c-command is a necessary requirement on its antecedent, as exemplified below:

- (9) a. Wo wei John zhaodao-le ta-ziji de zhaopian.
I for find-Perf he-self DE photo
I found John's photo for him.
- b. Wo cong John nar zhaodao-le ta-ziji de zhaopian.
I from there find-Perf he-self DE photo
I found John's photos from him.

In (9) the antecedents are all contained in a PP adjunct, which does not c-command the reflexive. Since they are neither in a subject position nor contained in a c-commanding or sub-commanding NP, they do not sub-command the reflexive, either.

3. Prominence and Locality

From the above discussion, we can see that there are two important factors monitoring the interpretation of *ta-ziji*. One is Prominence, and the other Locality. Instead of saying that the locality constraint can be relativized in Chinese, as argued in Pan (1998), we want to say that the prominence constraint can be ranked higher than the locality constraint in Chinese. We think that different languages may have different rankings of these two constraints. For example, English ranks the locality constraint higher than the prominence constraint, and thus its reflexives cannot be bound to an antecedent across the local subject even though the subject is not so prominent as the potential antecedent, as exemplified in (3). However, the reflexive in Chinese can be bound to a more prominent antecedent across the local subject since in Chinese the prominence constraint is ranked higher than the locality constraint. The relevant constraints are defined as follows:

(10) Locality Constraint (LC)

A reflexive should select the closest NP as its antecedent.

(11) The Closeness Condition (Pan 1998)

α is closer to X, the reflexive, than β is iff the path from X to the minimal maximal projection dominating α is a proper subset of the path from X to the minimal maximal projection dominating β .

(12) Prominence Constraint (PC)

An anaphor cannot be bound to α across an intervening NP β which is not less prominent than α .

We think that the prominence of a NP is determined by two factors: (i) Grammatical Function; (ii) Animacy Hierarchy. The former can be represented by the feature [\pm Subject], and the latter [\pm Animate]. The value of the feature [\pm Animate] is determined by the following Animacy Hierarchy:

(13) Animacy Hierarchy (Chou 1992)

[+Human] > [+Animate, -Human] > [-Animate]

The interaction of the feature [\pm Subject] and the feature [\pm Animate] will yield the following results:

(14) a. [+ SUBJ, +ANIM]

b. [-SUBJ, +ANIM]

c. [+SUBJ, -ANIM]

d. [-SUBJ, -ANIM]

The feature specifications given in (14) can be ranked into the following prominence hierarchy:

(15) [+ SUBJ, +ANIM] > [-SUBJ, +ANIM] > [+SUBJ, -ANIM] > [-SUBJ, -ANIM]

Our definition of prominence is in spirit similar to Bresnan's (2001) definition of prominence in her Prominence Principle which says that "a binder excludes from its domain any personal pronouns more prominent than it". Although the basic idea underlying Bresnan's Prominence Principle is that a bindee cannot be more prominent than a binder, and thus does not concern the cases we consider here, her definition of prominence is, however, in every aspect relevant to the cases that concern us. Bresnan's (2001) prominence relation considers (i) linear order native to c-structures which model the ordering of overt perceptible expressions, (ii) syntactic rank native to f-structures which model the grammatical relations, whether expressed or unexpressed, (iii) and the thematic hierarchy. Hence, under her formulation, prominence relation can be defined along several dimensions that vary crosslinguistically. At this point, we follow Bresnan (2001) in hypothesizing that the parameterized prominence relation for Chinese is (15).

Besides the locality and prominence constraints, there are two other constraints that also play a role in reflexive binding. One is the feature compatibility constraint, and the other the I-within-I constraint.

(16) Feature Compatibility Constraint (FCC)

Two coindexed elements must have compatible features.

(17) I-within-I Constraint (IC)

An anaphor cannot be coindexed with an NP that dominates it.

The following example demonstrates that a reflexive must be bound to an antecedent with compatible

features.

- (18) *John_i xihuan ni-ziji_i.
like you-self
*John likes yourself.

The I-within-I constraint can explain why the coindexation is illicit in the following sentence:

- (19) *John yiwei ta-ziji_i de pengyou_i bu hui lai.
think he-self DE friends not will come
John thought that his own friends would not come.

4. Constraint Ranking in Chinese

Among the constraints discussed in the above section, FCC is assumed to be a hard constraint under our analysis since it is hard to imagine that it can be violated in any language. In Chinese, FCC should be ranked as high as PC, but cannot be ranked higher than PC. The reason is obvious. If FCC is ranked higher than PC, undesirable results will be produced, as exemplified by (5), repeated as (20) below:

- (20) *John_i juede wo_j xihuan ta-ziji_{i/j}.
think I like he-self
John thinks I like him.

The coindexation of *John* with *ta-ziji* violates PC, according to (12), as the local subject *wo* 'I' is as prominent as *John*, but it satisfies FCC. If FCC were ranked higher than PC, we would wrongly predict that *John* can bind *ta-ziji*.

Although FCC cannot be ranked higher than PC, one might think that there is another option: it is ranked lower than PC. However, this option is not available, as shown below:

- (21) Wo wei John zhaodao-le ta-ziji de zhaopian.
I for find-Perf he-self DE photo
I found John's photo for him.

In (21) *wo* is the most prominent NP, but the reflexive cannot be bound to it since they have incompatible features. The above examples in (20) and (21) show that (i) FCC cannot be violated, thus excluding the possibility that it is ranked lower than PC or any other constraints, and (ii) FCC cannot be satisfied by violating PC, thus excluding the possibility that it is ranked higher than PC. If FCC should assume the same ranking as PC, we can rank the relevant constraints as follows:

(22) Constraint Ranking
 FCC/PC >>LC

The constraint ranking given in (22) can correctly predict the binding possibilities of *ta-ziji* in the following sentences:

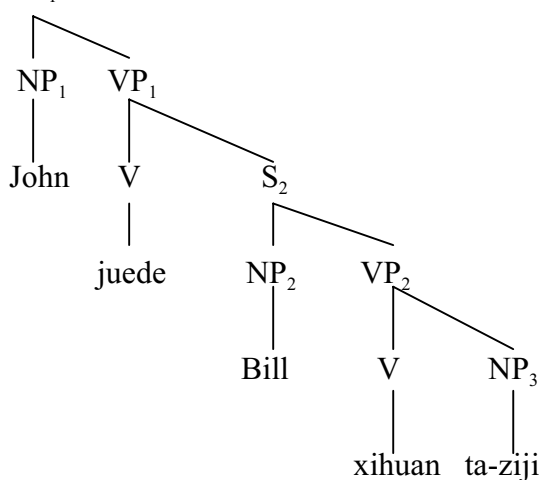
- (23) a. John_i xihuan ta-ziji_i.
 like he-self
 John likes himself.
- b. John_i juede Bill_j xihuan ta-ziji_{*i/j}.
 think like he-self
 John_i think that Bill_j like himself_{*i/j}.
- c. *John_i juede wo_j xihuan ta-ziji_{i/j}.
 Think I like he-self
 John think that I like him.

The coindexation between the reflexive and the antecedent in (23a) does not violate any constraint, and is thus ruled in. In (23b) there are two candidates for the reflexive. One is the local subject, and the other the matrix subject. The coindexation between the reflexive and the local subject does not violate any constraint, whereas the coindexation between the reflexive and the matrix subject violates two constraints, as demonstrated below:

(24)

candidates	FCC	PC	LC
a. $\text{Bill}_i, \text{ta-ziji}_i$			
b. $\text{John}_i, \text{ta-ziji}_i$		*!	*

(25) S₁



The coindexation between the reflexive and the matrix subject in (23b) violates LC because the local

subject *Bill* is closer to the reflexive than the matrix subject *John*, as shown in (25). The path *W* from the reflexive *ta-ziji* to the minimal maximal projection S_2 dominating NP_2 is $\{NP_3, VP_2, S_2\}$, and the path *X* from the reflexive *ta-ziji* to the minimal maximal projection S_1 dominating NP_1 is $\{NP_3, VP_2, S_2, VP_1, S_1\}$. Since *W* is a proper subset of *X*, *Bill* is closer to the reflexive than *John*, according to (11). The coindexation between the reflexive and the matrix subject also violates PC because the local subject is not less prominent than the matrix subject, according to (15).

In (23c) there are two binding possibilities for the reflexive *ta-ziji*, but neither of them is licit according to our account.

(26)

candidates	FCC	PC	LC
a. $Wo_i, ta-ziji_i$	*!		
b. $John_i, ta-ziji_i$		*!	*

The tableau above shows that in (23c) the coindexation between the reflexive and the matrix subject *John* violates PC, whereas the coindexation between the reflexive and the local subject violates FCC. Although (26a) violates less constraints, as compared with (26b), it does not survive because it violates a hard constraint. As a result, both candidates will be correctly ruled out by our grammar.

The constraint ranking given in (22) can also correctly predict the binding possibilities of the following sentences:

- (27) a. $John_i$ shuo naben shu_j hai-le ta-ziji_{i/*j}
 say that book hurt-Perf he-self
 John said that that book hurt himself.
- b. $John_i$ shuo [$Bill_j$ de xiacongming]_k hai-le ta-ziji_{i/j/*k}.
 say DE little-trick hurt-Perf he-self
 John said that Bill's little trick hurt him.
- c. Wo_i wei $John_j$ zhaodao-le ta-ziji_{*i/j} de zhaopian.
 I for find-Perf he-self DE photo
 I found John's photo for him.

The tableau for (27a) is given in (28):

(28)

candidates	FCC	PC	LC
a. nabenshu _i , ta-ziji _i	*!		
b. $\text{☞} John_i, ta-ziji_i$			*

The tableau above shows that, although (28b) violates LC, it does not violate any other higher-ranked

constraints, and is thus better than (28a), which has a fatal violation of FCC. Note that (28b) does not violate PC, though it is bound to the matrix subject across the local one, since the latter is less prominent than the former.

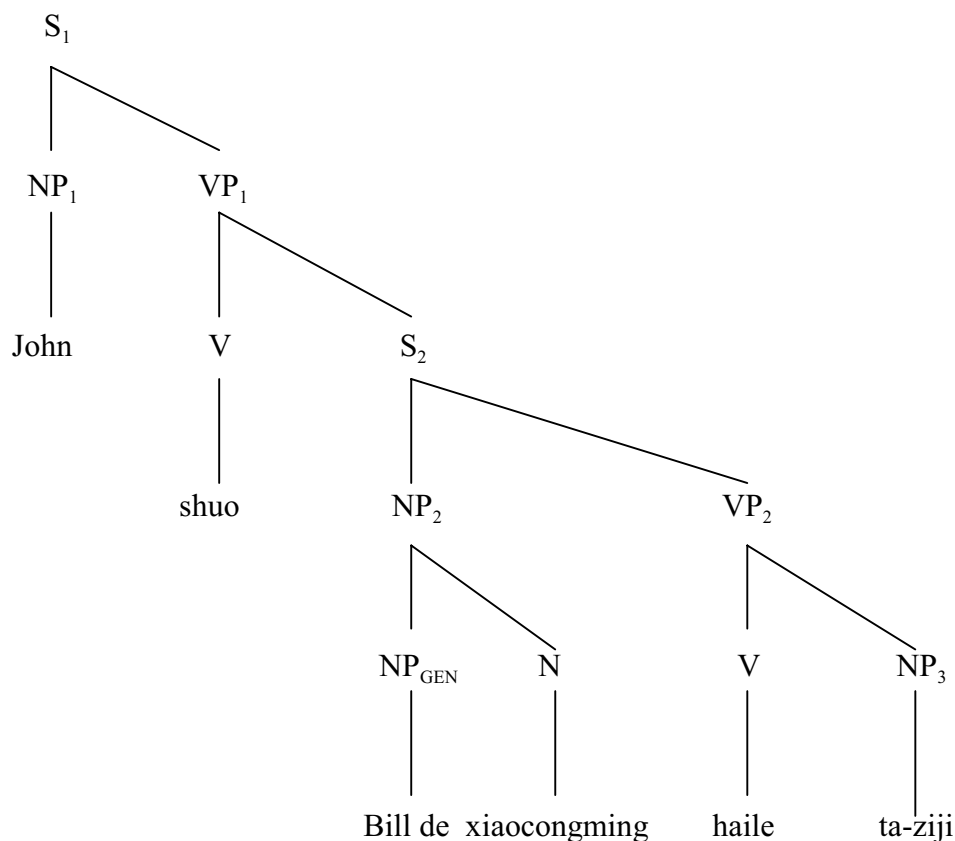
The tableau for (27b) is given in (29):

(29)

candidates	FCC	PC	LC
a. xiacongming _k , ta-ziji _k	*!		
b. ☞ Bill _i , ta-ziji _i			*
b. ☞ John _i , ta-ziji _i			*

In the above tableau, (29a) is ruled out because it violates the highest-ranked constraint FCC, whereas both (29b) and (29c) are ruled in because the constraint they violate is ranked as the lowest in the constraint hierarchy. Note that *Bill* in (27b) is not closer to the reflexive than *John* since there is no subset relation between the two candidates, as shown below:

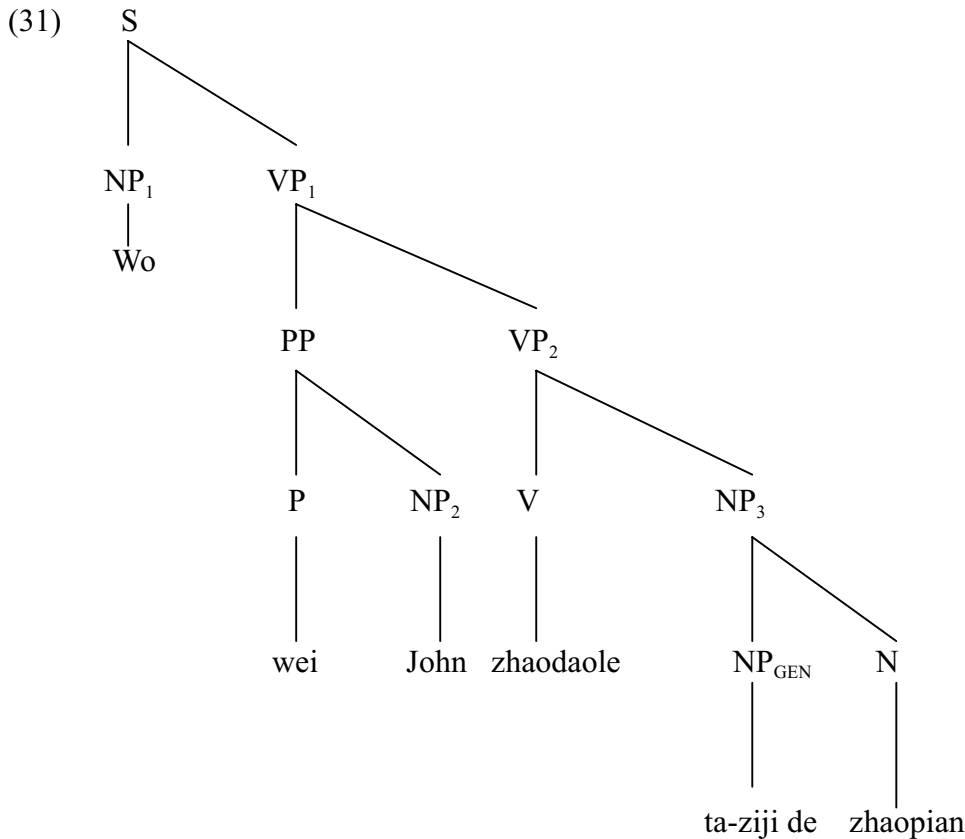
(30)



The path W from the reflexive to the minimal maximal projection S₂ dominating NP₂ is {NP₃, VP₂, S₂}, and the path X from the reflexive to the minimal maximal projection NP₂ dominating NP_{GEN} is {NP₃, VP₂, S₂, NP₂}, and the path Z from the reflexive to the minimal maximal projection dominating NP₁ is {NP₃, VP₂, S₂, VP₁, S₁}. Although W is a proper subset of X and Z respectively, there is no subset

relation between X and Z, and hence, *Bill* is not closer to the reflexive than *John*, though both *John* and *Bill* are less closer to the reflexive than *Bill de xiaocongming* ‘Bill’s little tricks’. Note that the binding of the reflexive to the matrix subject does not violate PC since both *Bill* and *Bill de xiaocongming* are less prominent than the matrix subject.

Now, let’s consider (27c), the structure of which is given in (31):



As shown in the structure above, there is no subset relation between the path W from the reflexive to the PP dominating NP₂, {NP_{GEN}, NP₃, VP₂, VP₁, PP}, and the path X from the reflexive to the S dominating NP₁, {NP_{GEN}, NP₃, VP₂, VP₁, S}. Hence, the reflexive can be bound to both *John* and *wo* without violating LC. Although LC is satisfied by both candidates, only the candidate in (32b) can survive because the other candidate incurs a fatal violation of FCC, as shown below:

(32)

candidates	FCC	PC	LC
a. Wo _i , ta-ziji _i	*!		
b. ☞ John _j , ta-ziji _i			

5. Blockers

Pan (1998) notes that, although subjects are blockers for *ta-ziji*, non-subjects can also become blockers if they dominate the potential antecedents, as shown below:

(33) John_i quan [Bill_j de baba]_k kan ta-ziji_{i/*j/k} de zhaopian.

Persuade DE father see he-self DE picture

John persuaded Bill's father to have a look at his picture.

In (33), the non-subject *Bill de baba* 'Bill's father' blocks the NP *Bill* it dominates from being the antecedent of *ta-ziji*, though it cannot block the matrix subject *John* from binding *ta-ziji*. We think that we need not stipulate what NP can be blockers in the grammar since the blocking effect can be derived from our PC. The following tableau shows why *Bill* is blocked in (33):

(34)

candidates	FCC	PC	LC
a. ☞ baba _k , ta-ziji _k			
b. Bill _i , ta-ziji _i		*!	*
c. John _i , ta-ziji _i			*

The above tableau shows that the binding of the reflexive to *Bill* violates both LC and PC, and thus should be filtered out. It violates PC because the closer NP *baba* 'father' is not less prominent than *Bill*. Hence, the reflexive cannot be bound to *Bill* across *baba*. Notice that the binding of the reflexive to *John* does not violate PC since *John* is more prominent than both *Bill* and *baba*. Although our account correctly predicts that (34a) is the optimal candidate, it wrongly predicts that (34c) should be ruled out since it is sub-optimal according to the above tableau. However, this prediction is false since (34c) is grammatical. We think that this problem can be solved if we reformulate our definition of LC as follows:

(35) Locality Constraint (LC)

A reflexive should select either the closest subject or the closest NP as its antecedent.

With this new definition of LC, we can give a new tableau for (33), as shown below:

(36)

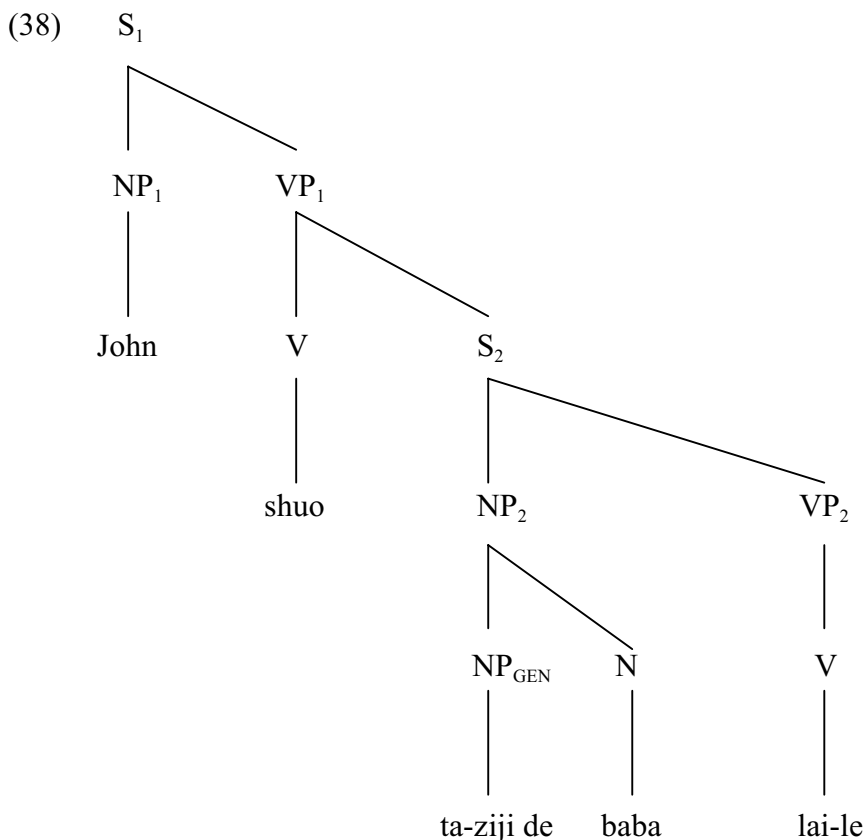
candidates	FCC	PC	LC
a. ☞ baba _k , ta-ziji _k			
b. Bill _i , ta-ziji _i		*!	*
c. ☞ John _i , ta-ziji _i			

In the above tableau, (36b) violates LC since *Bill* is neither the closest subject nor the closest NP. Note that (36c) does not violate LC any more since *John* is the closest subject.

Although in the examples discussed above, the violation of PC will result in the blocking effect, it does not mean that PC is inviolable in Chinese. In fact, PC can be overrun by IC, as exemplified below:

- (37) John_i shuo [ta-ziji_i de baba]_k lai-le.
 say he-self DE father come-Perf
 John said that his father had come.

The structure of (37) can be represented as (38), in which the path *W* from the reflexive *ta-ziji* to the minimal maximal projection *S*₂ dominating NP₂ is {NP_{GEN}, NP₂, S₂}, and the path *Z* from the reflexive to the minimal maximal projection *S*₁ dominating NP₁ is {NP_{GEN}, NP₂, S₂, VP₁, S₁}. Since *W* is a subset of *Z*, *baba* is closer to the reflexive than *John*. Note that *baba* is also an NP that is not less prominent than *John* since the former has the same prominence value as the latter, according to (15). Hence, the coindexation of *John* with *ta-ziji* violates PC, and that of *baba* with *ta-ziji* violates IC. If IC were not ranked higher than PC, *baba* would block *John* from binding *ta-ziji*, which is at odds with the fact.



The above fact indicates that IC should dominate PC in constraint ranking, and the relevant ranking among IC, PC and LC is given in (39).

- (39) Constraint Ranking
 IC >> PC >> LC

The tableau for (37) is given in (40).

(40)

candidates	IC	PC	LC
a. $\text{John}_i, \text{ta-ziji}_i$		*	*
b. $\text{baba}_i, \text{ta-ziji}_i$	*!		

Note that (39) is different from the Constraint Ranking given in (22) since it does not include FCC. We find that we cannot merge (22) and (39) into one constraint ranking since in (22) FCC is ranked as high as PC, and if we include IC in (22), we do not know where to put IC in the relevant constraint ranking. If we rank IC higher than PC, it will also be ranked higher than FCC since FCC assumes the same status as PC. This result is obviously undesirable since FCC is a hard constraint that cannot be violated by satisfying IC, which is also a hard constraint. All these suggest that there should be two constraint rankings that work for the interpretation of reflexives in Chinese. Along this line, we can reformulate (22) and (39) as (41).

(41) Constraint Ranking for Complex Reflexives in Chinese

- a. FCC/PC >> LC
- b. IC >> PC >> LC

The above constraint rankings show that IC can only override PC, but not FCC since there is no ranking between them. Note that, although hard constraints like FCC and IC participate in constraint ranking, they are inviolable in the sense that they cannot be ranked lower than any other constraints. We think that the variation among languages can only be reflected by different rankings of soft constraints, but not hard constraints.

6. Conclusion

In this paper we have shown that the binding of reflexives is regulated by the ranking of different constraints: IC, FCC, PC, and LC. Among these constraints, IC and FCC are considered to be hard constraints, whereas PC and LC are considered to be soft constraints. We think that it is necessary to make a distinction between hard constraints and soft constraints: the former are inviolable, whereas the latter are violable. Hence, we deviate from the standard OT hypothesis that all constraints are violable. We think that it is both conceptually and empirically plausible for us to posit the existence of hard constraints in languages. For instance, it is hard for us to imagine that there are languages in which FCC can be violated. Unlike hard constraints, soft constraints are more active in predicting and accounting for different binding properties and possibilities of reflexives in different languages. We think that different rankings of PC and LC play a major role in the interpretation of reflexives in different languages. In Chinese, PC is always ranked higher than LC, whereas in English, PC can be overrun by

LC.

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