

Right Node Raising: Some Perspectives from Mandarin Chinese

Hsu-Te Johnny Cheng
University of Connecticut

Three dominant approaches have been proposed in the literature to account for the Right Node Raising (RNR) construction, in which a single constituent seems to be shared by two independent clauses. This paper looks at the relevant construction in Mandarin Chinese and proposes that the across-the-board movement analysis and the PF-deletion analysis might have difficulty in accounting for the facts, while the multi-dominance approach, with some assumptions, can properly capture the relevant linguistic data. The examples in Mandarin Chinese thus provide a window as to what an adequate theory of RNR might look like.

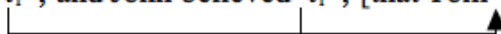
1. Introduction

The Right Node Raising (RNR, henceforth) construction has been the focus of investigation since early generative tradition (see Ross (1967), Maling (1972)). The basic pattern is illustrated in (1). The part that seems to be shared is in bold.

- (1) a. Mary suspected, and John believed, **that Tom was a secret agent**.
b. I believed that John bought, and Mary believed that Sue sold, **a book yesterday**.

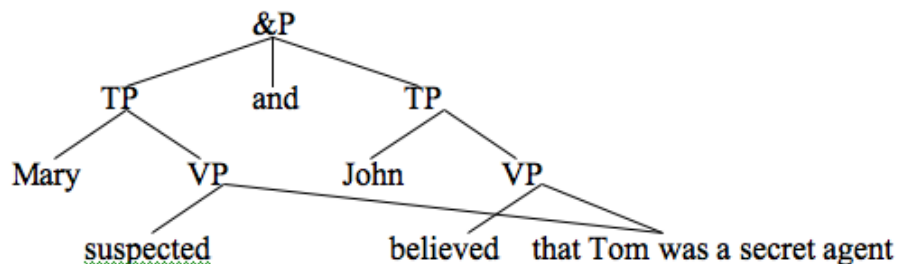
There is an intuition that the object is not missing in the first conjunct in (1a). Rather, the sequence in bold, *that Tom was a secret agent*, seems to be shared in both conjuncts. In other words, what (1a) expresses is two propositions: Mary suspected that Tom was a secret agent, and John believed that Tom was a secret agent. The question is how to formally characterize this intuition. (At least) Three dominant approaches have been proposed in the literature to account for the RNR constructions, namely the **across-the-board movement approach** (Ross (1967), Maling (1972), Postal (1974), Williams (1978), Sabbagh (2003), etc), the **PF-deletion (ellipsis) approach** (Wexler and Culicover (1980), Kayne (1994), Wilder (1997), Bošković (2004), Ha (2006), An (2007), Clapp (2008), etc), and the **multi-dominance approach** (McCawley (1982), Wilder (1999), Chung (2004), Citko (2005), etc). Under these three approaches, (1a) may be illustrated in (2a-c) below.

(2) a. Mary suspected t_1 , and John believed t_1 , [that Tom was a secret agent]₁.



b. Mary suspected ~~that Tom was a secret agent~~, and John believed that Tom was a secret agent.

c.



In (2a), the shared element *that Tom was a secret agent* originates in both conjuncts and undergoes across-the-board movement to the right edge of the clause. In (2b), similarly, the shared part appears in both conjuncts, but there is no movement operation. Rather, the shared part in the first conjunct stays in situ in syntax and is deleted in the PF component. In (2c), on the other hand, there is only one single instance of the shared element. The CP *that Tom was a secret agent* is dominated by two different VPs, one in the first conjunct, and the other in the second conjunct.

In this paper, I will provide some additional evidence from Mandarin Chinese to argue that the multi-dominance approach, but not the movement and the PF-deletion approaches, may best capture the facts. The organization of the paper is as follows. In section 2, I argue against the movement analysis of RNR. In section 3, I argue against the PF-deletion analysis of RNR. In section 4, I illustrate how the multi-dominance approach, with the assumption of “null &” and Parallel Merge, may capture the facts. Section 5 concludes the paper.

2. Against the Across-the-board Movement Analysis

Despite the seemingly fact that the relevant construction in (1) involves movements, it has long been observed in the literature (Wexler and Culicover (1980)) that RNR constructions do not have some properties of movements, such as island constraints, as in (3) and (4).

(3) a. John wonders when Bob Dylan wrote, and Mary wants to know when he recorded, **his great song about the death of Emmett Till**.

b. *What does John wonder when Bob Dylan wrote? (Abels (2003))

(4) a. I know a man who buys, and you know a woman who sells, **gold rings and raw diamonds from South Africa**.

b. *What do you know a man who buys?

As indicated in (3b), overt (leftward) movement across a wh-island will result in ungrammaticality (Subjacency violation), as expected. The grammaticality of (3a) thus casts doubt on the existence of movement operation in (3a). If (rightward) movement is involved in (3a), it should be as ungrammatical as (3b), contrary to facts. The same contrasts involving complex NP islands are given in (4a,b). In short, RNR construction does not seem to behave similarly to those constructions that clearly involve movements.

Using tests from its interplay with Antecedent Contained Deletion (ACD), I provide another piece of evidence from Mandarin Chinese to argue against the movement analysis. An English example involving ACD is illustrated in (5) below.

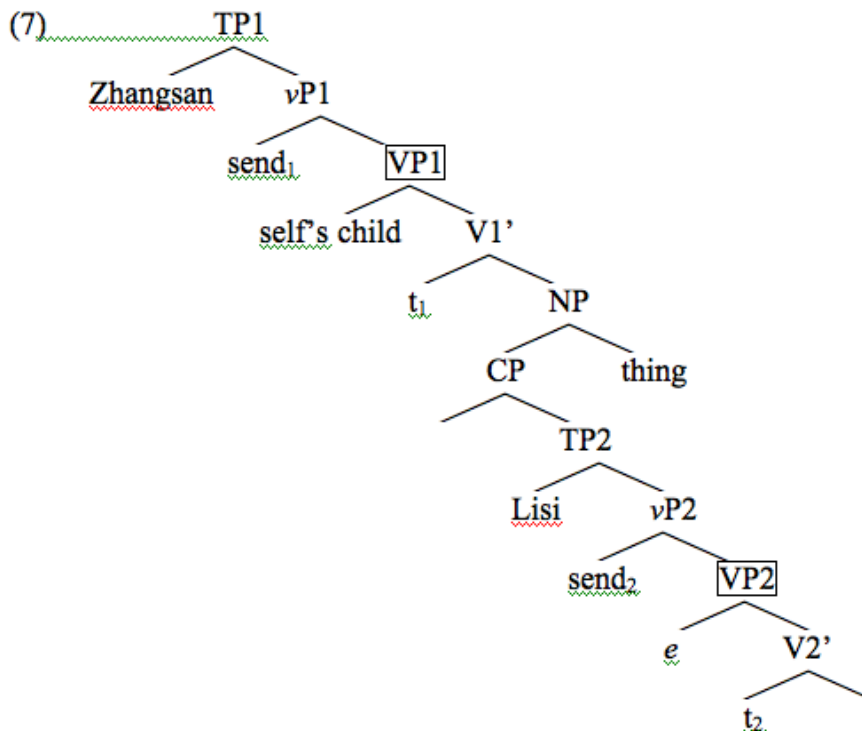
(5) John [_{VP1} bought every book that Bill did [_{VP2} e]]

In (5), VP2 is empty in content and is contained in VP1. Therefore, direct copying of VP1 to VP2 is not an option, since it will result in infinite regression. It has been proposed in May (1985) that the quantifier phrase *every book that Bill did* can undergo quantifier raising (QR) to resolve the infinite regression problem.

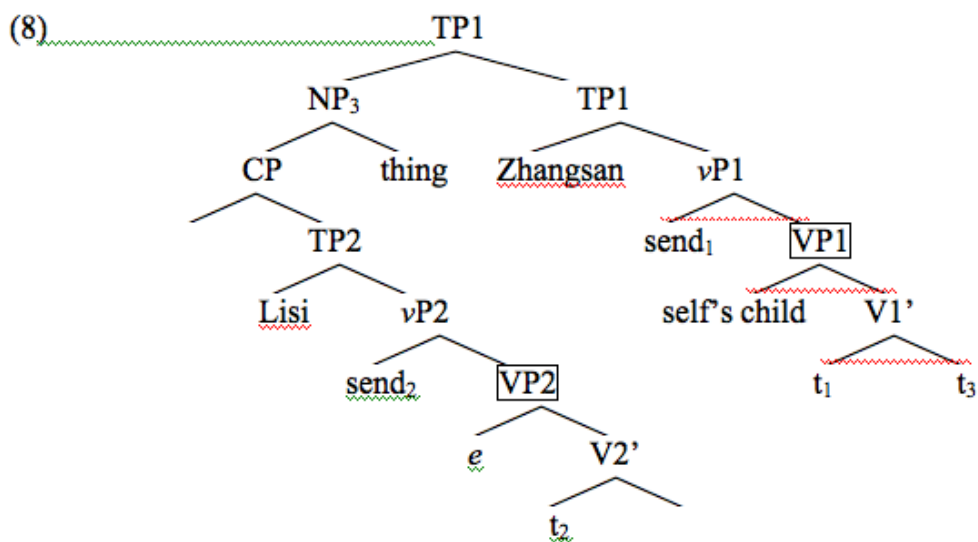
I propose that the example in (6) is also an instance of ACD construction, with the structure in (7).

(6) Zhangsan song ziji-de xiaohai Lisi song e de dongxi
 Zhangsan send self-gen child Lisi send DE thing
 'Zhangsan sent his child the thing that Lisi sent.' (√strict, *sloppy)

As indicated, (6) only has the strict reading, but not the sloppy reading, of *ziji-de xiaohai* 'self's child.' In other words, (6) only means 'Zhangsan sent Zhang's child the thing that Lisi sent Zhang's child,' but not 'Zhangsan sent Zhang's child the thing that Lisi sent Lisi's child.' This is expected, since VP2 is contained in VP1, a case of ACD. Therefore, directly copying of VP1 to VP2 is not available, and the *e* inside VP2 thus cannot be *ziji-de xiaohai* 'self's child.' This is why the sloppy reading of (6) is not available. On the other hand, it is possible to insert an empty pronoun to the position of *e* that is co-indexed with *ziji-de xiaohai* 'self's child' in VP1, which refers to *Zhangsan's child* under assignment. This will give us the strict reading.



Interestingly, if the NP is pre-posed to a position where the containment relation is resolved (such as sentence initial position), then the sloppy reading (Zhangsan sent Zhangsan's child the thing that Lisi sent Lisi's child) is available, as indicated in the structure in (8) below. The sentence is given in (9).



- (9) Lisi song *e* de dongxi, Zhangsan (ye) song ziji-de xiaohai
 Lisi send DE thing, Zhangsan also send self-gen child
 ‘lit. The thing that Lisi sent, Zhangsan also sent self’s child.’ (√strict, √sloppy)

This is expected since, with the structure in (8), VP2 is not contained inside VP1 anymore, and directly copying of VP1 to VP2 is an option. The *e* inside VP2 can be a copy of *ziji-de xiaohai* ‘self’s child.’ This is why the sloppy reading is available. Of course, the use of an empty pronoun *pro* is still an option, and the strict reading is still available.

The paradigm in (6)-(9) lends supports to Huang’s (1982) Isomorphism Principle, which states that the LF structure will resemble the structure in overt syntax. In other words, covert operation at LF is available in English, but not in Chinese. This is why while English may resort to covert operation to resolve infinite regression in ACD constructions, as in (5), such infinite regression must be resolved in overt syntax in Chinese, as shown in (8) and the availability of sloppy reading in (9).

Having examined the ACD examples, let us see how the RNR constructions interact with them. The relevant example is shown in (10).

- (10) Zhangsan yuanyi song ziji-de xiaohai, danshi Lisi bu yuanyi song
 Zhangsan willing.to send self-gen child but Lisi not willing.to send
 ziji-de xiaohai [_{NP} Wangwu song de dongxi]
 self-gen child Wangwu send DE thing
 ‘lit. Zhangsan is willing to send self’s child, but Lisi is not willing to send self’s
 child the thing that Wangwu sent.’ (√strict, *sloppy)

= ‘Zhangsan is willing to send Zhangsan’s child the thing that Wangwu sent
 Zhangsan’s child, but Lisi is not willing to send Lisi’s child the thing Wangwu
 sent Lisi’s child.’

≠ ‘Zhangsan is willing to send Zhangsan’s child the thing that Wangwu sent
 Wangwu’s child, but Lisi is not willing to send Lisi’s child the thing Wangwu
 sent Wangwu’s kid.’

As indicated above, (10) only has the strict reading, but not the sloppy reading. From the comparison of (6) and (9), the lack of the sloppy reading in (10) indicates that the antecedent contained relation is not resolved yet, and the use of empty pronoun is the only option. This thus argues against the movement approach. If overt movement had taken place, then the antecedent contained relation would have been resolved, and sloppy reading should be available. This shows that overt movement has not occurred.

Having argued against the movement approach, in the next section I will provide evidence to argue against the PF-deletion analysis.

3. Against the PF-deletion analysis

The PF-deletion analysis assumes that no movement is involved in RNR constructions. Rather, there is a copy in each conjunct, and the copy in the first conjunct is deleted in PF. (2b) is repeated here as (11).

- (11) a. Mary suspected, and John believed, that Tom was a secret agent.
 b. Mary suspected ~~that Tom was a secret agent~~, and John believed that Tom was a secret agent.

However, the following example in Chinese may pose a potential problem for the PF-deletion analysis, which assumes the shared element appears in each conjunct.

- (12) a. Zhangsan yong shou er Lisi yong qiubang da-le bici
 Zhangsan with hand while Lisi with bat hit-asp each.other
 ‘Zhangsan hit Lisi with hand, while Lisi hit Zhangsan with a bat.’
 b. *Zhangsan yong shou da-le bici er Lisi yong qiubang da-le
 Zhangsan with hand hit-asp each.other while Lisi with bat hit-asp
 bici
 each.other
 ‘Zhangsan hit Lisi with hand, while Lisi hit Zhangsan with a bat.’

In (12a), the VP *da-le bici* ‘hit-asp each other’ seems to be shared by both conjuncts. However, as shown in (12b), overt realization of the shared element in both conjuncts will result in ungrammaticality, since the reciprocal *bici* ‘each other’ cannot be bound by a plural antecedent in either conjunct. The PF-deletion analysis will wrongly predict (12a) to be ungrammatical because (12a) should look just like (13), with a reciprocal in each conjunct.

- (13) Zhangsan yong shou ~~da-le bici~~, er Lisi yong qiubang da-le bici

Note that similar examples in Japanese can also be observed, as shown in (14).

- (14) a. Masa₁-wa te-de, (sosite) Tomo₂-wa batto-de otagai₁₊₂-o nagut-ta
 Masa-top hand-with and Tomo-top bat-with each.other-acc hit-past
 ‘Masa hit Tomo with hands, and Tomo hit Masa with a bat.’
 b. *Masa₁-wa te-de otagai-o nagut-ta
 Masa-top hand-with each.other-acc hit-past
 (sosite) Tomo₂-wa batto-de otagai₁₊₂-o nagut-ta
 and Tomo-top bat-with each.other-acc hit-past
 ‘Masa hit Tomo with hands, and Tomo hit Masa with a bat.’ (Ohtaki (2008))

The PF-deletion analysis would thus have to account for the similar behavior of (12) and (14) in Chinese and Japanese. Chung (2004) provided another argument against the PF-deletion analysis, based on the availability of the dummy plural marker *-tul* in Korean, as shown in (15) below.

- (15) a. John-un nonmwun-ul yelsimhi(*-tul) ilk-ess-ta
 John-top article-acc hard-DPM read-past-de
 ‘John read articles hard.’
- b. Mary-nun chayk-ul yelsimhi(*-tul) ilk-ess-ta
 Mary-top book-acc hard-DPM read-past-de
 ‘Mary read books hard.’
- c. John-un nonmwun-ul kuliko Mary-nun chayk-ul yelsimhi(-tul) ilk-ess-ta
 John-top article-acc and Mary-top book-acc hard-DPM read-past-de
 ‘John read articles and Mary read books hard.’ (Chung (2004))

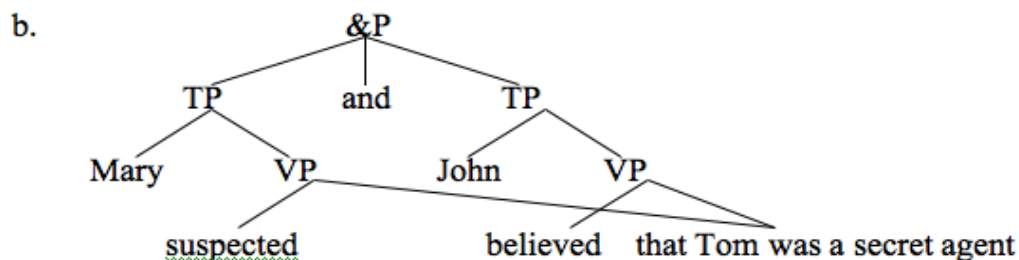
As shown in (15a,b), the dummy plural marker *-tul* cannot appear when there is no plural antecedent in the clause. However, (15c) is grammatical. The grammaticality of (15c) again poses a challenge to the PF-deletion analysis. If (15c) is really a combination of (15a) and (15b) plus PF-deletion, there should be no reason why *-tul* could be licensed.

In this section, I have presented some evidence from Chinese, Japanese, and Korean that seems to be problematic for the PF-deletion analysis. In the next section, I will argue that that these examples, with some extra assumptions, can in fact be accounted for under the multi-dominance approach.

4. Multi-dominance Approach and Internal/External Merge

The starting point of the multi-dominance approach is the abandonment of the Single Mother Condition, which states that if a node α is dominated, there can be at most one node β that immediately dominates α . In other words, α can only have more than one mother. The multi-dominance approach abandons such assumption, giving rise to the result that a node α can have more than one mother. The sentence and the structure of (1a) and (2c) is repeated here.

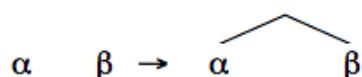
- (16) a. Mary suspected, and John believed, that Tom was a secret agent.



In fact, such abandonment of the Single Mother Condition does gain some support from the recent theoretical development. For example, Citko (2005) claims that the existence of External Merge and Internal Merge (Chomsky (2001)) predicts the existence of the third type, which she called Parallel Merge, as illustrated in (17).

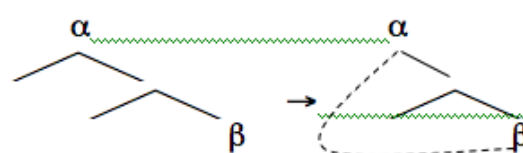
(17) a. *External Merge*

(take two distinct rooted structures
structure and merge them into one)

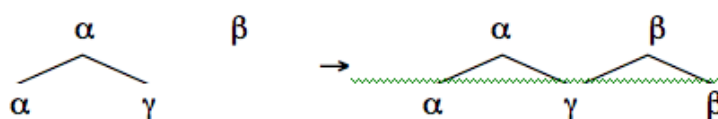


b. *Internal Merge*

(take a subpart of an existing
as one of the two objects)



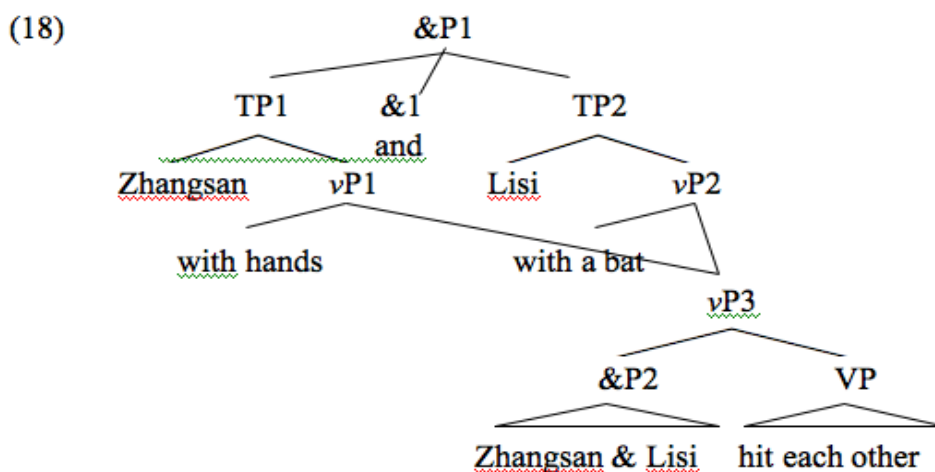
c. *Parallel Merge* (the combination of the two)



According to Citko (2005), “Parallel Merge is a theoretical possibility.” It is a third logical possibility if the first two were possible. It thus provides theoretical motivation and support for the multi-dominance structures. With the theoretical assumptions motivated, let us examine how the above sentences can be accounted for.

Ohtaki (2008), following Grosz (2007), assumes the “null &” hypothesis to account for the licensing of reciprocals in Japanese. I will follow Ohtaki’s (2008) analysis to account for the Chinese facts. The structure is given in (18) below. Crucially, it is assumed that *Zhangsan* and *Lisi* are forming a constituent under the ‘Boolean Phrase’ by the null head &. I will illustrate the details of each step below. First, the null head &

combines with *Lisi* and then with *Zhangsan* to form &P2, both steps being External Merge. This &P2 then undergoes External Merge with the VP to form ν P3. Then ν P3 undergoes External Merge with the PP *with hands* to form ν P1. Another PP *with bats* undergoes Parallel Merge with ν P3 to form ν P2. *Zhangsan* then undergoes movement (Internal Merge) with ν P1 to form TP1. The same happens with *Lisi*, which undergoes Internal Merge with ν P2 to form TP2. TP2 first combines with &1 (*and*), then further combines with TP1 to form &P1. This will give us the structure and the desired word order. For ease of exposition, the steps are summarized in (19) below.



- (19) a. &P2: “Zhangsan, &2, Lisi” → external merge
 b. VP: “hit, each other” → external merge
 c. ν P3: “&P2, VP” → external merge
 d. ν P1: “with hands, ν P3” → external merge
 e. ν P2: “with a bat, ν P3” → parallel merge
 f. TP1: “Zhangsan, ν P1” → internal merge
 g. TP2: “Lisi, ν P2” → internal merge
 h. &P1: “TP1, &1, TP2” → external merge

So, from the discussion above, it is shown that, with the assumption of “null &” and the mechanisms of External/Internal/Parallel Merge, the licensing of the reciprocals may be accounted for. Similarly, the licensing of the dummy plural marker *-tul* in Korean can be explained in the same fashion. (*John* and *Mary* in (15) will first form a constituent under the null &. This is why *-tul* can be licensed. *John* and *Mary* are later merged to their own clauses respectively.)

While the licensing of the reciprocals in Chinese/Japanese and the dummy plural marker *-tul* in Korean may be a problem for the PF-deletion approach, there is a way to

capture these facts under the multi-dominance approach. I take this as argument in favor of the latter, but not the former, approach.

After arguing for the multi-dominance approach, I will briefly discuss some potential problems for the analysis here. First, under the structure in (18), *Zhangsan* and *Lisi* (and the null &) form a constituent &P. *Zhangsan* is later (internally) merged to form TP1, and *Lisi* to form TP2. If *Zhangsan* and *Lisi* are separate conjuncts of the coordinate structures, one might wonder how this fares with the Coordinate Structure Constraints (CSC), which prohibits movement of one conjunct out of the structure. There might be two potential solutions to this problem. One is to assume that *Zhangsan* and *Lisi* undergoes Internal Merge (movement) at the same time. In other words, it is like Across-the-board movement, which has been known to be acceptable in coordinate structures, as shown in (20) below.

(20) I wonder which books₁ [John likes t₁] and [Bill hates t₁]

Another potential solution is to claim that CSC is actually a PF phenomenon. In other words, the reason why movement out of coordinated structures is prohibited is due to the presence of a dangling conjunction (such as *and*). However, if the conjunction is null (at least in PF), as is the case in (18) with a null &, then such violation at PF may be ameliorated. Of course, these are just some very tentative guesses, and a detailed look into the behavior of coordinated structures is needed.

The second potential problem is related to the nature of RNR in Mandarin Chinese. As discussed above, RNR in English does not have some prototypical properties of movement operations. For one thing, it is not sensitive to island constraints, as shown in (3) and (4), repeated here as (21).

- (21) a. John wonders when Bob Dylan wrote, and Mary wants to know when he recorded, his great song about the death of Emmett Till.
 b. I know a man who buys, and you know a woman who sells, gold rings and raw diamonds from South Africa.

However, RNR in Mandarin Chinese does show island effects, as shown in (22).

- (22) a. Zhangsan xihuan danshi Lisi bu xihuan [zhe-ben shu]
 Zhangsan like but Lisi not like this-cl book
 ‘Zhangsan likes, but Lisi doesn’t like this book.’
 b. *Zhangsan renshi [yi-ge [t₁ mai-le t₂] de nuhai₁] er Lisi renshi [san-ge
 Zhangsan know one-cl buy-asp DE girl and Lisi know three-cl
 [t₃ du-le t₂] de nanhai₃] [zhe-ben shu]₂
 read-asp DE boy this-cl book
 ‘Zhangsan knows a girl who bought, and Lisi knows three boys who read

this book’

As shown in (22b), (rightward) movement of an element out of the coordinate structure will result in ungrammaticality. This shows that RNR in Mandarin Chinese might be different from those in English. More work still needs to be done to find out the real nature of RNR in Chinese and the proper analysis of such paradigm. I will leave these as the direction for future goals.

5. Conclusion

In this paper, I have provided some RNR constructions from Mandarin Chinese and claimed they might help distinguish the theories of RNR. First, in addition to those reported in the literature, I give evidence that RNR construction in Chinese does not have the prototypical behavior of regular movement operations, thus casting doubts on the Across-the-board movement approach. Second, I show that the licensing of reciprocals in Chinese/Japanese and the licensing of dummy plural marker *-tul* in Korean might be problematic for the PF-deletion approach. I further claimed that, with the assumption of “null &” and the mechanisms of Parallel Merge, these facts may be accounted for and captured under the multi-dominance approach. It is hoped that the data provided here can help shed light on the theories of RNR.

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