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Edited by

**Chuanren Ke
The University of Iowa**

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Comitative Constructions in Chinese

Niina Ning Zhang

National Chung Cheng University

This research firstly clarifies a long-standing issue in Chinese: whether the linking words in comitative constructions are prepositions or coordinators. I present six arguments for the coordinator status of *he* 'and/with' and *gen* 'and/with' in the comitative constructions and thus for the coordinate structure of the constructions. Secondly, I present six contrasts between comitative and distributive coordination, showing that the former allows the first conjunct raising, whereas the latter does not. This research leads us to a better understanding of the Coordinate Structure Constraint (Ross 1967).

1. Introduction

This research first of all clarifies a long-standing issue in Chinese: whether the linking words in comitative constructions are prepositions.

Chinese DP complexes organized by *he* 'and/with' and *gen* 'and/with' can be the subjects of either distributive or collective predicates, as shown in (1a) and (1b) respectively, and can be the objects of either distributive or collective verbs, as shown in (2a) and (2b), respectively.

- (1) a. Baoyu {he/gen} Daiyu xi shou le.
Baoyu HE/GEN Daiyu wash hand PRT
'Baoyu and Daiyu washed the hands.'
b. Baoyu {he/gen} Daiyu wo shou le.
Baoyu HE/GEN Daiyu grasp hand PRT
'Baoyu and Daiyu shook their hands.'
- (2) a. Baoyu lie-chu-le lundian {he/gen} lunju.
Baoyu list-out-PRF claim HE/GEN argument
'Baoyu listed claims and arguments.'
b. Baoyu hunxiao-le lundian {he/gen} lunju.
Baoyu mix-PRF claim HE/GEN argument
'Baoyu mixed claims and arguments.'

The construction represented by the b-sentences above is the counterpart of the so-called comitative construction in other languages, semantically. I thus call the construction comitative construction.

Since *he* and *gen* can also be used as prepositions, it needs to clarify whether the words in the comitative constructions are prepositions or conjunctions. If they are

prepositions, they form a PP with the nominal to their right, without forming any constituent with the nominal to their left. However, if they are conjunctions, they head coordinate complexes, in which the left nominal is the Specifier and the right nominal is the complement (Munn 1987, among others. See Zhang (in preparation)) for new arguments for the structure). The issue whether *he* and *gen* in comitative constructions are conjunctions or prepositions has long been discussed in the literature (See Y. Zhang (1996) for references). Although Lü (1942; see 4.6) claims that *he* and *gen* are conjunctions in comitative constructions, he does not present any arguments. Y. Zhang made the most recent endeavor to tackle the issue. Unfortunately, as correctly pointed out by Zhou (2002: ch.2, p. 23), there are certain serious problems in Y. Zhang's analysis. Zhou himself, however, does not provide any new analysis. The issue thus still remains unsolved.

In this paper, I present six arguments for the coordinator status of *he* and *gen* in the comitative *he/gen*-constructions and thus for the coordinate structure of the constructions. None of them has been mentioned in the literature.

Secondly, this paper presents six contrasts between comitative and distributive coordination, showing that the former allows the first conjunct raising, whereas the latter does not.

The paper is organized as follows. In section 2, I will argue that comitative constructions in Chinese are coordinate constructions, and in section 3, I will show that first conjunct raising is possible in the comitative constructions. Section 4 concludes the paper.

2. Arguments for the coordinate structure of comitative constructions

2.1 The mobility contrast between two types of {he/gen}-DP clusters

Our first argument for the coordinate structure of comitative constructions in Chinese comes from the mobility contrast between two types of {he/gen}-DP clusters.

As noted by Sledd (1959: 101) and discussed in Dik (1968: 54) and McCawley (1988: 267), a coordinator and its following conjunct cannot move together, whereas subordinator such as *because* and *before* and the introduced adjunct can. The following English and Chinese data show the same constraint:

- (3) a. The boy laughed and the girl was silent.
b. *And the girl was silent the boy laughed t.
- (4) a. Aiyinsitan zhuoqiu zhenli, [erqie re'ai heping]. (Chinese)
Einstein seek truth and love peace
'Einstein sought truth and loved peace.'
b. *[Erqie re'ai heping]_i, Aiyinsitan zhuoqiu zhenli, t_i.
and love peace Einstein seek truth

The above coordination data are in contrast to the following adverbial data, in which the combination of the subordinator and its complement can be fronted:

- (5) a. The boy laughed because the girl was silent.
 b. Because the girl was silent, he boy laughed.

The contrast between (3a) and (3b) shows that the combination of the coordinator and the second conjunct cannot move. The contrast in (4) shows the same point. The examples in (5) however tell us that the causal adjunct can move.

One account for the constraint proposed in Zhang (in preparation) is that the cluster formed by a coordinator and its following conjunct is an intermediate projection. Since intermediate projections do not move, the cluster cannot move, either. In other words, the cluster cannot strand the first conjuncts, which are at a Spec position.

The similar mobility constraint on the comitative coordination is seen in topicalization in Chinese (If we change the word *gen* in the following data into *he*, the resultant grammaticality pattern is the same).

- (6) a. *[Gen Lao Wang] Xiao Li t_i shi {pengyou/yi dui fu-qi}.
 GEN Lao Wang Xiao Li be friendone pair husband-wife
 b. *[Gen huochel] qiche t_i xiang-zhuang-le.
 GEN train bus mutual-collide-PRF

In contrast, if the *gen*-DP cluster plays the opposite theta-role to the first DP, which indicates that the construction is not a comitative construction, the cluster can move.

- (7) [Gen Lao Wang] Xiao Li t_i xue-le henduo dongxi.
 GEN Lao Wang Xiao Li learn-PRF many thing
 'From Lao Wang, Xiao Li learned a lot.'

Importantly, the two person-denoting DPs in (7) express opposite thematic roles of a transference event: one is Goal and the other is Source. *Lao Wang* is Source and *Xiao Li* is Goal. In contrast, the two DPs that are in a togetherness relation in comitative constructions do not have opposite theta roles. The *gen*-DP cluster in (7) is a maximal projection, a PP, thus it can move, whereas the *gen*-DP cluster in a comitative construction is not a maximal projection, and thus it cannot move.

The preposing contrast between (6) and (7) supports our coordination analysis of comitative constructions.

2.2 The contrast in the occurrence of an aspect suffix

Our second argument for the coordinate structure of comitative constructions in Chinese comes from the contrast in the occurrence of an aspect suffix. If *gen* introduces a nominal that is not an argument of the verb, i.e., if it is an adjunct, *gen* can be followed by the progressive aspect suffix *-zhe*, whereas in the comitative construction, it can never be followed by any aspect marker.

- (8) a. Baoyu gen-(zhe) Daiyu xue-le bushao dongxi.
 Baoyu GEN-PRG Daiyu learn-PRF many thing
 'Baoyu learned a lot from Daiyu.'
 b. Huochel gen-(zhe) qiche xiang-zhuang-le.
 train GEN-PRG bus mutual-collide-PRF
 'The train and the bus collided.'

Historically, most of the prepositions were originated from verbs in Chinese. Aspect markers usually occur with verbs. However, as described in Li and Thompson (1981: 361) and *Xinandai Hanyu Cidian* (Dictionary of Modern Chinese) Shanghai Press, 2002, p. 1596), certain prepositions can also be followed by the progressive aspect suffix *-zhe* or the perfective aspect suffix *-le*. Typical examples are *shun-zhe* 'along', *yan-zhe* 'along', *chao-zhe* 'towards', *wei-zhe* 'for', and ' *wei-le* 'for'. In contrast, no conjunction can have this aspect suffix (**ji-zhe* 'and', **erye-zhe* 'and'). This contrast between prepositions and conjunctions accounts for the contrast in (8). In (8a), *gen* is used as a preposition, thus it can be followed by *-zhe*, whereas in the other sentences there, *gen* is a conjunction and thus no *-zhe* is allowed.

2.3 The reversibility of the connected nominals

Our third argument for the coordinate structure of comitative constructions in Chinese comes from the reversibility of the connected nominals. Constituent reversibility is seen between conjuncts of a symmetrical coordination, but not between elements that are integrated by adjunction. Specifically, if an element is contained in an adjunct, it is impossible for the element to exchange its position with another element in the clause, while keeping the basic meaning unchanged. The following comitative data show that the *pre-he/gen* nominal and the *post-he/gen* nominal can switch their positions without affecting the reading.

- (9) a. Baoyu he Daiyu dingqin-le.
 Baoyu HE Daiyu engage-PRF
 'Baoyu and Daiyu are engaged.'
 b. Daiyu he Baoyu dingqin-le.

In contrast, the meanings of the following (10a) and that of (10b) are very different:

- (10) a. Baoyu gen-(zhe) Daiyu xue-le bushao dongxi.
 Baoyu GEN-PRG Daiyu learn-PRF many thing
 'Baoyu learned a lot from Daiyu.'
 b. Baoyu gen-(zhe) Daiyu xue-le bushao dongxi.
 Baoyu GEN-PRG Daiyu learn-PRF many thing
 'Baoyu learned a lot from Daiyu.'

- b. Daiyu gen-(zhe) Baoyu xue-le bushao dongxi.
 Daiyu GEN-PRG Baoyu learn-PRF many thing
 'Daiyu learned a lot from Baoyu.'

Note that this reversibility in the comitative construction is a merger flexibility rather than movement flexibility. The flexibility implies that it makes no difference which nominal is merged with the conjunction first. It does not mean that we can have any operation in syntax to exchange the positions of two elements.

2.4 The absence of reflexives

Our fourth argument for the coordinate structure of comitative constructions in Chinese is the absence of reflexives in the constructions. The complement of the comitative *he/gen* cannot be a reflexive, bound by the pre-*he/gen* DP. In (11a), for instance, *gen* is followed by *ziji* 'self'. The sentence is not acceptable. This is in contrast to (11b), which is not a comitative construction.

- (11) a. *Baoyu gen ziji jianmian-le.
 Baoyu GEN self meet-PRF
 b. Akiu gen ziji guobuqu.
 Akiu GEN self not-pass
 'Akiu does not put up with himself.'

As noted by Lakoff and Peters (1969), it is impossible for a reflexive to be conjoined with and bound by a referential nominal:

- (12) a. *John and himself left.
 b. *John and himself killed a man.

If we assume that the comitative *he/gen* construction is derived from a coordinate construction, we can account for the impossible reflexive binding between the two DPs of the construction by Lakoff and Peters's (1969) universal semantic constraint on coordination.

2.5 Co-referential possibility with pronouns

Our fifth argument for the coordinate structure of comitative constructions in Chinese is the co-referential possibility of the whole /DP gen DP/ with pronouns. The cluster in the comitative constructions can be an antecedent of a null pronoun (pro), indicating that it is a syntactic constituent. In contrast, if *gen* is followed by the aspect *zhe*, the cluster fails to be an antecedent of a null pronoun. Instead, only the first DP in the cluster can do so. This indicates that the aspect-marker containing cluster is not a constituent. Consider the following data:

- (13) a. Qu-nian Baoyu gen Daiyu jiehun-le, jin-nian *pro* chu-le guo.
 last-year Baoyu GEN Daiyu married and this year exit-PRF country
 'Last year Baoyu and Daiyu married, and this year {he/they} went abroad.'
 b. Qu-nian Baoyu gen-zhe Daiyu daochu liyou, jin-nian *pro*
 last-year Baoyu GEN-PRG Daiyu everywhere travel this-year
 que yizhi dai zai jia-li.
 however always stay at home-in
 'Last year, Baoyu traveled everywhere with Daiyu, but this year, {he/*they} stayed at home all the time.'

In (13a), the pro in the second clause can take the whole complex *Baoyu gen Daiyu*, as its antecedent, whereas in (13b), the pro takes only the nominal to the left of *gen*, i.e., *Baoyu*, as its antecedent. The contrast is explained if the cluster /DP gen DP/ is a constituent in (13a), but not in (13b).

Note that it is also possible that the pro in (13a) is co-referential with *Baoyu* only. In this case, the first conjunct is raised, and is thus able to be the antecedent of the pronoun alone (See section 3).

2.6 Double occurrences of gen or he

Our last argument for the coordinate structure of the comitative *he/gen*-constructions is that more than one *gen* or *he* can occur in a single clause. If *gen* is used as a preposition, the only possible theta role it introduces is one of the two ends of a transference event, i.e., source or goal, as seen in (7a/b/c) and (7d), respectively. Since no verb can be related to two sources/goals, if two *gens* occur, only one of them can be a source/goal-introducer, and the other one is not. One example of the double *gen* constructions is the following:

- (14) Xiao Li gen Xiao Wang gen Lao Zhao xue-le henduo dongxi.
 Xiao Li GEN Xiao Wang from Lao Zhao learn-PRF many thing
 Reading A: 'Xiao Li and Xiao Wang learned many things from Lao Zhao.'
 Reading B: 'Xiao Li learned many things from Xiao Wang and Lao Zhao.'

In Reading A of (14), only *Lao Zhao* can be the source, whereas *Xiao Wang* cannot, although both are introduced by *gen*. The reading tells that *Xiao Wang* must have the same semantic function as *Xiao Li*, the agent. If *Xiao Li gen Xiao Wang* is a coordinate complex, which means that the *gen* preceding *Xiao Wang* is a conjunction, the semantic role of this *gen* is captured. In Reading B of (14), the complex *Xiao Wang gen Lao Zhao* is the source. Within the complex, *gen* does not introduce either another source or a goal. This means that this *gen* is a coordinator.

3. Six contrasts in first conjunct raising: comitative vs. distributive

We have argued that comitative constructions in Chinese are coordinate constructions. Now we also claim that the base-positions of comitative coordinate complexes are as same as those of any other coordinate complexes, depending on the selecting elements. If such a comitative coordinate complex is a subject of a transitive predicate, it is base-generated at Spec VP. In this case, we will show that the first conjunct can be raised, and thus there is no effect of the Conjunct Constraint (CC; the first part of CSC, i.e. no conjunct may move. See Ross 1967). The raising is observed in six aspects.

In contrast to comitative coordination, distributive coordination does not allow conjunct raising. We will thus see systematic contrasts between distributive and comitative coordination, with respect to the CC effects.

3.1 A-not-A conjunctions

The first indication that first conjuncts may move is seen in the A-not-A conjunctions.

⇨ The possible A-not-A conjunctions in comitative coordinations

The position of an A-not-A element can mark the left boundary between a VP and the functional projections above VP, assuming that subjects move out of VP to SpecIP in Chinese (Huang 1993). It is always the left-peripheral element of VP that is in the A-not-A form. Usually, it is the verb or the first syllable of the verb. But it can also be a preposition. For instance, if a VP starts with a directional or comparative PP, it is the preposition of this PP that is in the A-not-A form. This is seen in (15). However, it can never be an adverb. In (15), the adverb *hai* 'still' cannot be in an A-not-A form. I assume that this constraint on adverbs is a phrasal phonology constraint.

- (15) Zhe liang che hai wang-bu-wang nan kai? (Shaolin Li 1985: 159)
 this CL car still toward-not-toward south drive
 Is this car still going to move to the south?

Since the A-not-A formation can be applied to the first syllable of the predicate, it is a syntax-phonology interface operation. Following the basic thesis of Huang (1988), we assume that the [Q] feature of the A-not-A form must be licensed by a corresponding feature of a c-commanding functional head, presumably Infl (it can also be C. The choice is not important here).

What is important here is that since an A-not-A form can mark the left boundary of a VP, elements to the left of the A-not-A form must be either base-generated out of VP or have moved out of VP. The following data show that there are two possible A-not-A constructions for a comitative subject. The first possibility is that the conjunction *gen/ha* is in the A-not-A form, as shown in (16). Since like other subjects, a coordinate subject is base-generated at SpecP, this A-not-A pattern indicates that the first conjunct alone has been raised out of VP, and the second conjunct is inside the Spec of VP.

- (16) Baoyu gen-mei-gen Daiyu xia qi?
 Baoyu and-not-not Daiyu play chess
 'Did Baoyu and Daiyu play chess?'

The second possibility is that the verb is in the A-not-A form, as seen in (17). This pattern indicates that the whole coordinate complex has been raised out of VP.

- (17) Baoyu gen Daiyu xia-mei-xia qi?
 Baoyu and Daiyu play-not-play chess
 'Did Baoyu and Daiyu play chess?'

In (16), the nominal to the left of the A-not-A word, *Baoyu*, is the surface subject. If a subject comitative complex is base-generated at SpecVP, the example in (16) shows that the first conjunct moves. The movement launches from the base-position of the subject, i.e., inside the Spec VP, and lands at SpecIP. In this case, CC is violated. On the other hand, if the whole comitative complex DP occurs to the left of the A-not-A word, as in (17), the whole complex DP is raised from SpecVP to SpecIP. In this case, no conjunct moves alone, and thus the CC issue is irrelevant.

The existence of data like (16) shows that CC is not a constraint on the syntactic computations in general.

⇨ No A-not-A conjunction in distributive coordination

We have introduced the assumption that the nominal to the left of an A-not-A word is out of VP, and thus if a conjunction is in the A-not-A form, the first conjunct, which precedes the conjunction, must be out of the VP. In this subsection we present the fact that the conjunctions of distributive coordination cannot be in the A-not-A form. In (18), the presence of the distributive adverb *fanhie* 'respectively' indicates that the coordination is distributive coordination. The intended meaning of (18a) is expressed by (18b). In (18b), the verb, rather than the conjunction, is in the A-not-A form. (As we mentioned before, adverbs cannot be in an A-not-A form. Thus *fanhie* 'respectively' cannot be in an A-not-A form).

- (18) a. *Baoyu gen-mei-gen Daiyu fanhie qu-guo Riben?
 Baoyu and-not-and Daiyu respectively go-EXP Japan
 b. Baoyu gen Daiyu fanhie qu-mei-qu-guo Riben?
 Baoyu and Daiyu respectively go-not-go-EXP Japan
 'Did Baoyu and Daiyu go to Japan respectively?'

In (18b), the whole coordinate complex precedes an A-not-A word. This means that the whole complex is out of VP. No single conjunct is raised out of the complex. (18a)

shows the fact that the conjunction of the distributive coordination cannot be in the A-not-A form. This fact indicates that no conjunct may be raised out of vP alone in distributive coordination constructions. This is in contrast to the fact that in comitative coordination, the conjuncts can be in the A-not-A form, and thus first conjuncts can be raised. The contrast implies that CC effects are seen in distributive coordination, but not in comitative coordination.

There is a consistent reading difference between data like (16) and data like (17), from the perspective of information structure: the two DPs in (16) are not symmetrical, whereas the two DPs in (17) are symmetrical. Specifically, in the absence of any contrastive stress, the DP preceding the A-not-A form is foregrounded, and the one following the A-not-A form is backgrounded. In (16), *Baoyu* is foregrounded and *Daiyu* is backgrounded, however, in (17), there is no such a difference between *Baoyu* and *Daiyu* (I thank Jingqi Fu for discussion this reading issue with me).

3.2. The occurrence of raising verbs between first conjuncts and conjunctions

The second indication that first conjuncts may move is seen in the occurrence of raising verbs between first conjuncts and conjunctions.

<I> The possible separation of first conjuncts from conjunctions by raising verbs in comitative coordination

Data like (19) are another type of CC violation data. In (19), the first conjunct and the conjunction are separated by the epistemic modals *hui* ‘might’ Epistemic modals in Chinese have been argued to be raising verbs in Huang (1988) and Lin & Tang (1996).

- (19) Huoche hui {gen/he} qiche zhuanjia ma?
 train might and/and bus collide Q
 ‘Might the train collide with the bus?’

It is generally assumed that the subject of a raising verb has been raised from a position that is c-commanded by the raising verb and has landed at SpecP. If so, in (19), the nominal to the immediate left of the modal has been raised and occurs at the surface position of subjects. In (19), *huoche* ‘train’ is raised. The raising launches from a comitative coordinate complex. Since the surface subject is the first conjunct of the coordinate complex, the raising violates CC.

Like in the case of the A-not-A constructions above, raising of the whole coordinate complex is also possible. The example in (19) can also be expressed in the following (20). In (20), the whole comitative coordinate complex occurs to the left of the modal. In this case, no conjunct moves alone, and thus the CC issue is irrelevant.

- (20) Huoche {gen/he} qiche hui zhuanjia ma?
 train and/and bus might collide Q
 ‘Might the train collide with the bus?’

<I> No separation of first conjuncts from conjunctions by raising verbs in distributive coordination

Unlike in the comitative coordination, first conjuncts cannot be separated from the conjunctions by raising verbs in distributive coordination. In (21), *fenie* indicates the coordination is a distributive coordination. The epistemic modal *hui* ‘will’ cannot occur between the first conjunct *Lao Li* and the conjunction in this sentence.

- (21) a. *Lao Li hui {gen/he} Lao Wang fenbie qu-le Shanghai ma?
 Lao Li will and/and Lao Wang respectively go-PRF Shanghai Q
 b. Lao Li {gen/he} Lao Wang hui fenbie qu-le Shanghai ma?
 Lao Li and/and Lao Wang will respectively go-PRF Shanghai Q
 ‘Might Lao Li and Lao Wang have gone to Shanghai respectively?’

Since no conjunct may be separated from the conjunction in distributive coordination, the CC effects are observed.

3.3. The occurrence of circumstantials between first conjuncts and conjunctions

The third indication that first conjuncts may move is seen in the occurrence of circumstantials between first conjuncts and conjunctions.

<I> The separation of first conjuncts from conjunctions by circumstantials in comitative coordination

CC violation is also noted in data like the following (22b), where the first conjunct and the conjunction are separated by the circumstantial *yiqian* ‘before, in the past.’ (22b) is synonymous to (22a).

- (22) a. (Yiqian) [Baoyu he Daiyu] (yiqian) jie-guo hun.
 past Baoyu and Daiyu past connect-EXP marriage
 ‘Baoyu and Daiyu married before.’
 b. Baoyu, yiqian [he Daiyu] jie-guo hun.
 Baoyu past and Daiyu connect-EXP marriage

In (22b), no resumptive pronoun is allowed, as shown below, indicating that the sentence-initial nominal is not a gapless topic. Instead, it is moved out of a position to the right of the circumstantials.

- (23) *Baoyu yiqian [a, he Daiyu]jie-guo hun.
Baoyu past he and Daiyu comet-EXP marriage

Since all conjuncts and the conjunction of a coordinate DP complex must be merged into a constituent which excludes any circumstantial, the occurrence of the circumstantial between the first conjunct and the conjunction in (23b) suggests that the conjunct has been moved. If so, CC is violated.

<i> No separation of first conjuncts from conjunctions by circumstantials in distributive coordination

Unlike in the comitative coordination, first conjuncts cannot be separated from the conjunctions by circumstantials in distributive coordination. The adverb *fenbie* in (24) indicates that the coordination is a distributive coordination. In data like (24), the first conjunct and the conjunction must be adjacent.

- (24) a. *Baoyu zuotian [he Daiyu] fenbie qu-le Taiguo.
Baoyu yesterday and Daiyu respectively go-PRF Thailand
b. [Baoyu he Daiyu] zuotian fenbie qu-le Taiguo.
Baoyu and Daiyu yesterday respectively go-PRF Thailand
'Baoyu and Daiyu went to Thailand respectively.'

Again, since no conjunct may be separated from the conjunction in distributive coordination, the CC effects are observed.

3.4. First conjunct-oriented resultatives

The fourth indication that first conjuncts may move is seen in the existence of first conjunct-oriented resultatives.

<> The first conjunct-oriented resultatives in comitative coordination

If a comitative coordinate complex occurs with a resultative, the sentence is always ambiguous. The secondary predicate can be either the whole coordinate complex-oriented, or the first conjunct-oriented:

- (25) Baoyu gen Daiyu zhuang de topuoxueliu.
Baoyu and Daiyu collide MOD bleed
'Baoyu and Daiyu collided so that Baoyu bled.'
'Baoyu and Daiyu collided so that they both bled.'

The existence of the single conjunct-oriented resultatives would be unexpected, if the relevant conjunct remained inside the hosting DP. According to Williams (1980), subjects must C-Command their predicates, including secondary predicates. Thus in

order to achieve the first reading of the above data, the first conjuncts have to move out of the coordinate complexes to C-Command the resultatives. The empirical issue remains regardless of whether one adopts a PRO approach to secondary predication (Hornstein & Lightfoot 1987, Bowers 1993, 2001). Specifically, if the subject of a secondary predicate is a local PRO, which C-Commands the secondary predicate, the controller of the PRO still needs to be a constituent out of any coordinate complex. In this PRO-approach, the first conjuncts in the above data are controllers of the PRO subjects of the secondary predicates. As controllers of the PROs, the first conjuncts must be syntactically out of the coordinate complexes.

The existence of whole-coordinate complex-oriented resultatives, seen in the second reading of (25), indicates that the raising of the first conjuncts is not obligatory. This in situ possibility is parallel to what we saw in the above four subsections.

<i> No first conjunct-oriented resultatives in distributive coordination

In contrast to data like (25), the first conjuncts of distributive coordination can never have any secondary predicate. The following sentences are not ambiguous. Only the whole coordinate complexes can be the subjects or the controllers of the subjects of the resultatives.

- (26) Baoyu he Daiyu qi de zhi fadou.
Byou and Daiyu angry MOD keep shiver
'Baoyu and Daiyu were so angry that they kept shivering.'

3.5. The occurrence of negation words between first conjuncts and conjunctions

The fifth indication that first conjuncts may move is seen in the occurrence of negation words between first conjuncts and conjunctions.

<> The possible negation word between first conjuncts and conjunctions in comitative coordination

It is possible for a negation word to occur between the first conjunct and the conjunction in the comitative constructions. In the comitative construction in (27a), the first conjunct *qing* 'hydrogen' and the conjunction *gen* are separated by the negation word *bu*, and in (27b), the first conjunct *Baoyu* and the conjunction *gen* is separated by the negation word *mei*.

- (27) a. Qing bu gen dan he-cheng shui.
hydrogen not and nitrogen combine-become water
'Hydrogen and nitrogen do not make water.'
b. Baoyu mei gen Daiyu {xia-qijijichun}.
Baoyu not and Daiyu play-chess/marry
'Baoyu and Daiyu did not {play chess/marry}.'

Since all conjuncts and the conjunction of a coordinate DP complex must be merged into a constituent which excludes any negation word, the occurrence of the negation word between the first conjunct and the conjunction in (27) suggests that the conjunct has moved. If so, CC is violated.

<I> No negation word between first conjuncts and conjunctions in distributive coordination

It is impossible for a negation word to occur between the first conjunct and the conjunction in distributive coordination. In (28), the occurrence of *dou* indicates that the coordination is a distributive coordination. The occurrence of the negation word *bu* between the first conjunct *Baoyu* and the conjunction *gen* in (28) makes the sentence unacceptable.

- (28) *Baoyu bu gen Daiyu dou xihuan zhe ben shu.
Baoyu not and Daiyu all like this CL book

In this distributive coordination example, since no conjunct may be separated from the conjunction, the CC effect is observed.

3.6. The possibility of pro form of first conjuncts

The sixth indication that first conjuncts may move is seen in possibility of pro form of first conjuncts.

<I> The possible occurrence of pro form of first conjuncts in comitative coordination

In Chinese, pro subjects can take coordinate complexes as their antecedents. In (29a) and (29b), the subject of the second clause is a pro, co-referential with the coordinate complex in the previous clause, regardless of whether the predicate of the null subject is collective or distributive. In these data, since no single conjunct undergoes any syntactic operation alone, the CC issue is not relevant.

- (29) a. Baoyu he Daiyu qu-nian jie-le hun, xianzai pro zai tongyige
Baoyu and Daiyu last-year connect-PRF marriage now at same
gongsi gongzuo.
company work

- b. Baoyu he Daiyu qu-nian qu-le Meiguo. Jin-nian pro fenhie mai-le fangzi.
Baoyu and Daiyu last-year go-PRF U.S. this-year respectively buy-PRF house
'B and D married last year, and they work in the same company now.'
'Baoyu and Daiyu last year and they bought a house respectively this year.'

Single conjuncts of coordinate subject complexes can also be null, or pro. The pro conjunct in (30) is licensed by the non-linguistic context. If the speaker knows that the hearer had fallen in love with Daiyu for some time, s/he might ask the question.

- (30) Pro he Daiyu jiehun-le ma?
and Daiyu marry-PRF Q
'Have you and Daiyu married?'

Importantly, in (30), the predicate *jiehun* 'marry' is collective.

Den Dikken (2001) convincingly argues that weak pronouns and null pronouns must be raised overtly. Thus if the first conjunct of data like (30) is a pro, it must have been raised. Consequently, CC is violated.

<II> No occurrence of pro form of first conjuncts in distributive coordination

Unlike in the comitative coordination, first conjuncts cannot be in the pro-form in distributive coordination. In the following data, for instance, the occurrence of the distributive adverb *dou* 'all' and the adverb *fenhie* indicate that the relevant coordination is distributive coordination. In no context, are data like the following, where the first conjunct is a pro, acceptable:

- (31) a. *Pro gen Lao Li dou qu gongyuan le.
and Lao Li all go park PRT
b. *Pro he Lao Li fenhie mai-le fangzi.
and Lao Li respectively buy-PRF house

The above six contrasts between the comitative coordination and distributive coordination with respect to the mobility of first conjuncts show that the CC effects are sensitive to the semantic type of the coordination: the first conjunct can move in comitative coordination but not in distributive coordination. This is the semantic side of CC.

4. Conclusions

I have argued that the comitative *he/gen*-constructions are coordinate constructions, and that the first conjunct of the constructions can move. This research leads us to a better understanding of the Coordinate Structure Constraint.

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