TOWARD A THEORETICAL ANALYSIS OF CHINESE
BI-COMPARATIVES

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Abstract: On the strength of the insights stemming from previous studies (Hashimoto 1971, Fu 1978, Tsao 1989, Paul 1993, Liu 1996, 2011, Shi 2001, Hsing 2003, Lin 2009, Su 2012 among others), the paper attempts to entertain a theoretical analysis of Chinese bi-comparatives by offering two constraints that explain and interpret a grammatical bi-comparative. One constraint concerns the compared constituents of a bi-comparative, and the other regards the comparison predicate. It is hoped that the paper will have some import for linguistic theory and generative grammar.

Key words: Bi-comparatives, constraints, linguistic theory, generative grammar

1. Introduction


The objective of this paper is two-fold. First, we would like to propose a constraint on the compared constituent of the bi-comparative based on Lin (2009). Second, a constraint on the compared predicate of the bi-comparative is also explored. This constraint can be defined by four conditions. To propose the two constraints, an assumption should be taken into consideration first: the comparative marker bi forms a preverbal adjunct with its complement (Liu 1996, 2011).

2. The constraint on the compared constituent

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The argument requirement of Chinese bi-comparatives proposed by Lin (2009) is stated as follows:

(1) Argument requirement of Chinese comparatives.

In Mandarin Chinese, compared constituents must be arguments of a gradable predicate of comparison (Lin 2009:17).

This requirement succeeds in explaining a great number of bi-comparatives, as illustrated below.¹

(2) Zhangsan bi Lisi kaixin
    Zhangsan com Lisi happy
    ‘Zhangsan is happier than Lisi.’

(3) Zhangsan shuxue bi wuli xihuan
    Zhangsan mathematics com physics like
    ‘Zhangsan likes mathematics more than physics.’

(4) Zhangsan jintian bi zuotian kaixin²
    Zhangsan today com yesterday happy
    ‘Zhangsan today is happier than yesterday.’

(5) Zhangsan zai jiali bi zai xuexiao kaixin
    Zhangsan at home com at school happy
    ‘Zhangsan is happier at home than Zhangsan was in school.’

(6) wo nuer bi wo taitai pao de kuai
    I daughter com I wife run DE fast
    ‘My daughter runs faster than my wife.’

Further scrutinizing the requirement, however, we can find that this requirement might not correctly predict sentences such as (7) and (9), in contrast to (8) and (10) respectively.

(7) * Zhangsan jintian bi Lisi zai jiali kaixin
    Zhangsan today com Lisi at home happy
    lit.: ‘Today Zhangsan is happier than Lisi is at home.’

(8) Zhangsan jintian bi Lisi zuotian kaixin
    Zhangsan today com Lisi yesterday happy
    ‘Today Zhangsan is happier than Lisi was yesterday.’


² As Lin (2009) has suggested, there are reasons to believe that times and locations are more like arguments than adjuncts with respect to wh-extraction (see Tsai 1994 for Chinese wh-extraction). Semantically, it is often assumed, especially in works studying tense and aspect, that time is an argument of a predicate (e.g. Lin 2003, 2006 for Chinese).
Both jintian ‘today’ and zai jiali ‘at home’ are arguments to kaixin ‘happy’ in (7). Likewise, xiaoshihou ‘childhood’ and zai jiali ‘at home’ are arguments to congming ‘smart’ in (9). (7) and (9) are ill-formed, indicating the argument requirement of Chinese bi-comparatives might be problematic.

Our first pass at a solution to this issue will be simply to augment a semantic specification. Namely, the requirement can be refined as:

(11) The constraint on the compared constituents of a bi-comparative (refined version):

In a bi-comparative, the compared constituent and its correlate must be arguments of the comparison predicate, and both of them must have the same dimension.

The modified requirement can straightforwardly elucidate, for example, that although both xiaoshihou ‘childhood’ and zai jiali ‘at home’ are arguments to congming ‘smart’, (9) is yet ill-formed as they do not share the same dimension that is often defined as an intrinsic property of an object. While xiaoshihou ‘childhood’ bears the dimension of time, zai jiali ‘at home’ the dimension of space.

Note that reason clauses can be the compared constituents in a bi-comparative, suggesting that the argument requirement does not seem to hold. For instance:

(12) Mama yinwei Xiaoming shuo huang bi yinwei mother because Xiaoming say-lie bi yinwei because tai, tou qian geng shengqi he steal money GENG angry

‘Mother was angry more because Xiaoming told a lie than because he stole money.’ (from Lin 2009)

In general, a reason clause can not be an argument to a comparison predicate; at this point, an alternative is to abandon the requirement. We would like to suggest that the argument requirement is in principle correct, though a semantic condition is additionally required, as indicated by (11). The requirement is still available if we consider a case with manner adjuncts. To specify the merit of the argument requirement of Chinese comparatives, Lin (2009) provides the following sentence.
Lin suggests that the example above demonstrates that the requirement is predicable since manner adjuncts are not arguments. In other words, although (12) illustrates an opposing example, we treat it as an exception to the refined argument requirement of Chinese bi-comparatives.

3. The constraint on the comparison predicate

In addition to a constraint on the compared constituent, a constraint concerning the comparison predicate is required. As is well-known, the comparison predicate of a bi-comparative must have information denoting gradability.

(14) Zhangsan bi Lisi gao
    Zhangsan com Lisi gao
    ‘Zhangsan is taller than Lisi.’

(15) Zhangsan bi Lisi pao de kuai
    Zhangsan com Lisi run DE fast
    ‘Zhangsan runs faster than Lisi.’

(14) and (15) are grammatical as there is a gradable adjective gao ‘tall’ in (14) and kuai ‘fast’ in (15). Nonetheless, (16) is an ill-formed sentence because cuo ‘wrong’ is an absolute adjective.

(16) * Zhangsan de daan bi Lisi de daan cuo
       Zhangsan PRT answer com Lisi PRT answer wrong

Cuo ‘wrong’ is not a gradable adjective, thereby resulting in ungrammaticality of (14). Also, (15) is ruled out, given that there is no gradability observed in the comparison predicate.

(17) * Wo de shengri hui bi ni de shengri dao
       my GEN birthday will com you GEN birthday arrive

Alone the same vein, the compassion predicate of (17) is dao ‘arrive’ which does not bear any information denoting gradability, neither in syntax nor in its lexical content. To solve this, a degree adverb zao ‘early’ can be added.

(18) Wo de shengri hui bi ni de shengri *(zao)
       my GEN birthday will com you GEN birthday early
dao
arrive
‘My birthday will come more early than yours.’

The sentence is well-formed owing to addition of a degree adverb that
denotes gradability to the comparison predicate.
A modal auxiliary has the same function in remedying an ill-formed sen-
tence.

(19) * Ta bi ni zuo shengyi
he com you do business

(19) turns out to be grammatical if we augment a modal auxiliary such as
hui ‘can’.

(20) Ta bi ni *(hui) zuo shengyi
he com you can do business
‘He knows how to do business more than you.’

Some action verbs can be construed as grammatical comparison predicates
if preceded by modal auxiliaries.

(21) Zhangsan bi Lisi *(neng) pao
Zhangsan com Lisi can run
‘Zhangsan can run faster than Lisi.’
‘Zhangsan can run longer than Lisi.’

(22) Zhangsan bi Lisi *(neng) chi
Zhangsan com Lisi can eat
‘Zhangsan can eat more than Lisi.’

(22) means that the capacity for eating that Zhangsan has exceeds the ca-
pacity for eating that Lisi has. Note also that chi ‘eat’ is not a transitive verb in
this case, and is combined with neng ‘can’ as a predicate to express a
long-standing property, analogous to an individual-level predicate. Neng ‘can’
functions as a degree converter, converting a dynamic activity into a static pre-
dicate. The action verb chi ‘eat’ turns into a scalar state when put after the modal
neng ‘can’. In fact, both degree adverbs and modal auxiliaries are prone to have
this function (cf. Li & Thompson 1994). Moreover, a predicate headed by chi
‘eat’ can be modified by a degree adverb so as to be gradable. See also (20).

(23) Zhangsan bi Lisi *(duo) chi le yi-wan fan
Zhangsan com Lisi more eat ASP one-CL rice
‘Zhangsan ate one more bowl of rice than Lisi.’
We have also found disyllabic verbs that can be preceded by appropriate modal auxiliaries.

(24)  Zhangsan  bi  Lisi  hui  shuohua
       Zhangsan  com  Lisi  can  speak
       ‘Zhangsan knows to how to speak properly more than Lisi.’

(25)  Zhangsan  bi  Lisi  neng  chiku
       Zhangsan  com  Lisi  can  bear hardship
       ‘Zhangsan can bear more hardship than Lisi.’

We have not known what characteristics these verbs share, though seemingly shuo-hua ‘speak’ and chi-ku ‘bear hardship’ are verb-object compounds. It should be noted, however, that the modal auxiliary must occur right between the comparative standard and the verb; otherwise, the sentence is ill-formed.

(26) *  Zhangsan  hui  bi  Lisi  shuohua
       Zhangsan  can  com  Lisi  speak
       lit.: ‘Zhangsan knows to how to speak properly more than Lisi.’

Furthermore, some verbs are capable of being the comparison predicate due to their inherent meanings. Take zengjia ‘increase’ for example.

(27) ?  Jinnian  de  chanliang  bi  qunian  zengjia  (le)
       this year  GEN  production  com  last,year  increase  ASP
       ‘The production of this year increased more than that of last year.’

       The predicate usually co-exists with the aspect marker le ‘ASP’. The aspect marker le ‘ASP’ which expresses telicity seems to be obligatory.

(28) ?  Jinnian  de  chanliang  bi  qunian  zengjia  yi
       this year  GEN  production  com  last year  increase  one
       bei  time
       lit.: ‘The production of this year increases one time than that of last year.’

       In contrast to (29), (30) can be grammatical if a negation word is provided.

(29) *  Jinnian  de  chanliang  bi  qunian  zengjia
       this year  GEN  production  com  last,year  increase
       lit.: ‘The production of this year increases more than that of last year.’

(30)  Jinnian  de  chanliang  mei(you)  bi  qunian  zengjia
       this year  GEN  production  not  com  last year  increase
       ‘The production of this year did not increase more than that of last year.’
Mei(you) ‘not’ is also an expression of telicity to a completed event. It follows that telicity is a requirement in defining a grammatical comparison predicate, especially when the predicate is headed by a verb.

Although a stative verb such as xihuan ‘like’ or liaojie ‘understand’ is gradable, it must be transitive in order to signal the accomplishment of a comparison event.³

(31)  Zhangsan bi Lisi xihuan *(shuxue)  
Zhangsan com Lisi like mathematics  
‘Zhangsan likes mathematics more than Lisi.’

(32)  Zhangsan bi Lisi liaojie *(nuren)  
Zhangsan com Lisi understand woman  
‘Zhangsan understands women more than Lisi.’

Alone the similar line, we can explain why the stative verb you ‘have’ should be followed by an object.

(33)  Zhangsan bi Lisi you *(fengdu)  
Zhangsan com Lisi have grace  
‘Zhangsan is more graceful than Lisi.’

(34)  Zhangsan bi Lisi you *(qian)  
Zhangsan com Lisi have money  
‘Zhangsan has more money than Lisi.’

Again, stative verbs should be transitive to convey that the comparison event is accomplished.⁴

On the other hand, a stative verb that is intransitive can be the comparison predicate in a DE-complement (see Li & Thompson 1981, Tsao 1989, Huang 2006, Su 2012). Consider the verb bing ‘sick’, for example.

³ Stative verbs are usually gradable. Witness sentences with xihan ‘like’ and liaojie ‘understand’ individually below.

(i)  Zhangsan hen xihuan shuxue  
‘Zhangsan very like mathematics  
‘Zhangsan likes mathematics very much.’

(ii) Zhangsan hen liaojie ziji  
‘Zhangsan very like self  
‘Zhangsan understands himself very much.’

⁴ Many stative verbs can be intransitive. Take xing ‘wake’ and e ‘hungry’ for example.

(i)  Zhangsan xing le  
‘Zhangsan wake Asp  
‘Zhangsan woke up.’

(ii) Zhangsan xianzai e le  
‘Zhangsan now hungry Asp  
‘Zhangsan is hungry.’
(35) * Zhangsan bi Lisi bing le
    Zhangsan com Lisi sick ASP
(36) * Zhangsan mei(you) bi Lisi bing
    Zhangsan not com Lisi sick
(37) Zhangsan bi Lisi bing de zhong
    Zhangsan com Lisi sick DE heavy
    ‘Zhangsan is sicker than Lisi.’

We have not acquired how many these verbs are, nor have we made the generalization they might raise. We leave this issue open for future research.

There are verbs that cannot be the proper comparison predicates without degree adverbs. For the present, the well-formedness of the following sentences associated with these verbs might be greatly influenced by pragmatics.

(38) Zhangsan bi Lisi *(geng) xiwang qu meiguo jiaoshu
    Zhangsan com Lisi GENG hope go USA teaching
    ‘Zhangsan wants to teach in USA more than Lisi.’
(39) Zhangsan bi Lisi *(geng) gai zuo na-jian shi
    Zhangsan com Lisi GENG should do that-CL thing
    ‘Zhangsan should do that thing more than Lisi.’
(40) Zhangsan bi Lisi *(geng) xunsu-di wancheng le
    Zhangsan com Lisi GENG quickly finish ASP renwu
    mission
    ‘Zhangsan finished the mission more quickly than Lisi.’
(41) Zhangsan bi Lisi *(geng) shou-bu-liao laoban
    Zhangsan com Lisi GENG endure-not-PRT boss
    ‘Zhangsan is more fed up with the boss than Lisi.’

We have attempted to generalize similarities and distinctions among sentences that exemplify what a grammatical comparison predicate is. Thus, what has been touched on in terms of the comparison predicate can be formulated as follows.

(42) The constraint on the comparison predicate of bi-comparatives
    (i) The comparison predicate must be gradable when the head of the predicate is a gradable adjective.
    (ii) The comparison predicate must be gradable when the comparative is a DE-complement comparative.
    (iii) The comparison predicate must be gradable when the head of the predicate is a verbal element immediately preceded by a deontic modal auxiliary.
(iv) The comparison predicate must be gradable and telic when the head of the predicate is a verbal element not immediately preceded by a deontic modal auxiliary.

Note that each of gradability and telicity can be specified either in syntax or lexical level. These conditions might give rise to accounting for a wide range of bi-comparatives, with enlightening results for a theoretical analysis. Let us first test these conditions by considering the comparatives such as (43).

(43) Zhangsan bi Lisi (geng) gao
    Zhangsan com Lisi GENG gao
    ‘Zhangsan is (much) taller than Lisi.’

It is clearly that gao ‘tall’ in (43) is gradable in essence, as gao ‘tall’ can be modified by the degree adverb geng ‘GENG’, thereby sufficing (i). (44) is ruled out by (i), as the adjective cuo ‘wrong’ is not gradable.

(44) * Zhangsan de daan bi Lisi de daan cuo
    Zhangsan PRT answer com Lisi PRT answer wrong

(45) is a DE-complement comparative. Since pao de kuai ‘run DE fast’ can be modified by the degree adverb geng ‘GENG’, (45) satisfies (ii).

(45) Zhangsan bi Lisi pao de (geng) kuai
    Zhangsan com Lisi run DE GENG fast
    ‘Zhangsan runs (much) faster than Lisi.’

It poses difficulty when the head of the predicate is composed of by a verbal element, in particular a transitive verb. Turn to the verb chi ‘eat’.

(46) * Zhangsan bi Lisi chi
    Zhangsan com Lisi eat
(47) * Zhangsan bi Lisi chi le san-wan fan
    Zhangsan com Lisi eat ASP three-CL rice
(48) * Zhangsan bi Lisi duo chi le
    Zhangsan com Lisi more eat ASP
(49) ? Zhangsan bi Lisi duo chi san-wan fan
    Zhangsan com Lisi more eat three-CL rice
    lit.: ‘Zhangsan ate three more bowls of rice than Lisi.’
(50) Zhangsan bi Lisi neng chi
    Zhangsan com Lisi can eat
    ‘Zhangsan can eat more than Lisi.’

5 This sentence is well-formed if a context is provided. For example, there existed a context where the listener knew what Zhangsan had already eaten.
(51) Zhangsan bi Lisi duo chi le san-wan fan
     Zhangsan com Lisi more eat ASP three-CL rice
     ‘Zhangsan ate three more bowls of rice than Lisi.’

We have suggested that sentences such as (46), (47) or (48) are ruled out, given that the verbal predicate performed by the verb chi ‘eat’ should be enriched with gradability and telicity if it is not preceded by a deontic modal auxiliary. Pursuing a strictly descriptive adequacy, (49) is in lack of a means to express accomplishment of the comparison event, henceforth ill-formed. It can be fixed if syntax inserts a lexical item denoting telicity (it can be mei(you) ‘not’ or le ‘asp’). (50) is grammatical, since it maintains the requirement that the comparison predicate must be gradable when the head of the predicate is a verbal element immediately preceded by a deontic modal. Given the comparison predicate is gradable and telic, (51) is well-formed.

Before winding up this section, a puzzle should be addressed. What interests us is (52) and (53). Iao ‘should’ does not seem to be a deontic modal, and it can occur in two different positions.6

(52) Zhangsan yao bi Lisi congming
     Zhangsan should com Lisi smart
     ‘Zhangsan should be smarter than Lisi.’

(53) Zhangsan bi Lisi yao congming
     Zhangsan com Lisi should smart
     ‘Zhangsan should be smarter than Lisi.’

Tsai (2010) has suggested that there is a co-occurrence restriction between an epistemic adverb and an epistemic modal. Namely an epistemic adverb usually occurs with an epistemic modal. Yiting ‘must’, an epistemic adverb, accommodates the epistemic modal iao ‘should’, as shown below.

(54) Zhangsan yiting yao bi Lisi congming
     Zhangsan must should com Lisi smart
     ‘Zhangsan should be smarter than Lisi.’

(55) Zhangsan yiting bi Lisi yao congming
     Zhangsan must com Lisi should smart
     ‘Zhangsan should be smarter than Lisi.’

Our description receives support from Lü (1980). Lü (1980:521) points out that iao means ‘assume’ in a bi-comparative, and it can occur in two different positions without changing its interpretation. The well-formedness of (54) and (55) indicates that iao ‘should’ in the case can be an epistemic modal. Con-

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6 Prof. Jo-wang Lin suggests that yao in this case should not be interpreted as ‘must’. We can only say for the moment that ‘should’ is the closest interpretation to yao.
sequently, the bi-comparatives with iao ‘should’ could be seen as exceptions to our prima facie proposal.

4. Conclusion

We hope to provide explicit as well as simple constraints for the bi-comparative. Summarizing to this point, following is our preliminary findings:

(56) The constraint on the compared constituent of Chinese bi-comparatives

In a bi-comparative, the compared constituent and its correlate must be arguments of the comparison predicate, and both of them must have the same dimension.

(57) The constraint on the comparison predicate of Chinese bi-comparatives

(i) The comparison predicate must be gradable when the head of the predicate is a gradable adjective.
(ii) The comparison predicate must be gradable when the comparative is a DE-complement comparative.
(iii) The comparison predicate must be gradable when the head of the predicate is a verbal element immediately preceded by a deontic modal auxiliary.
(iv) The comparison predicate must be gradable and telic when the head of the predicate is a verbal element not immediately preceded by a deontic modal auxiliary.

To bridge the gap between traditional description and current theoretical research, we have shown that the Chinese bi-comparatives can be analyzed in a theoretical way. The examples we have surveyed and discussed are neither comprehensive nor exhaustive. Thus, the two constraints might be not well-established, and need modification wanting.

Reference
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