

# Chapter Three Embedded Comparatives and Subcomparatives

Debates on the type of Mandarin comparatives have been around the center of literature, which branches into two parties, one for phrasal comparatives (Paul, 1993; Xiang, 2005; Lin, 2009, 2019, Liu, 2012, etc.), the other for clausal comparatives (Liu, 1996, 2011; Hsieh, 2015, 2007; Erlewine, 2017, etc.). Their discrepancy originates from the different interpretation of two specific comparative constructions, i.e. embedded comparatives and subcomparatives. Scholars of phrasal comparatives make full use of the failures of them to deny clausal analysis. But clausal proponents spare their efforts on proving that embedded comparatives and subcomparatives are ruled out on independent ground. Interestingly, both sides are fully confident that their own mechanism is the sole choice for Mandarin, devoting themselves to refuting the other (except for Liu, 2011, admitting two types of comparatives). A dead end occurs as neither party finds out new evidence or new mechanism to support their own standpoints beyond embedded comparatives and subcomparatives.

## 3.1 Puzzles Arise from Clausal Comparatives

To clarify the puzzle caused by clausal analysis in Mandarin comparatives, the derivation of English embedded comparatives and subcomparatives need be scrutinized. Under standard analysis, “John is taller than Mary is” projects a deep structure in (1a), featured with a clause resembling relative clauses. An implicit wh operator is assumed to originate from the adjunct position of “tall” to the specifier of CP, leaving its trace with a d-type argument, i.e. “ $op_i \dots d_i$ ”. “tall” inside “thanP” is deleted under identity at PF. The derivation of (1a) predicts the well-formedness of embedded comparatives and subcomparatives, whose deep structures are displayed in (1b) and (1c) respectively. For (1b), the implicit operator can move cyclically into the specifier of CP because what “believe” selects is a non-island complement clause, exerting no blocking effect to the movement of “ $op_i$ ”. For (1c), “wide” in the comparative clause is different from “long” in the matrix clause, thus no deletion will happen. As the deletion of “wide” happens at PF, it exerts no impact on the movement of “ $op_i$ ”, (1c) is judged licit without problem.

- (1) a. John is taller than [op<sub>i</sub> Mary is d<sub>i</sub>-tall].  $\Rightarrow$  “John is taller than Mary is.” ✓  
Embedded comparatives  
b. John is taller than [op<sub>i</sub> Gorge believes [ Mary is d<sub>i</sub>-tall]]. ✓  
Subcomparatives  
c. This table is longer than [op<sub>i</sub> that chair is d<sub>i</sub>-wide]. ✓  
Subcomparatives

Mandarin is proved to own clausal comparatives by scholars. Multiple topic comparatives in (2) and verbal comparatives in (3) are deemed as evidence in favor of the clausal status of “biP”. (2) is characteristic of more than one elements flanking “bi”, a normal individual and an abnormal temporal adverb “zuotian (yesterday)” and prepositional phrase “zai xuexiao(at school)”, whose occurrence winds up to support that “Mary zuotian zai xuexiao(Mary yesterday at school)” should be abbreviated from “Mary zuotian zai xuexiao kai xin(Mary was happy yesterday at school)” as

temporal words and prepositional phrases are traditionally assumed to occupy the adjunct position of IP. Similarly, the “V de” construction in (3) implies that it must be reduced from a full form like “Mary pao de kuai (Mary runs fast)” because the appearance of “de” indicates the existence of “kuai (fast)”. Gradable adjectives “kaixin (happy)” and “kuai (fast)” inside “biP” are deleted under identity with their correlates in the matrix clauses<sup>2</sup>.

### Multiple

### topic comparatives

(2) John jintian zaijia [ bi Mary zuotian zai xuexiao [I I [AP kaixin]]] kaixin.

John today at home than Mary yesterday at school happy happy  
'John was happy today at home than Mary was yesterday at school.'

### Verbal

### comparatives

(3) John pao de [bi Mary [VP pao de [I I [AP kuai]]]] kuai.

John run de than Mary run de fast fast  
'John runs faster than Mary does'

If above analyses are on the right track, Mandarin embedded comparatives and subcomparatives should be legitimate because the derivation in (1a) and (1b) should apply to (4) and (5) without any gaps. “xiangxin (believe)” in (4) is able to select a complement clause, which should not block the movement of “opi” out of it and “gao(tall)” inside “biP” is deleted under identity at PF. Since “bi(that)” can introduce a full clause, it should be non-problematic if there is nothing deleted under identity.

### \* embedded comparatives (in Mandarin)

(4) \*John bi [opi Gorge xiangxin Mary di-gao] gao.

John than Gorge believe Mary tall tall  
'John is taller than Gorge believes Mary is.'

(5) \*zhe zhang zhuozi bi [opi na zhang yizi di-kuan] chang

DET CL table than DET CL chair wide long  
'this table is longer than that chair is wide.'

### \* SubComparatives (in Mandarin)

Unexpectedly, neither (4) nor (5) is licit, and their failures justifiably become pieces of evidence against clausal analysis because clausal analysis over-generates Mandarin comparative forms. If Mandarin adopts a phrasal strategy, it will naturally exclude (4) and (5) for “bi(that)” can only introduce phrases (denote argument in semantics) rather than clauses (denote property in semantics). Hence to explain why (4) and (5) are illicit weighs on the mind of scholars supporting clausal analysis, and no agreeable argumentation is achieved by now.

*clausal analysis*  
Some overseas scholars claim that Mandarin presents a parametrical difference from English, and they stipulate that Mandarin comparatives own no syntactic abstraction over degree variables, so that the implicit “op” in (5) is syntactically forbidden (Beck, et al. 2004). Some others assert Mandarin implements only NP

XX

<sup>2</sup> Liu (1996) argues that the deletion of “kaixin(happen)” should happen at I'-node instead of AP-node. In (ia), an auxiliary “shi(be)” must be added on a par with the grammatical requirement of VP ellipsis, while the comparative in (ib) is ungrammatical with “shi(be)”, which gives rise to the corollary that what deleted in comparative clauses is I' not AP.

- (i) a. John xihuan Mary, Bill ye [VP shi e].

John love Mary, Bill too be

'John loves Mary, so does Bill.'

- b. \*John jintian [bi Mary zuotian [VP shi e]] kaixin.

John today than Mary yesterday be happy

'John is happy today than Mary was yesterday.'

comparison in contrast with English adopting both NP comparison and Degree comparison (Kennedy, 2005b, 2007b). Nevertheless, above judgments seem unduly hasty because the classical lexical entry of gradable adjectives is proved feasible for Mandarin. Moreover, Mandarin parallels to English in allowing adjectival predicates with measure phrases and interrogatives on the degree of gradable adjectives. Attributing the failures of Mandarin embedded comparatives and subcomparatives to parameters turns out to be description rather than explanation.

*phrasal analysis*

*Lin (2009, 2019)* adopts a similar strategy that temporal words, prepositional phrases act as arguments regardless of their adjunct positions. Admittedly, adjuncts of time and location can serve as argument in semantics, but it is hard to attribute “V de” into the category of arguments. On the one hand, “de” always indicates the existence of AP complement (or DegP complement in accordance with this dissertation), on the other hand, “V de” cannot be questioned by wh words, while for typical arguments like NP, even temporal words and prepositional phrases, all of them can plug into interrogative formed by wh words.

*clausal analysis*

*Liu (1996, 2011)* defines a restriction called “minimal c-commanding”, stipulating that the complement of “bi” must parallel to the minimal matrix clause containing “biP” in category, semantics and basic syntactic structure. *Hsieh (2015, 2017)* puts a mechanism by assuming an uninterpretable tense feature on gradable adjectives. He thinks Mandarin “bi” selects a non-finite clause so that the defective T head cannot evaluate the uninterpretable tense feature on gradable adjectives, which result in a crash at interfaces. Therefore, gradable adjectives inside “biP” must be deleted follow the spirit of “rescue by PF deletion (Bošković, 2011). But these two mechanisms are too stipulative and still fail to cover certain facts.

### 3.2 Why Embedded Comparatives fail in Mandarin

Before digging into why embedded comparatives are disallowed in Mandarin, it is prerequisite to figure out what kind of relative clauses comparative clauses should resemble. English comparative clauses are analogized to adjunct relative clauses as the implicit operator is argued to replace a quantifier phrase (cf. Chomsky, 1977; von Stechow, 1984). Previous studies inherit this analogization and equalize Mandarin comparative clauses with adjunct relative clauses, but they confront the failure of embedded comparatives. It is observed that Mandarin gapless relative clauses disallow long-distance relativization neither, which casts doubt on the adequacy of equalizing comparative clauses with adjunct relative clauses. According to Aoun&Li (2003), Cheng&Sybesma (2006), Huang, *et al.* (2009), Mandarin relative clauses can be divided into three branches, they are, NP relative clauses in (6a) and (6b); Adjunct relative clauses in (6c) and (6d); gapless relative clauses in (6e) and (6f).

- (6) a. ni yudao de xuesheng  
you meet de student  
'the student<sub>i</sub> [who<sub>i</sub> you met t<sub>i</sub>]'
- b. ta zuo de shiqing  
he do de thing

① NP relative clauses

relatives clauses  
of mandarin

'the thing<sub>i</sub> which<sub>i</sub> he did t<sub>i</sub>'

- (2) Adjunct relative clauses
- c. ta xiuche de fangfa  
he fix the car de way  
'the way<sub>i</sub> how<sub>i</sub> he fixed the car t<sub>i</sub>'
  - d. ta likai de yuanyin  
he leave de reason  
'the reason<sub>i</sub> why<sub>i</sub> he left t<sub>i</sub>'

- (3) gapless relatives
- e. John tiaowu de wuban  
John dance de partner  
'the partner of John's dancing; John's dancing partner'
  - f. Mary changge de shengyin  
Mary sing de voice

'the voice of Mary's singing; Mary's singing voice'

(7) a. [DP [Head DP<sub>i</sub>]... [Relative CP op<sub>i</sub> [IP ... t<sub>i</sub>.... ]]] *Matching analysis (Chomsky, 1977)*

b. [[Relative CP op<sub>i</sub> [IP ... [NP/PP t<sub>i</sub>]... ]] de] [Head NP<sub>i</sub>]<sup>3</sup>

c. [[CP[IP...[NP t<sub>i</sub>]..] de] [Head NP<sub>i</sub>]<sup>4</sup> *(Mandarin)*

Judging from the translations of (6a-d), English relatives employ a configuration like (7a), where wh-words move from an argument position or adjunct position inside IP to the specifier of relative CP, and heads are base-generated out of the scope of relative CP with the trace left by wh-words, wh-words themselves as well as heads being coindexed through matching, the so-called matching analysis (cf. Chomsky, 1977). Nevertheless, Kayne (1994) argues that NP relative clauses all pass the test of reconstruction effect, so that the NP relatives should be generated through a movement-based mechanism instead of (7a). Same reconstruction effect is also observed in Mandarin NP relative clauses, hence Aoun&Li (2003) argue that (7b) serves as the configuration of adjunct relative clauses, where the heads are base-generated and there is an implicit operator movement into the specifier of relative CP, "op", "t" and "NP" in (7b) are coindexed through matching. Given this derivation, adjunct relative clauses are sensitive to island effect but not to reconstruction effect. Contrastingly, NP relative clauses are derived by a movement from "t" to NP in (7c), so that they are sensitive to both island effect and reconstruction effect. The opposite between NP relatives and adjunct relatives in reconstruction effect is manifested by (8a) and (8b). Plus Mandarin also displays a crucial parametrical difference in adopting "de" as a relativizing marker instead of making a full usage of wh words like English (Tang, 2005; Chen 2009).

(8) a. zhe jiu shi John xihuan de ta ziji de shu.

This exactly is John like de himself de book

'This is exactly the book of himself<sub>i</sub> that John<sub>i</sub> likes.'

<sup>3</sup> The debate on "de" as a C head or relative clausal suffix is out of the scope, please refer to Ning (1993), Si (2004), Xiong(2005), Lv&Pan(2013).

<sup>4</sup> More studies can be found in Ning (1993) holding a null operator movement analysis, Huang, *et al.* (2009), taking a hybrid analysis, Yang(2008) being a Pro analysis.

- b. \*zhe jiu shi John likai de ta ziji de yuanyin.  
 This exactly is John leave de himself de reason  
 ‘This is exactly the reason of himself; that John left.’  
 (Chen&Wen, 2013, p147)

If comparative clause in (9a) resembles the generation of adjunct relative clauses in (9b) and (9c), it should be involved with a movement of implicit wh-operator, so that it must be sensitive to island effect just like (9b) and (9c). As shown in (10) and (11), comparative clause and adjunct relative clause own a same performance in the cases of complement clause (non-island) and complex NP phrases (island). This resemblance, as Chomsky stated, supports his wh-movement-based analysis of comparative clause, and it also explains why the failure of embedded comparatives in Mandarin is used to deny the existence of comparative clauses.

- (9) a. John is taller than [op<sub>i</sub> Mary is d<sub>i</sub> tall].
- b. The reason [op<sub>i</sub> you left t<sub>i</sub>]
- c. The method [ op<sub>i</sub> John fixed the car t<sub>i</sub>]
- (10) a. John is taller than [op<sub>i</sub> Bill believes Mary is d<sub>i</sub> tall]
- b. the reason [op<sub>i</sub> Bill believes you left t<sub>i</sub>]
- c. The method [ op<sub>i</sub> Bill believes John fixed the car t<sub>i</sub>]
- (11) a. \*John is taller than Bill’s claim that [op<sub>i</sub> Mary is d<sub>i</sub> tall]
- b. \*the reason Bill’s claim that [ op<sub>i</sub> you left t<sub>i</sub>]
- c. \*the method Bill’s claim that [ op<sub>i</sub> you left t<sub>i</sub>]

Despite of the parallelism, comparative clauses sound still odd. Since comparative clauses parallel to adjunct relative clauses in structure, they should be able to supplement the missing head “degree”, just like “reason” and “method” in (10b) and (10c). (12a) tells that this is true. But different from (10b) and (10c), “degree” can only resort to “to which” and leaves “how” and implicit “op” illicit. If (12a) is the only licit relativization of “degree”, what happens to the preposition “to” in (9b), why is it omitted?

- (12) a. the degree [to which<sub>i</sub> Mary is d<sub>i</sub> tall].
- b. \*the degree how Mary is d<sub>i</sub> tall.
- c. \*the degree Mary is d<sub>i</sub> tall.

It is taken for granted that Mandarin comparative clauses are tantamount to adjunct relative clauses, the latter presenting an identical performance as their English counterparts in the case of non-island complement clause, i.e. long distance adjunct relativization, see (13a) and (13b). The failure of embedded comparatives then becomes quite bizarre, because it should be as well-formed as their English counterparts.

- (13) a. zhe jiushi [op<sub>i</sub> wo renwei/xiangxin ta xiuche t<sub>i</sub>] de fangfa.  
           this is exactly I think/believe he fix the car de method  
           ‘This is exactly the method I think/believe he fixed the car.’
- b. zhe jiu shi [op<sub>i</sub> wo renwei/xiangxin ta likai t<sub>i</sub>] de yuanyin.  
           this is exactly I think/believe he leave de reason  
           ‘This is exactly the reason I think/believe he left.’

Since comparative clauses share a same deep structure like adjunct relative

*Adjunct relative clauses:  
✓ long distance  
 adjunct relativization*

clauses, it is plausible to supplement the head noun “chengdu(degree)”, just like “fangfa(method)” and “yuanyin(reason)” in (6c) and (6d). (14a) is generated on a par with the configuration given in (7b). It is surprised to find that if (14a) is posited into a relativization of long-distance adjunct, its output, (14b), is ill-formed. The deviation between (13a, b) and (14b) may indicate a fact that Mandarin comparative clauses do not parallel to typical adjunct relative clauses. Same failure of long-distance relativization is also found in gapless relative clauses, e.g. (15a) and (15b). If this parallelism is taken seriously, there must be a common motivation shared by (14b) and (15a, b).

- Mandarin comparative clauses: + long-distance relativization*
- (14) a. [op<sub>i</sub> John d<sub>i</sub>-gao] de chengdu  
           John tall de degree  
           ‘the degree to which John is tall’
- b. \*zhe jiu shi [op<sub>i</sub> wo xiangxin John d<sub>i</sub>-gao] de chengdu.  
     this exactly is I believe John tall de degree  
     ‘This is exactly the degree to which I believe John is tall.’
- (15) a. \*zhe jiushi [wo xiangxin Mary changge] de shengyin.  
     this exactly is I believe Mary sing de voice  
     ‘This exactly is the voice that I believe Mary sang a song.’
- b. \*zhe jiushi [wo xiangxin John diaowu] de wuban.  
     this exactly is I believe John dance de partner  
     ‘This is exactly the partner who I believe John danced with.’
- (16) a. Mary chang ge de shengyin → the voice of Mary’s singing  
     b. John tiaowu de wuban → the partner of John’s dancing
- (17) a. \*the voice of I believe his singing  
     b. \*the partner of I believe his dancing

Aoun&Li offers an explanation that gapless relative clauses behave more like English “Head +preposition +XP” than “head+relative clause”, and the former includes “the price for killing the boy”, “the sound of his singing” (Aoun&Li, 2003, p187). In saying so, (16a) and (16b) are respectively translated into “the voice of Mary’s singing” and “the partner of John’s dancing”. As shown in (17a) and (17b), the pattern “[NP [P [XP]]]” disallows the insertion of “wo xiangxin(I think/believe)”. This assumption does make a sense in the case of long-distance relativization, but gives rise to another problem, that is, how to derive the semantics of gapless relative clauses. Since “Mary changge (Mary’s singing)” in (16a) and “John tiaowu (John’s dancing)” in (16b) behave as modifiers, they should denote a semantic type as <e, t>, yet gapless relative clauses are featured with no traces left inside the clauses.

Huang (2016) argues that head nouns like “wuban(partner)” or “shengyin(voice)” may denote a two-place function, which successively absorbs an event argument and an individual argument, i.e. denoting a <v, <e, t>> type and “v” for event argument. In this sense, “John tiaowu(John’s dancing)” and “Mary changge(Mary’s singing)” denote a simple “v” type argument. This analysis is tricky because he just circumvents rather than solves the problem by fusing “John” and “tiaowu (dance)” into one single event argument. Consequently, the problem is still there that how (18a) and (18b) develop into a <e, t> type since “tiaowu (dance)” and “changge (sing)” are one-place

predicates.

- (18) a. John tiaowu  
John's dancing  
b. Mary change  
Mary's singing

Pan (2018), on the basis of Yuan (1995) proposes that gapless relative clauses may contain a semantic argument, which is provided by an implicit predicate, that is to say, (18a) and (18b) can be added one more argument by a null preposition like "he(with)" in (19a) or a null verb "chan- sheng (produce)" in (19b). If the failure of gapless relatives in long-distance relativization is fully respected, (19a) and (19b) should not be involved with wh movement, or it presents no difference from relative clauses in front of long-distance relativization.

- (19) a. John (he) x tiaowu de wuban  
John with x dance de partner  
'the partner with which John dances'  
b. Mary changge (chansheng) x de shengyin  
Mary sing produced de voice  
'the voice which produced by Mary's singing.'

gapless relative clauses

Pan&Hu (2008) and Hu&Pan (2009) study a special type of topic sentences featured with no syntactic gap in the comment domain, i.e. (20a), where the topic "xueshengmen(students)" finds no position in the comment "ni kan wo, wo kan ni" (you look at me, I look at you). They argue that this comment denotes a logical form like (20b), where there is a semantic gap "Z" bearing the function to license "xueshengmen(students)". (20b) denotes a semantic type as  $\langle e, t \rangle$ . As " $\lambda Z$ " is not interpreted from a wh operator, i.e. no wh movement is involved, the addition of "I renwei(I think)" will cut the semantic conjunction between "xueshengmen(students,  $\langle e, t \rangle$ )" and the comment( $\langle e, t \rangle$ ), which further leads to a crash. This prediction gets borne out via the failure in (20c). If this analysis is on the right track, it is inferred that gapless relative clauses also encode a semantic argument without syntactic realization. (19a) and (19b) are respectively represented as (21a) and (21b), where the extra semantic arguments are supplemented by a predicate "P". "P (dance', x)" means x is related to the event "dance", so that it can be "wuban(dancing-partner)", "zishi(gesture)", "chengjiu(success)" or anything related to "dance", so does "P(sing', x)". Since " $\lambda x$ " is triggered by an implicit predicate, irrelevant to wh movement, the addition of "wo renwei (I think)" will compass gapless relative clauses, as shown in (22a) and (22b), giving rise to a failure to generate a modifier with a  $\langle e, t \rangle$  type.

- (20) a. <sup>topic</sup> xueshengmen, <sup>comment</sup> ni kan wo, wo kan ni. <sup>(no syntactic gap)</sup>

Students, ! you look-at me, I look-at you

- b.  $\lambda Z [ni' \in Z \wedge wo' \in Z \wedge kan(ni', wo') \wedge kan(wo', ni')]$  LF of comment  $\langle e, t \rangle$

c. \*xueshengmen, wo renwei ni kan wo, wo kan ni.

students I think you look-at me I look-at you

- (21) a.  $\lambda x [dance(John) \wedge P(dance', x)]$   $\langle e, t \rangle$  LF of (19a)

b.  $\lambda x [sing(Mary) \wedge P(sing', x)]$   $\langle e, t \rangle$  LF of (19b)

- (22) a. [wo renwei [ $\lambda x$  John tiaowu  $\wedge P(tiaowu', x)]]$  de wuban

gapless relative clauses

a semantic gap

b. [wo renwei [ $\lambda x$  Mary changege  $\wedge$  P(changge', x)]] de shengyin

Since (14b) is sensitive to long-distance relativization, it is thus inferred that the generation of “John gao” may involve certain mechanism adopted by (21a) and (21b), that is to say, no wh movement is engaged. Under degree semantics, “degree” as a primitive argument is encoded into the lexical entries of gradable adjectives, raising the type of them from  $\langle e, t \rangle$  into  $\langle d, \langle e, t \rangle \rangle$ . The addition of the extra degree argument resembles the assumption that gapless relative clauses obtain an extra variable by an implicit predicate. Take “gao(tall)” as an example, its lexical entry is given in (23a).

- (23) a.  $[\![\text{gao}]\!] = \lambda d \lambda x. [\text{height}(x) \geq d]$   $\langle d, \langle e, t \rangle \rangle$   
b.  $[\![\text{pos}]\!] = \lambda P \lambda x. \exists d [P(d)(x)]$   $\langle \langle d, \langle e, t \rangle \rangle, \langle e, t \rangle \rangle$   
c.  $[\![\text{pos gao}]\!] = \lambda x. \exists d [\text{height}(x) \geq d]$   $\langle e, t \rangle$   
d.  $[\![\text{Mary pos gao}]\!] = \exists d [\text{height}(\text{Mary}') \geq d]$   $t$   
e.  $[\![\lambda d \text{ Mary pos gao}]\!] = \lambda d. [\text{height}(\text{Mary}') \geq d]$   $\langle d, t \rangle$

“gao(tall)” in (23a) cannot take the subject “John” directly because of the type mismatch. A null functional morpheme “pos” is assumed to shift  $\langle d, \langle e, t \rangle \rangle$  into  $\langle e, t \rangle$ . According to von Stechow (1984) and Kennedy (1997), “pos” in positive forms bears to introduce a relation “ $d > d_{\text{std}}$ ”, the so-called “evaluative meaning”, to ensure the truth that  $x$  can be judged as “tall” only if  $x$ ’s height exceeds or equals to certain standard degrees from the context, i.e. “ $d_{\text{std}}$ ”. But in comparative clauses (i.e. gapless relative clauses), no evaluative meaning is expressed, so that “pos” in comparative clauses is defined to bear one single function of type shift. In this sense, “pos” offers a free degree variable bound by existential operator, and this degree is related to the height of “Mary”. As (23b) shows, “pos” takes an argument of  $\langle d, \langle e, t \rangle \rangle$  type and outputs an expression with  $\langle e, t \rangle$  type. The combination of “pos” and “gao(tall)” generates (23c), which denotes a  $\langle e, t \rangle$  type, and (23c) further absorbs “Mary” to derive out a “ $t$ ” type proposition. The paraphrase of (23d), “there is at least a degree, to which Mary is tall”, indicates that it is a vacuous proposition in semantics, because there must be a degree of height that owns by Mary, actually there must be a degree of height owned by everybody. Alternatively speaking, (23d) is tautology. Since (23d) acts as kind of relative clauses, it must denote a  $\langle d, t \rangle$  type. Given above two factors, the existential operator should be replaced by “ $\lambda$ ”, then (23e) exactly denotes a set consisting of degrees of Mary’s height, so that a property of degree is ultimately derived out.

The derivation of (23e) involves no wh movement, so that the addition of “wo xiangxin (I believe)” in (14b) will block the operation of predicate modification (Heim&Kratzer, 1998) between “[ $\lambda d$  Mary pos gao]” and “[ $\lambda d$  chengdu]”, that is (24a). And the same blocking effect is mentioned in (20c). If prepositional phrases like “zai xuexiao(at school)” occupy the adjunct position of IP, its appearance inside “biP” will indicate a clausal status of “Mary zai xuexiao pos kaixin” with “kaixin” deleted at PF. English comparative clauses have an isomorphic structure with adjunct

relative clauses, the generation of which gets involved with wh operator movement, so that their performance under island effect is under prediction. By contrast, Mandarin comparative clauses behave like gapless relative clauses, whose generation

\* “why embedded comparatives fail in Mandarin”:

involves no wh operator movement but resorts to a semantical supplementation of argument. In (24b), “λ” replaces the existential operator and binds the degree variable offered by “pos”.

- (24) a. \*zhe jiushi [wo renwei/xiangxin [ $\lambda d$  Mary pos gao]] de [ $\lambda d$  chengdu]  
b. John zaijia [bi  $\lambda d$  Mary zai xuexiao pos kaixin] geng kaixin.  
c. \*John zaijia [bi wo xiangxin [ $\lambda d$  Mary zai xuexiao pos kaixin]] geng kaixin.

Since “ $\lambda d$ ” is not interpreted from a wh word, it finds no way to move into the specifier of CP of “I xiangxin...(I believe...)” on a par with the cyclic movement hypothesis. As a result, the addition of “I xiangxin(believe)” envelops “ $\lambda d$  Mary zai xuexiao pos kaixin” in (24c), which gives rise to the failure of “[ $\lambda d$  wo xiangxin [Mary zai xuexiao pos kaixin]]”, i.e. a property of degree containing a long-distance clause.

### 3.3 Why Subcomparatives fail in Mandarin

#### 3.3.1 Comparative Deletion in Topic Prominent Mandarin

The well-formedness of (25b) plays a key role to the analysis of degree semantics, according to which, the comparative deletion happens with a prerequisite on identity, and if the gradable adjectives in comparative clauses and the ones in matrix clauses are not identical, the operation of comparative deletion can be abandoned without influencing the licitness of comparatives. In another word, the derivation of comparative clauses into a property of degree determines the licitness of comparatives, while comparative deletion under identity performs no such a restriction. T1010  
2R2B Mandarin subcomparatives in (25a), however, is not acceptable. Scholars of phrasal comparatives adopts it as evidence against the adequacy of “biP” as a clause, while scholars of clausal comparatives attempts to defend “biP” by attributing the failure to other mechanisms. The dissertation holds a standpoint backing the latter strategy and to have an overall glance, more patterns than subcomparatives need be considered.

- (25) a.\*zhe zhang zhuozi [bi [<sub>CP</sub> na zhang yizi kuan]] chang  
DET CL table than DET CL chair wide long  
b. ‘this table is longer than that chair is wide.’

Compared to subcomparatives, English comparatives formed by gradable verbs such as “love” present a more flexible performance pertinent to comparative deletion. In (26a), it is verb and object “loves Mary” that are deleted, and in (26c), it is subject and verb “John loves” that are deleted, while in (26e), no deletion happens. Same performance applies to comparisons conducted by plural objects in (27a), (27c) and (27e). The deletion of subject and verb is also observed in comparatives like (28a), where “he” and “is” are deleted, leaving the gradable adjectives at surface structure. In addition, no deletion happening to (28c) is also allowed.

- (26) a. John loves Mary more [than Gorge loves Mary].

① Deletion of verb + obj.

- b. John [bi Gorge xihuan Mary] geng xihuan Mary. ①

gradable verbs

John than Gorge love Mary more love Mary

'=(26a)'

c. John loves Mary more [than John loves Lucy].

② Deletion of subj. + verb

d. \*John [bi John xihuan Lucy] geng xihuan Mary \*

①

e. John loves Mary more [than Gorge loves Lucy].

③

f. \*John [bi Gorge xihuan Lucy] geng xihuan Mary \*

②

g.\*John loves Mary more [than Gorge loves Lucy].

h.\*John [bi Gorge xihuan Lucy] geng xihuan Mary

(27) a. *John bought more suits than Mary bought suits.* ①

b. John [bi Mary mai-le xizhuang] mai-le geng duo xizhuang.

①

John than Mary buy-Asp suit buy-Asp more suit

'=(27a)'

c. John bought more suits [than he bought shirts].

①

d. \*John [bi ta mai-le chenshan] mai-le geng-duo xizhuang.

\*②

e. John bought more suits [than Mary bought shirts].

③

f.\*John [bi Mary mai-le chenshan] mai-le geng-duo xizhuang.

\*③

g.\*John bought more suits [than Mary bought shirts].

h. \*John [bi Mary mai-le chen-shan] mai-le geng-duo xizhuang.

gradable  
adjectives

(28) a. John was more sad [than he is angry].

John [bi Mary shengqi] geng jusang. ①

John than he angry more sad

'=(28a)'

c. John was more sad [than Mary is angry].

②

d. \*John [bi Mary shengqi] geng jusang.

\*③

(26a) and (26b) present equivalent acceptability when verbs and objects are deleted, both of which express a comparison between John and Gorge along the dimension of "loves Mary". Additionally, neither English nor Mandarin legitimizes the deletion of verbs alone, see (26g) and (26h), (27f) and (27g). The distinction between English and Mandarin subcomparatives extends to (26e) and (26f), (27e) and (27f), (28c) and (28d), where English allows clauses in a complete form, but Mandarin denies them. English (26e), (27e) and (28c) manipulate a comparison between the degree of matrix clause and the degree of comparative clause along the primary dimension of "greater than" (cf. Bale, 2008). Beyond that, (26c) and (26d), (27c) and (27d), (28a) and (28b), respectively form a minimal pair of contrast in that English allows patterns deleting subjects and verbs, but same patterns are deemed hopeless for Mandarin. To realize the comparison between Mary and Lucy along the dimension of "John love", Mandarin has to resort to topicalization or compound sentences (Xing, 2004; Liu, 2012).

To sketch the distribution of deleting components in English and Mandarin, comparative patterns are linearized in an orthodox and simplified way of SVO. Since V/A distinction being peripheral, V in Table 3 symbolizes both verbs and adjectives. All patterns from (25) to (28) boil down to two columns in Table 3 with contrast being easily observed.

(25-28) => Table 3 Contrast between Components Deleted in English and Mandarin

matrix clause pattern	comparative clause pattern	
	English	Mandarin
S V O	S VO	S VO
	*SV O	*SV O
	SVO	*SVO
	SVO	*SVO
	*S V O	*S V O
S V	SV	SV
	SV	*SV
	SV	*SV

Looking into Table 3, the opposite between English and Mandarin is quite glaring that English comparative clauses allow all patterns, except for the discontinuous “SVO” in superficial structures, whereas Mandarin allows only subjects to stay in superficial structures with “O”, “VO”, “SVO”, “V” or “SV” being deleted obligatorily, that is to say, Mandarin requires to delete all components after subjects in linear order. Then the problem arises that why Mandarin undertakes such a unique requirement to comparative clauses.

In a classical view of grammar, sentences in Mandarin are branched into two parts, topics and comments, which generally correspond to subjects and predicates (V or VO). As observed in Table 3, all failed patterns such as “O”, “VO”, “SVO”, “V” or “SV” share to contain components falling into the domain of comments. Hence it is tempting to conclude that Mandarin comparative clauses allow no components in the domain of comments to be left in superficial structures, or in another word, components in the domain of comments must be deleted at PF. By contrast, English employs no such kind of restrictions to the deletion of comparative clauses. This distinction between Mandarin and English may be pertinent to the contrast between topic prominent language and subject prominent language. Mandarin is traditionally deemed as a topic prominent language with subjects usually overlapping topics at the initial of sentences (Chao, 1968; Chafe, 1976; Li&Thompson, 1981, Xu&Liu, 2007 etc.), while English acts as a subject prominent language, setting subjects apart from topics in a neat boundary. Therefore, the topic prominent feature of Mandarin may be judged as a possible reason to explain why components in the domain of comments must be deleted at the superficial structure. Then how does this feature perform to confine comparative deletion?

Taking the linear position of “biP” and “thanP” into consideration, it is noted that Mandarin “biP” always precedes gradable adjectives in comparison with English “thanP” lagging behind gradable adjectives. If V/A is regarded as the boundary between topics and comments in a rudimentary way, “biP” in (29a) is located in the domain of topics, thus carries a feature of topic. In contrast, “thanP” in (29b) carries no topic feature either because English is subject prominent or because “thanP” buries itself deeply inside the domain of comments.

[+TOPIC] (S + [COMMENT] 不算) [TOPIC]

- (29) a. Mandarin: S [biP] [V/VO]  
b. English: S [V/VO thanP] → [-TOPIC]

If “biP” with a topic feature is tenable, it is logical to stipulate that “biP” refutes components with the feature of comment (cases where clauses as a proposition are exceptional), a desirable result we expected. Where inside Mandarin comparative clauses, “VO” or “V” is assumed to carry a comment feature because they fall into the domain of comments, conflicting the topic feature of “biP”. Therefore, there is a stricter rule behind the derivation of Mandarin comparative clauses, that is, “biP” refutes to co-occur with components carrying comment features, except for these components are deleted at PF under identity with their correlates in matrix clauses.

To recapitulate, the rule behind English comparative ellipsis can be concluded as Rule 1 in (30a), where gradable predicates can be deleted under identity, and if the identity requirement is not met, gradable predicates inside comparative clauses can remain overt at PF. This is borne out via (26a, c, e), (27a, c, e), (28a, c) as well as the subcomparative in (25b). In another word, comparative ellipsis of gradable predicates in English is not compulsory, and if the identity condition is not met, gradable predicates cannot be omitted. Even in certain cases, the identity condition is saturated, gradable predicates can still remain undeleted, for instance, the focus construction “John is taller than Mary is TALL” (Chomsky, 1977).

By contrast, Mandarin comparative ellipsis is under the control of a stricter rule, i.e. Rule 2 in (30b). gradable predicates in Mandarin comparative clauses must be deleted under identity. In comparatives like (26b), (27b) and (28b), gradable predicates are deleted under identity, no problem occurs. Whereas in (26d, f), (27d, f), (28b, d) as well as subcomparative in (25a), gradable predicates inside “biP” are not identical to their correlates in the matrix clauses, so that they fail to be deleted. As (26d) and (26f) tell, object “Lucy” or predicate “xihuan Lucy (loves Lucy)” carries a comment feature because they fall into the comment domain of comparative clauses. In (27d) and (27f), object “chenshan (shirt)” or predicate “mai-le chenshan (bought shirts)” carries a comment feature. As for (28b), (28d) as well as subcomparatives in (25a), the predicate status of “shengqi(angry)” and “kuan (wide)” indicate the comment feature they carry. The comment feature carried by gradable predicates will conflict with the topic feature of “biP”, which gives rise to a crash at interface.

- (30) a. Rule 1: in English comparative clauses, the deletion of gradable predicates is optional and it happens under identity at PF.

- b. Rule 2: in Mandarin comparative clauses, the deletion of gradable predicates is obligatory and it happens under identity at PF.

“why  
subcomparatives  
fail  
in mandarin”

Although Mandarin disallows components with comment features at the complement of “bi”, it does not mean that Mandarin manipulates no comparison between objects or comparison between two full clauses. As shown in (31a), object “Lucy” as a phrase, is introduced by a topic marker “biji(compared to)”, or in the case of (32a), the standard degree is introduced by “biji(compared to)” in a form of nominal phrase, where “kuan(width)” is modified or possessed by “na zhang yizi (that chair)”. Besides, Mandarin also adopts compound clauses to realize comparisons between objects and comparisons between clauses. In (31b), the positive form “John

hen xihuan Lucy (John loves Mary very much)" supplies the standard degree for the referent degree denoted by the matrix clause "ta geng xihuan Mary (he loves Mary more)". In a same way, "na zhang zhuozi hen kuan(that chair is very wide)" in (32b) supplies the standard degree for the referent degree denoted by matrix clause "zhe zhang zhuozi geng chang(this table is longer)".

- (31) a. [biqi (topic marker) Lucy], John geng xihuan Mary.

compared to Lucy, John more love Mary

'Compared to Lucy, John loves Mary more.'

- b. [John hen xihuan Lucy], dan ta geng xihuan Mary (compound clause)

John very love Lucy, but he more love Mary

'John love Lucy very much, but he loves Mary more.'

- (32) a. biqi (topic marker) na zhang yizi de kuan, zhe zhang zhuozi geng chang.

compared to that CL chair de width, this CL table more long

'Compared to the width of that chair, this table is longer.'

- b. na zhang yizi hen kuan, zhe zhang zhuozi geng chang. (compound clause)

that CL chair very wide this CL table more long

'That chair is wide, but this table is longer.'

Some may doubt that why objects in (26d) must be seen as a phrase reduced from a full clause instead of being a phrase at the beginning. If "Lucy" in (26d) appears as an independent phrase, (26d) should be as legitimate as (31a) because "Lucy" inside "biP(thanP)" and "Lucy" inside "biqi-P (compared to + phrase)" behave identically in carrying a topic feature, but the result is undesirable. Liu (2012) finds a special comparative construction in (33a), featured with object of matrix clause moving to the topic position between "John" and "biP". The reason why (33a) rescues the failure of object comparison supports a clausal analysis of "mifan(rice)". Before that, it must be pointed out that (33b) under an identical structure with (33a) is peripheral to well-formedness. In contrast, (33a) sounds much better, so that (33a) is adopted here to illustrate the clausal status of "mifan(rice)".

- (33) a. John, rou<sub>i</sub> bi mifan geng aichi t<sub>i</sub>

John, meat than rice more like-eat

'John likes eating meat more than rice.'

- b. ??John, Mary bi Lucy, geng xihuan.

John Mary bi Lucy, geng xihuan

'John loves Mary more than Lucy'

Topicalization

As Rule 2 goes, (33a) should be deemed as ill-formed because "mifan(rice)" is reduced from a full comparative clause with a deep structure like (34a), locating itself in the domain of comment. Even if "rou(meat)" in the matrix clause raises from the object position to the topic position, it should not rescue the failure of (33a) for such kind of movement exerts no impact upon the comment feature of "mifan(rice)". Therefore, there must be some operation happening to "mifan (rice)", which lead to the loss of its comment feature. Assume that "mifan(rice)" undergoes an operation of topicalization inside comparative clause, which is shown in (34b). The comment feature of "mifan(rice)" is replaced by a topic feature because of topicalization. In (34b), "rou (meat)" has moved from its situ position into the topic position between

“John” and “biP”, leaving the predicate “aichi(like-eating)” in matrix clause identical to “aichi(like-eating)” in comparative clauses. So “aichi(like-eating)” is deleted under identity. Meanwhile, “John” is deleted under identity with “John” in matrix clause. It is apparent that a phrasal analysis of “mifan(rice)” fails to account for the rescuing effect of (33a).

- (34) a. John, rou<sub>i</sub> [bi John aichi mifan] geng aichi t<sub>i</sub>.  
     John, meat than John like-eat rice more like-eat  
     ‘John likes eating meat more [than John likes eating rice].’  
     b. John, rou [bi mifan<sub>i</sub>, John aichi t<sub>i</sub>] geng aichi.  
     c. John<sub>i</sub>, rou<sub>k</sub> [bi mifan<sub>j</sub>, ta<sub>i</sub> aichi t<sub>j</sub>] geng aichi t<sub>k</sub>.

- (35) John<sub>i</sub> jintian [bi (ta<sub>i</sub>) zuotian kaixin] geng kaixin.  
     John today than he yesterday happy more happy  
     ‘John<sub>i</sub> is happy today than he<sub>i</sub> was yesterday.’

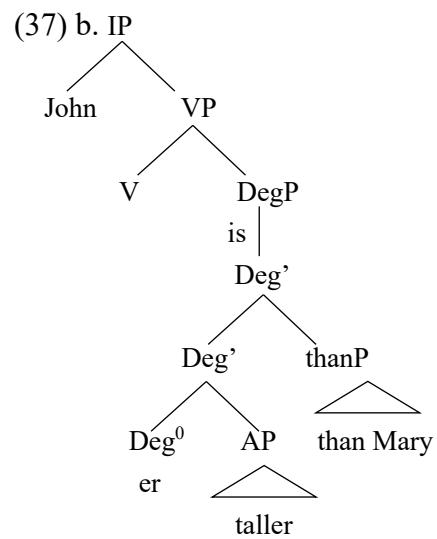
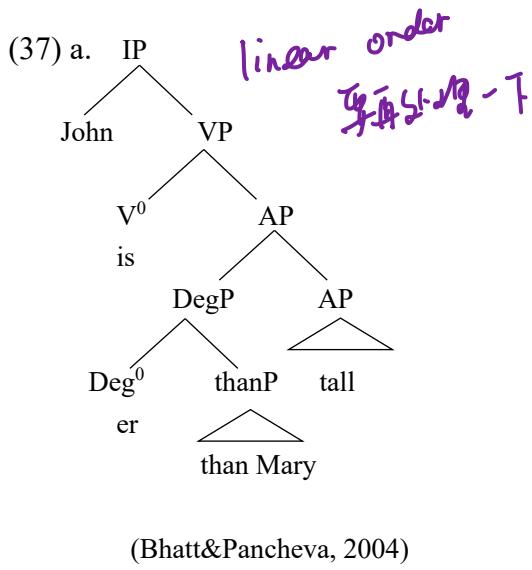
★ (Finally, the deletion of “John” in (34b) differs from the deletion of gradable predicates, i.e. “aichi(like-eating)” in (34b) and “kaixin(happy)” in (35). The latter is constrained under Rule 2 and their deletions are obligatory. Whereas “John” in these two cases can be replaced by an anaphoric pronoun “ta/he”, and even in (35), a pattern like “John jintian bi John zuotian geng kaixin” sounds not completely hopeless.)

### 3.3.2 Setting Topics from Comments

The opposite between topic and comment originates from a function-based view of language, in which the structure of sentences are segmented in terms of their linear orders with the initial component being as topics, sometimes even incorporating the initial two or three components as the secondary or third topics (Li&Thompson,1981; Tsao, 1989; Xu&Liu, 2007). But under a generative tradition (Chomsky,1956, 1965, 1981), languages actually project a hierarchical structure instead of a linear one. Hence it is not persuasive to assign Mandarin “biP” a topic feature by a criterion of linear order. If (36a) and (36b) are projected into a hierarchical structure, a problem arises that “biP” and “thanP” are assumed to occupy the same adjunct position, so that it will be improper to assign Mandarin “biP” a topic feature but English “thanP” a comment feature.

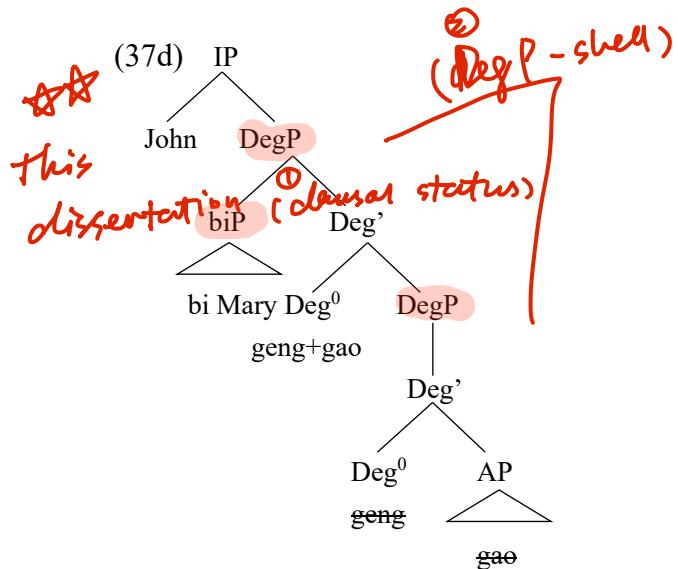
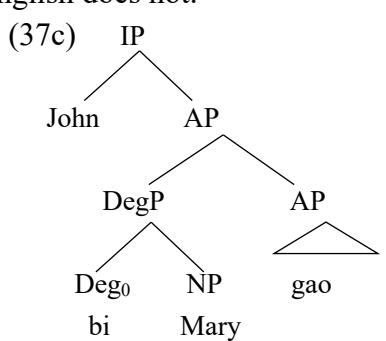
As stated in the preceding sections, scholars vary from each other in the deep structures of (36a), and two of the most popular configurations are displayed in (37a) and (37b). Whatever differences there are, they agree on the adjunct status of “thanP”, either as part of adjunct in (37a) or directly as an adjunct in (37b). And in (37a), an extra operation of extraposition or right adjunction is need because “thanP” linearly occurs after A<sup>0</sup>.

- (36) a. John is taller than Mary.  
     b. John bi Mary geng gao.

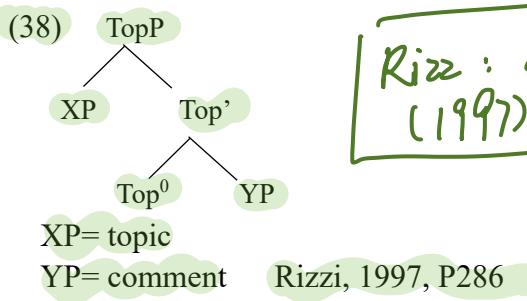


(Kennedy, 1997)

Though Mandarin “biP” always precedes A<sup>0</sup> in a linear order, it is actually generated at the same adjunct position as English “thanP”. In (37c), “biP” is assumed to occupy the adjunct position, following the spirit of (37a) and Lin (2009), while in (37d), “biP” is assumed to occupy the adjunct position of DegP on a par with (37b) as well as what we argued in this dissertation. No matter which one is adopted, “biP” and “thanP” present no variation in syntax as an adjunct component. Hence it will be undesirable to stipulate “biP” in Mandarin bears a topic feature, but “thanP” in English does not.



To solve the problem, two key points are worthwhile to reconsider, one is the mechanism of topicalization, the other is the boundary between topic and comment. In the field of generative grammar, Rizzi (1997) hypothesizes to split CP (complementizer phrase) into layers headed by functional morphemes, anchoring topics, focus, interrogative operators, etc. He proposes that the prototype structure of topic-comment can be schematized as (38) resorting to X-bar theory, where  $\text{Top}^0$  determines a predication within CP, accompanied by topic “XP” generated at the specifier position and comment “YP” at complement position.



Rizz : split CP hypothesis  
(1997)

By extending Rizz's split CP hypothesis to Mandarin, Gasde&Paul (1996), Paul (2002, 2005, 2015), Pan (2014,2015), etc. make insightful attempts to the "cartography" of left-periphery in Mandarin. These analyses are featured by: 1) topics must be generated through the configuration in (18), either by movement or base-generation; 2) topics are strictly distinguished from subjects. And if taking IP as a boundary, two types of topics will be defined, i.e. external topics and internal topics. Applying (38) to Mandarin is proved undoubtedly workable and illustrates plenty of phenomena in Mandarin, but will unfortunately bring superfluous movements to a special type of topics, that is, preposed adverbs. Actually, except for adverbs, various kinds of prepositional phrases like "biP(thanP)", "duiP(toP)", "zaiP(atP)", etc., are confronted with the same problem. Before probing into "biP", the discrepancy on the topic nature of preposed adverbs should be retrospected. Rizzi (2002) argues "preposed adverbs" may not be full-fledged topics on an interpretative ground that a sentence with a topic is not felicitous in an out of blue context, see (39b), while a preposed adverbs sounds fine in (39c). So (39) indicates a fact that, though preposed adverbs occupy the same initial position as topics, they are actually different from each other in the connection to background information. Besides, preposed adverbs cannot occur in front of wh-words like "who" in (40a), but real topics like "my book" in (40b) encounter no problem. In result, Rizzi concludes only referential nominal expressions are "natural" topics, while for preposed adverbs, they cannot naturally occupy topic positions (P237-241)<sup>5</sup>.

(39) a. What happened?

- b. #the bus to Rome, the road police stop it.
- c. Suddenly, the road police stopped the bus to Rome.

(40) a. ??Suddenly, who went home?

- b. My book, who took it?

When Mandarin preposed adverbs are involved, their status as topics can be verified via a test on whether pause particles can be tailed or not. Since the answer is positive in (41a) and (41b), they can be acknowledged as topics in Mandarin. But if (41a) is put into the out of blue context like (39) or patterns with wh words, it performs tantamount to its English counterparts. It is thus tempting to infer that preposed adverbs may be a special type of topics in Mandarin, different from the natural one.

<sup>5</sup> Rizzi(2002) does not deny the possibility of preposed adverbs as topics, but such a case is confined to a special context, "Gianni told me that they did some things slowly and others quickly. Now, I would like to know: quickly, what did they do? (Rizzi, 2002, p240)".

- (41) a. xianran (ne), John taoyan xiaohaizi.  
 obviously Prt John dislike kid  
 ‘Obviously, he dislikes kids.’
- b. jintian (ne) John hen kaixin.  
 today Prt John very happy  
 ‘John is happy today.’
- c. [CP [TopP xianran Top<sup>0</sup>(ne)[FocP lian xiaohaizi [IP ta ye taoyan]]]]  
 obviously Prt even kids he also hate  
 ‘Obviously, even kids, he also hates.’

Except for the addition of pause particles, Paul(2005, P117) takes (41c) as another evidence to support the topic status of “xianran (obviously)”, where in her argumentation, “xianran(obviously)”, originating from the adjunct position inside VP area, occupies the topic position because it occurs only in a permutation before FocP “lian xiaohaizi(even children)”, abiding by the consolidated order of “TopP>FocP>IP”.

As mentioned in previous parts, not only sentential adverbs like “xianran(obviously)”, but also preposition phrases of location, target, comparative standards etc., can be analyzed as preposed components. In (42a), temporal adverb “jintian(today)”, in (42b), prepositional phrase “zai jia(at home)”, in (42c), prepositional phrase “dui Mary(to Mary)”, and in (42d), prepositional phrase “bi Mary(than Mary)” are generated at adjunct positions of IP or VP/AP, kind of positions irrelevant to topics under the tradition of generative grammar. But these prepositional phrases show features owned by topics, not only occupying the initial two positions of sentences in linear order, but also being able to be tailed by pause particles like “ne, a, e, etc.”<sup>6</sup>. So many Chinese scholars regard “jintian (today)” in (42a) as secondary topics. If the configuration in (38) is fully respected, “John” and “jintian (today)” must simultaneously undergo an operation of topicalization from positions inside IP to the specifier of TopP in the layer of CP. Although the way adopted above to generate topics at designed positions conforms to the unified setting of CP split hypothesis, they are redundant in a glaring way because the order of “John” and “jintian(today)” before topicalization is identical to the one after topicalization.

- (42) a. John (ne) jintian (ne) hen kaixin.  
 John Prt today Prt very happy  
 ‘John is happy today.’
- b. John (ne) zai jia (ne) hen kaixin.  
 John Prt at home Prt very happy  
 ‘John is happy at home.’
- c. John(ne) dui Mary(ne) hen youhao.

<sup>6</sup> Using pause particles alone as a tool to verify topics may over-generate parentheses like “wo renwei(I think)” as a topical component. More investigations on the difference between pause particles functioning to mark pause and to mark topics should be undertaken, but this thesis only places the focus on PPs in comparative constructions, using pause particles to demonstrate the boundary between PPs and APs. It is observe that pause particles cannot tail verbs in VO pattern.

(i) wo renwei ne John zui youhao.  
 I think Prt John most excellent  
 ‘I think John is the most excellent.’

- John Prt to Mary prt very friendly  
 ‘John is friendly to Mary.’
- d. John (ne) bi Mary (ne) geng gao.  
 John Prt than Mary Prt more tall  
 ‘John is taller than Mary.’

Same problem is observed by prepositional phrases in (42b), (42c) and (42d). If “zai jia (at home)”, “dui Mary (to Mary)” and “bi Mary (than Mary)” are seen as topics with the pause particles, the simultaneous movement of “John” is compulsory, especially for (42c) and (42d). As shown in (43a) and (43b), moving “dui Mary(to Mary)” or “bi Mary(than Mary)” alone is not legitimate in Mandarin.

- (43) a. \*dui Mary, John hen youhao.  
 b. \*bi Mary, John geng gao.

The pattern derived by moving prepositional phrases on locations alone, though sound accepted, are not very natural. Xu&Liu (2007, p60-61) claims the pattern “S+PP<sub>location</sub>” is much more popular than “PP<sub>location</sub>+S” in (44).

- (44) ?zai huayuan li, xuduo laoren da taijiquan.  
 in the garden, many aged people play tai-chi  
 ‘Many aged people are playing tai-chi in the garden.’

The failures in (43a) and (43b) can be rescued by assuming their subjects move upward into topic positions, but the motivation for this extra movement remains mysterious. Therefore, an analysis based on the configuration in (38) cannot account for why subjects must accompany prepositional phrases to be topicalized.

To recapitulate, four facts related to Mandarin adjunct phrases above V/A can be summarized: firstly, differing from English, preposing adverbs in Mandarin can be defined as topics; secondly, considering the isomorphism between adverbs and prepositional phrases, it is plausible to assume that prepositional phrases undergo an operation of topicalization, i.e. a movement from positions inside IP to position specific to topics at CP layer; thirdly, the linear order before topicalization are identical to the one after topicalization, which gives rise to a doubt on the adequacy that prepositional phrases must undergo a topicalization on a par with the mechanism of Rizzi; fourthly, the reason why the topicalization of certain prepositional phrases must be accompanied by the topicalization of subjects remains unknown.

Given considerations listed above, it is mature to explain why “biP” in Mandarin carries a topic feature but “thanP” in English does not. For subject prominent English, she has only “natural topics”, generated in the layer of CP via the schema of “[<sub>Top<sup>p</sup></sub> topic [<sub>Top<sup>t</sup></sub> top<sup>0</sup> [comment]]]]”, see (45a). It is “top<sup>0</sup>” that serves as the boundary of topics and comments. In English, prepositional phrases on location, target or standard, are irrelevant to topics since all of them are schematically located in the domain of comments. In addition, prepositional phrases branch in the performance of being topicalized into a natural topic. In (45b), “at home” can be generated as a natural topic aligned with the schema of Rizzi (2002). But for “to Mary” in (45c) and “than Mary” (45d), they cannot be topicalized into natural ones.

- (45) a. [My book]<sub>i</sub>, John read t<sub>i</sub>.  
 b. [At home]<sub>i</sub>, John read my book t<sub>i</sub>.

topics: (in English)  
 ↗ referential  
 ① DP (natural)

- ② PP on location (natural)  
 \*③ preposed adverbs (not topics)  
 \*④ “top<sup>0</sup>,” “than P” (not topics)

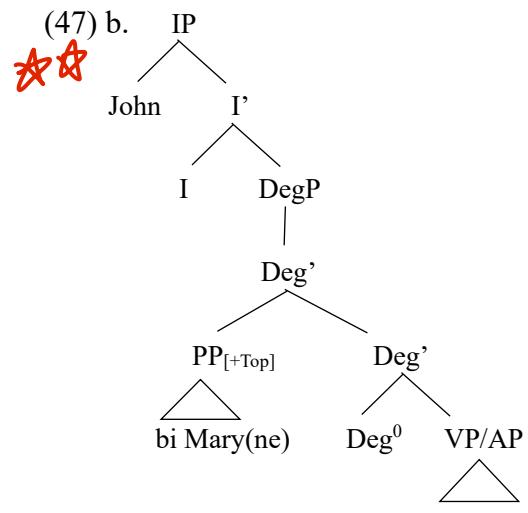
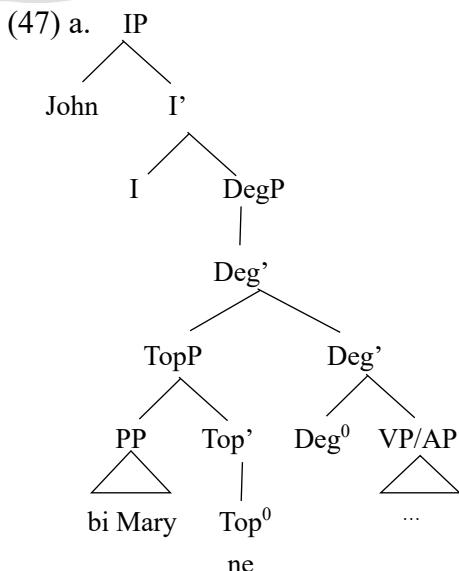
c. \*[to Mary], John is friendly.

d. \*[than Mary], John is taller.

In contrast, topics in Mandarin can be distinguished into two types: on the one hand, referential DP in object position can be topicalized into a natural topic in the same way as their English counterparts, e.g.(46a), on the other hand, preposed adverbs and prepositional phrases in Mandarin belong to another type of topics, named “non-natural topics” in this dissertation, which are different from what Rizzi (2002) argues that English preposed adverbs are not topics. Mandarin prepositional phrases also branch in the performance of being topicalized into a topic. In (46b), “zai jia(at home)” can be regarded as a topic generated under (38), but for “dui Mary(to Mary)” in (43a) and “bi Mary(than Mary)” in (43b), they cannot be topicalized alone. Considering the fact that pause particles can tail “dui Mary(to Mary)” and “bi Mary(than Mary)” as well as their positions in linear order, these two prepositional phrases actually merge directly as topics irrelevant to movement (Xu&Lin, 2007, P50-51).

- (46) a. wo de shu, John du-le  
 my de book John read-Asp  
 ‘my book, John has read.’
- b. ?zai jia, John du-le wo de shu.  
 at home John read-Asp my de book  
 ‘at home, John read my book.’
- 

As base-generated topics, the topic-ness of “bi Mary(than Mary)” can be derived in two ways, one is projecting “biP” as topics in situ with fully respect to the configuration in (38), that is (47a), the other, assigning “biP” a topic feature and re-cut the boundary between topics and comments, i.e. (47b). The first structure in (47a) is flawed because TopP has to occupy the adjunct position with the complement of Top<sup>0</sup> empty, blurring the function of “Top<sup>0</sup>” as the boundary of topics and comments. Therefore, the structure in (47b) is preferred with pause particles as a suffix marker of topic features. In this sense, the boundary between topics and comments in Mandarin is lowered from “Top<sup>0</sup>” to “V<sup>0</sup>/A<sup>0</sup>”.



If (47b) is on the right track, it must define all positions above VP or AP as topic positions and components at these positions are rendered to carry a topic feature. This will explain why subject “John”, temporal word “jintian(today)” and prepositional phrase “zai jia(at home)” in (42a) and (42b) can be seen as topics. Meanwhile, it also circumvents the extra movement of topicalization stipulated by the configuration of (38) in the process to topicalize “biP(than phrase)” and “duiP(to phrase)”.

Mandarin is argued to adopt “V<sup>0</sup>” or “A<sup>0</sup>” as the watershed of topics and comments, but there are cases where “V<sup>0</sup>” and “A<sup>0</sup>” occur simultaneously in one single sentence, i.e. “V de” constructions in (48a) and “verb-copy” constructions in (48b). Since “pao de”, “chi pingguo(eat apple)” and “chi de (eat de)” can be tailed by pause particle “ne”, they are rendered to own a topic feature in a justifiable way.

- (48) a. John pao de (ne) hen kuai. “V de” constructions

John run de Prt very fast

‘John runs fast.’

- b. John chi pingguo (ne) chi de (ne) hen kuai. “verb-copy” constructions

John eat apple Prt eat de Prt very fast

‘John eats apples fast.’

When comparative forms constituted by “V de” constructions or “verb copy” constructions are engaged, the topic feature carried by verbs or verb phrases is crucial to distinguish themselves from gradable predicates. In (49a) and (49b), “kuai(fast)” inside comparative clauses is deleted under identity with the corelates “kuai(fast)” in the matrix clause. The remnant parts “pao de” and “Mary” share to carry a topic feature instead of a comment feature, so that Rule 2 is not violated in these two cases.

- (49) a. John pao de [bi Mary pao de pos kuai] geng kuai.

John run de than Mary run de pos fast more fast

‘John runs much faster than Mary does.’

- b. John chi pingguo chi de [bi Mary chi li chi de pos kuai] forward deletion

John eat apple eat de than Mary eat pear eat de pos fast

geng kuai.

more fast

‘John eats apples much faster than Mary eats pears.’ [+TOPIC] optional

Finally, the deletion of components with topic feature differs from those with comment features. Take (49a) as an example, “kuai(fast)” inside “biP” is deleted under identity in an obligatory way, otherwise, the comment feature it carries will cause a conflict with the topic feature carried by “biP”. Meanwhile, the deletion of “kuai(fast)” undertakes a pattern of forward deletion. By contrast, the deletion of components with topic features are not obligatory, and both forward deletion and backward deletion are allowed in Mandarin comparatives. In (50a), no components with topic features inside “biP” are deleted, in (50b), “pao de” inside “biP” is backward deleted, while in (50c), “pao de” in matrix clause is forward deleted.

- (50) a. John pao de [bi Mary pao de pos kuai] geng kuai.

b. John pao de [bi Mary pao-de pos kuai] geng kuai.

c. John pao-de [bi Mary pao de pos kuai] geng kuai.

It should be noted that above analysis intentionally neglects the syntactic role of

“de”. In classical literature of generative grammar, “de” occupies an independent projection in deep structure, for instance, Huang, et al.(2009) claims  $V^0$  selects a “de+clause”, or as Pan&Ye (2015, P33) proposes  $V^0$  selects a “DeP” in a configuration of [V [deP de...]]. Then “de” must move into the position of verbs and where it fuses with verbs into a compound. The compound “V+de” will move further to higher functional projections as a whole. If what Ye&Pan advocates is right, it is justified to explain why “de” remains undeleted inside “biP” in (50a). “de” and “pao(run)” do not originate as a compound in the lexicon but combine with each other in the position of  $V^0$ , while the  $V^0$  position is rendered as a topic position under the boundary established in this dissertation.

In conclusion, the reason why subcomparatives fail in Mandarin can be attributed to the conflict between the topic feature carried by “biP” and the comment feature carried by gradable adjectives rather than parametrical variations advocated by Beck, Kennedy or Lin. The assignment of topic feature to “biP” is pertinent to the fact that Mandarin behaves as a topic prominent language, undertaking  $V^0$  instead of Topic<sup>0</sup> as the watershed of topics and comments. Hence, subjects, temporal adverbs, prepositional phrases, even verbs in “V de” constructions are reckoned to carry a topic feature. Under the structure constructed in this dissertation, “biP” is assumed to occupy the adjunct position of DegP, a position above  $A^0$ , so that “biP” is assigned a topic feature. Whereas for English, though “thanP” occupies the same adjunct position of DegP, it carries no topic feature because English manipulates Topic<sup>0</sup> as the boundary between topics and comments. In cases like “V de” constructions or “verb copy” constructions, where “ $V^0$ ” and “ $A^0$ ” occur simultaneously in one single sentence, the boundary to distinguish topics and comments lowers to “ $A^0$ ” for “V de” or “VP” in these two cases can be tailed by pause particles, indicating their topic statuses.)

### 3.4 Response to alternative solutions

#### 3.4.1 Liu and minimally c-commanding (1996, 2011)

Liu, in a series of article (1996, 2007, 2010, 2011a, 2011b, 2014, 2018), attempts to convince the existence of clausal analysis. He attributes the failure of embedded comparatives and subcomparatives in Mandarin to a stipulation, termed as “minimally c-commanding”, which requires that “the complement of “bi(than)” must parallel to the minimal clause containing the “biP(thanP)” in category, semantics and basic syntactic structure (Liu, 2010, p1789)”. Under “minimally c-commanding”, subcomparatives in (4) and embedded comparatives in (5) are rendered to consist of two full clauses, i.e. the matrix clause and the comparative clause.

- (51) a. zhe zhang zhuozi chang  
‘this table is long’
  - b. na zhang yizi kuan  
‘that chair is wide’
- (52) a. John gao  
‘John is tall.’

- b. Gorge xiangxin Mary gao  
 ‘Gorge believes Mary is tall’

According to Liu, the two clauses divided by subcomparatives are shown in (51a) and (51b), where “kuan(wide)” in comparative clause and “chang(long)” in matrix clause mismatch in semantics, so that they are ruled out. Embedded comparatives are divided into clauses like (52a) and (52b), they mismatch in basic syntactic structures that the matrix clause is of a simple form, while the comparative clause contains a complement clause, i.e. “Mary gao(Mary is tall)” is selected by “xiangxin(believe)” as a complement.

Liu’s proposal of “minimally c-commanding” performs more like a “descriptive” rule rather than a “explanatory” one. On the one hand, he just stipulates such a rule called “minimally c-commanding” but does not illustrate why there should be such kind of rule and why it fails to apply to English; On the other hand, he forcibly adds an extra “minimally” requirement into his rule, which is specific to the failure of (53a). Actually (53a) can be divided into two clauses in the same way as subcomparatives, e.g. (53b) and (53c), both of which parallel to each other in category, semantic as well as basic syntactic structures. In this sense, (53a) should be well-formed, but it is not. In order to cover the exceptional cases like (53a), Liu has to confine matrix clauses into mono clauses, or minimal clauses, which turns out to be a descriptive logic not an explanatory one. He just should dig into the reason why “minimally” should be there in an independent ground.

- (53) a.\*Bill xiangxin John [bi        Gorge xiangxin Mary gao] gao  
 Bill believe John than Gorge believe Mary tall tall  
 ‘Bill believes John is taller than Gorge believe Mary is’  
 b. Bill xiangxin John gao  
 ‘Bill believes John is tall.’  
 c. Gorge xiangxin Mary gao  
 ‘Gorge believes Mary is tall.’

What’s worse, there are still exceptions even if the requirement of “minimally c-commanding” is fully respected, for instance, (54a):

- (54) a.\*John bi mifan geng xihuan rou.  
 John than rice more like meat  
 ‘John likes meat more than he likes rice.’  
 b. John xihuan rou  
 John likes meat  
 c. John xihuan mifan  
 John likes rice

(54a) can be divided into two clauses like (54b) and (54c), with both of them sharing same category, semantics and basic structure on a par with “minimally c-commanding”, but (54a) is illicit.

### 3.4.2 Hsieh and “tense” feature valuation (2017)

Hsieh (2017), based on Minimalist Program, assumes that “bi(than)” introduces a non-finite clause, which means they project no TP or a defective TP without the



ability to valuate uninterpretable tense features of gradable adjectives. Embedded clauses and subcomparatives are excluded because the “tense” feature carried by adjectives inside comparative clauses is not valued. And unvalued uninterpretable feature will give rise to the crash at interfaces, so that they must be deleted, following the strategy of rescue-by-PF-deletion developed by Bošković (2011). In another word, deletion of gradable adjective inside “biP” must happen to rescue the crash caused by unvalued “tense” feature.

Aligned with Hsieh’s mechanism, “xiangxin(believe)” in embedded clause and “kuan(wide)” in subcomparatives, both carry an uninterpretable “tense” feature, and they cannot be valued inside the comparative non-finite clauses. Moreover, “biP”, as an adjunct, is constrained by island effect, which prohibits “xiangxin(believe)” and “kuan(wide)” from being probed by T in the matrix clause. Thus, they must be deleted at PF, otherwise, they will end up with a crash.

The foundation that Hsieh’s defense builds on is not solidified in three aspects: first, he just assumes “bi(than)” syntactically selects a non-finite clause but provides no independent evidence to support the non-finite status of clause. Besides, “tense” feature is assumed as a feature carried by verbs instead of adjectives in Minimalist Program. As known, English positive forms or comparatives must be selected by a verbal phrase headed by “be”, and “be” can accommodate the tense feature. By contrast, Mandarin positive forms or comparatives project no verbal “beP” in syntax, so Hsieh must offer evidence to support that tense feature happens to shift from verbs to adjectives in Mandarin. Another indispensable job must be done to certify why and how Mandarin employs an implicit tense feature to construct sentence comparatives. Finally, Hsieh’ mechanism cannot extend to another type of Mandarin non-finite clauses in Mandarin, i.e. small clause in (55). The structure of small clauses is acknowledged to have no tense projection(Radford, 2004, 2009) or have a functional AGRP defined by Haegeman(1994, p125). No matter in which case, the uninterpretable tense feature of “congming (intelligent)” fails to be valued as establishing a probe-goal relation between T in the matrix clause and “congming (intelligent)” will violate Minimal Link Condition (Chomsky, 1995). Once the tense feature on verb “renwei (consider)” is valued, it will act as an intervener to block the match above (defective intervention effect, Chomsky, 2000).

(55) John renwei Mary congming

John consider Mary intelligent

‘John considered Mary intelligent’

The well-formedness of (55) tells that Hsieh’s mechanism based on uninterpretable tense feature lacks explanatory power. Lin (2019) casts doubt on why  $T^0$  in the matrix clause cannot form a probe-goal relation with gradable adjectives inside “biP”. However, “C<sup>0</sup>” with an interpretable [wh] feature is able to establish such kind of match with “shui(who)” in (56), and this wh word “shui (who)” is assigned an uninterpretable [wh] feature, and locates itself inside “biP” just like gradable adjectives. The well-formedness of (56) indicates that the uninterpretable feature of “shui(who)” can be valued by “C<sup>0</sup>”, or (56) will be crashed at C-I interface.

- (56) John [bi [shui gao]] gao.  
 John than who tall tall  
 'Who is John taller than ?'  
 (57) John bi Mary gao 2 limi.  
 John than Mary tall 2 cm  
 'John is 2 cm taller than Mary'

Hsieh's argument that "bi(than)" indiscriminately selects non-finite clauses may get stroked when differential phrases occur in comparatives. For (57), Hsieh's structure offers no natural explanation to the occurrence of "2 limi (2 cm)". If "2 limi" is assumed to occupy the complement position of gradable adjectives, the gradable adjectives inside comparative clauses cannot be deleted under a rule of MaxElide (Merchant, 2008) because AP with differential phrases in matrix clause does not parallel to AP inside comparative clauses.

2014

### 3.4.3 Lin and argument comparison (2009, 2019)

**Phrasal Analysis**

Lin (2009, 2019) makes an attempt to conflate "greater than" and "Standard marker" into one single component "bi(than)". He proposes that "bi(than)" serves as a functional  $\text{Deg}^0$  head, cyclically introducing arguments like "zai jiali(at home)", "jintian(today)" and "wo(I)". In his system, the arguments that can be selected by "bi(than)" range from PPs, AdvPs, NPs to even VPs and "V de". As "bi(than)" only select arguments, Lin puts a parameter to distinguish Mandarin comparatives from English comparatives, that is, argument comparison, and in certain cases, "bi" selects more than one argument, so that they can be categorized as "dyadic comparison". On a par with Lin's setting, the semantic formula of "bi(than)" in multiple topic comparatives is abstracted as (58a) and the final semantic representation of multiple topic comparatives is derived into (58b), where variables of location, time and individual are all eliminated by corresponding prepositional phrases, temporal adverbs and nominal phrases.

- (58) a.  $[\![\text{bi}]\!] = (\lambda l)(\lambda i)\lambda x\lambda D_{<\text{d}, <(l), <(i), <\text{e t} >>>}(\lambda l')(\lambda i')\lambda y.[\text{Max d } [D(d)(l')(i')(y)] > \text{Max d } [D(d)(l)(i)(x)]]$   
 b.  $[\![\text{(2)}]\!] = \text{Max d } [\text{happy-ness(d)(at home)(today)(John)}] > \text{Max d } [\text{happy-ness(d)(at school)(yesterday)(Mary)}]$

(58b) can be paraphrased as the maximal degree to which John was happy at home today is greater than the maximal degree to which Mary was happy at school yesterday. Lin (2019) claims that "pao de" also serves as an argument that can be directly selected by "bi(than)", see (59a).

- (59) a. John [VP [pao de] [AP[DegP bi [Mary bi [pao de ]]] [AP kuai]].  
 John run de than Mary run de fast  
 'John runs faster than Mary does'  
 b.  $[\![\text{(59a)}]\!] = \text{Max d } [\text{fast-ness(d)(run-de)(John)}] > \text{Max d } [\text{fast-ness(d)(run-de)(Mary)}]$

(59b) then can be paraphrased as "the maximal degree to which John is fast in a running event is greater than the maximal degree to which Mary is fast in a running

event". Lin's analysis of (59) will encounter two problems. In an orthodox way of generative grammar, PPs or AdvPs have no label problems for both of them are maximal projects headed by prepositions or adverbs. But the label of "pao de (run de)" seems hard to be tagged as "pao(run)" and "de" in "V de" constructions are not generated within one constituent (cf. Huang, et al. 2009; Pan&Ye, 2015). As schematized in (60), "ku(cry)" is a head and "de" occupies the head of functional projection in charge of ushering in a complete resultative/degree complement clause. Lin may assume "ku(cry)" and "de" fuse together in the lexicon, so that "V de" can be labelled as "V", but there is a prerequisite for the appearance of "V de", which should never be omitted, that is, resultative/degree complement must be syntactically overt. In another words, "pao de" in (59a) should not be selected by "bi(than)" as an isolate argument component irrelevant to degree complement clauses.

- (60) John [VP ku [DEP de [CP PROi/Mary hen shangxin]]].  
 John cry de PROi/ Mary very sad  
 'John<sub>i</sub> cried to a result that He<sub>i</sub>/Mary is very sad.'

Except for (60), Liu (2011) points out that Lin's argument-based analysis cannot correctly segment the structure of comparatives built from pivotal sentences. Typical pivotal sentences are characteristic of two verbs sharing a common NP, whose structure can be sketched as (61b) by resorting to a shell-based schema. When it comes to (61a), only "ni rang ta(you let me)" is overtly kept in the surface after linearization. In accordance with Lin's mechanism, "ni rang ta(you let me)" must be an argument being introduced by "bi(than)", however, as shown in (61b), "ni rang ta(you let me)" must reduce from a full clause because "ni(you)", "rang(let)" and "ta(him)" do not fall in one constituent.

- (61) a. Wo rang ni [bi ni rang ta] duo zhu-le san-tian  
 I let you than you let he more live-ASP three-day  
 'I let you stay for three more days than you let me.'  
 b. ni [VP rang [VP ta [V zhu-le [DP san-tian]]]]  
 you let him live-Asp three-day  
 'You let him stay for three days.'

One of the most prominent features that Lin's analysis owns is to assume "bi(than)" simultaneously undertakes both "greater than" and "Standard marker" functions, while these two functions are separately assigned to "er/more" and "than" in English. Such a conflation will confront challenges from degree adverbs like "geng (degree intensify)"<sup>7</sup> in (62a) and differential phrases like "2 limi(2 cm)", in (62b):

- (62) a. John bi Mary geng gao.  
 John than Mary more tall  
 'John is taller than Mary is'  
 b. John bi Mary gao 2 limi.  
 John than Mary tall 2 cm  
 'John is 2 cm taller than Mary'

$$(63) [\![bi]\!]=\lambda x \lambda D_{<d, <e t>} \lambda y. [\text{Max } d [D(d)(y)] > \text{Max } d [D(d)(x)]]$$

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<sup>7</sup> the meaning of "geng" here is simplified as a degree modifier, highlighting the gap between referent degree and standard degree.

A simplified version of “bi(that)” is offered in (63). Following the derivation of Lin, “geng (degree intensify)” acts as nothing but a degree modifier, so it must first combine with “gao (tall)”. The semantic representation of “geng gao” is thus derived as (64):

$$(64) [\text{geng gao}] = \lambda d \lambda x. [\text{geng-gao}(x) \geq d] \quad < d, < e, t >$$

“bi” in (63) will take (64) as argument. After a series of  $\lambda$ -reductions, (65) is derived as the ultimate semantic representation of (62a). Nevertheless, the interpretation of (65), “the maximal degree to which John is ‘geng gao’ is greater than the maximal degree to which Mary is ‘geng gao’”, turns out to be a wrong paraphrase of (62a). The first intuition that (62a) expresses is “the maximal degree to which John is tall is **far** greater than the maximal degree to which Mary is tall”. Two interpretations vary in the way how to deal with “geng (degree intensify)”, and it is apparent that the latter one is right.

$$(65) \text{Max } d [\text{geng-gao}(d)(\text{John})] > \text{Max } d [\text{geng-gao}(d)(\text{Mary})]$$

Lin’s analysis will meet a technical problem in (62b) where differential phrases are involved. As differential phrases are customarily defined as a  $d$  type argument, which optionally occurs in comparatives, “bi(that)”, accordingly, has to make a transformation to cater for it, that is (66):

$$(66) \lambda x \lambda d \lambda D_{< d, < e, t >} \lambda y. [\text{Max } d [D(d)(y)] \geq \text{Max } d [D(d)(x)] + d]$$

However, “bi(that)” is far away from differential phrases in syntax so that it cannot cross adjectives to absorb differential phrases. To solve above two problems, Lin (2014) resorts to the system built up by Liu (1996, 2011), and argues that there is a null comparative morpheme in Mandarin, which enjoys the same status as degree adverbs like “geng”. But this system is conflicted with what Lin proposed in 2009 from head to heel. Lin (2014) reallocates “greater than” and “Standard marker” to the null comparative morpheme and “bi(that)”, an operation indirectly indicates his conflation of them in 2009 is not proper.

### 3.5 Conclusion

The primary propose of this chapter is to defend clausal analysis of comparatives in Mandarin. Multiple topics comparatives and verbal comparatives are evident enough to support the clausal status of “biP”. As for embedded comparatives and subcomparatives, they are ruled out on independent ground and never threat the adequacy of clausal analysis.

1. For embedded comparatives, they are illicit because the addition of verbs like “xiangxin (believe)”, “renwei (think)”, “tingshuo(hear)”, etc., blocks the derivation of comparative clauses into a property of degree, i.e.  $< d, t >$  type in semantics. Mandarin comparative clauses resemble gapless relative clauses in adopting no wh movement during the process to generate a property of degree or individual. The extra argument for gapless relative clauses is supplemented by an implicit predicate, and the extra degree argument for comparative clauses traces back to the lexical entry of gradable adjective under degree semantics, under which gradable adjectives are raised from an one-place predicate ( $< e, t >$ ) into a two-place one( $< d, < e, t >$ ). The positive morpheme

“pos” implements a type-shift function by saturating the degree variable of gradable adjectives with a degree argument, bound by an existential operator. After the input of subjects, this degree argument must be replaced by “ $\lambda$ ” operator, not only to avoid comparative clauses deriving into a semantic tautology, but also to ensure they denote a property of degree (i.e.  $\langle d, t \rangle$ ) in semantics. Since no wh movement is involved, “ $\lambda$ ” operator finds no motivation for movement, that is to say, the addition of “I believe/think/hear...” will envelop gapless relative clause and comparative clauses, which further gives rise to the failure of generating a  $\langle e, t \rangle$  type or  $\langle d, t \rangle$  type predicate.

2. For subcomparatives, their illicitness has a close relationship with the feature of Mandarin as a topic prominent language. Superficially speaking, English is of a subject prominent language, and the head of TopicP, i.e. Topic<sup>0</sup> are customarily used to distinguish topics from comments (Rizzi, 1997, 2002), while Mandarin is a topic prominent language, “V<sup>0</sup>” and “A<sup>0</sup>” are often used to set topics apart from comments. Although English “thanP” and Mandarin “biP” are assumed to occupy the same adjunct position of DegP, “thanP” falls in the domain of comments, but “biP” falls in the domain of topics, or in another word, “biP” carries a topic feature but “thanP” does not. “biP” thus is under a stricter rule of comparative ellipsis, i.e. Rule 2, which stipulates that in comparative clauses, components with comment features must be deleted at PF for the purpose to avoid the conflict caused by the topic feature on “biP”.

Topics generated by the configuration of Rizzi (2002) are categorized as “natural topics”, and English owns only natural topics. By contrast, Mandarin not only has “natural topics” generated by movements, but also has “topics” generated by direct merge (Xu&Liu, 2007), and in this dissertation, it is called “non-natural topics”. Mandarin nominal phrases (subjects), prepositional phrases (time, location, target, standard, etc.), adverbial phrases, even verbs can be direct-merged topics, or “non-natural topics”, for they all occupy a position above “V<sup>0</sup>” or “A<sup>0</sup>”, the watershed of topics and comments in Mandarin. Components defined as natural topics are assigned with a topic feature, and it is this feature that motivates the movement of these components to the specifier of TopicP, checking the topic feature in a spec-head relation. In an analogy, it is justified to assign components of non-natural topics with a topic feature. But this topic feature motivates no movement because where these components occupy are above “V<sup>0</sup>”, a position settled for topics in Mandarin.

In cases like “V de” constructions or “verb copy” constructions, “A<sup>0</sup>” replaces “V<sup>0</sup>” as the boundary between topics and comments. Hence components like “V de” or “VP” locate themselves in the domain of topics, causing no conflict with the topic feature of “biP”, and their deletion then becomes optional.

In conclusion, Mandarin adopts a stricter rule of deletion than English, as indicated by “optional” in Rule 1 and “obligatory” in Rule 2. For English, when identity condition is met, gradable predicates inside “thanP” must be deleted, while when identity condition is not met, gradable predicates are legitimate to stay at situ. For Mandarin, when identity condition is met, gradable predicates inside “biP” must be deleted, but when identity condition is not met, they are illegal to stay at situ.

because gradable predicates carry a comment feature, which gives rise to a comment-topic conflict with “biP”.

Rule 1: in English comparative clauses, the deletion of gradable predicates is optional and it happens under identity at PF.

Rule 2: in Mandarin comparative clauses, the deletion of gradable predicates is obligatory and it happens under identity at PF.

To be exact, there should be a third rule on the deletion of components otherwise gradable predicates, for instance, “John/ta(he)” in “John jintian bi John/ta zuotian kaixin(John was happier today than John/he was yesterday)”. The deletion of “John” is not compulsory, and even the position for “John” can be filled by anaphoric pronouns like “he/ta”. Different from the forward deletion of gradable predicates, this type of deletion can be either forward or backward in direction.