

Binding in Comparative Constructions

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Abstract

In this paper I will argue that the Variable Analysis provides a straightforward account for the comparative constructions, under the present proposal that *bi* is a special head which has its projection. The present analysis strongly supports Huang's (1984, 1989) view that the object EC in Chinese is a variable, not a pro.

Key Words: Binding Theory; Comparative Construction; Chinese

1.Motivation:

Ever since Chomsky (1981), Binding Theory has received much attention. Most of the research has been concerned with reflexives (c.f. Cole, Hermon & Sung 1991, Fontana 1992, Huang & Tang 1991, Lebeaux 1983, Li 1993, Progovac 1992, Xu 1993) and pronominals (c.f. Borer 1989, Cole 1987, Hermon & Yu 1989, Huang 1984a, 1984b 1989, Rizzi 1986 and Xu 1986), but not R-expressions. Hence, in this paper I intend to place the emphasis on R-expressions by examining the Chinese comparative constructions as in (1):

- (1) Wode gongzuo bi ni(de) _____ duo.
 my work than you(rs) more
 'I have more work than you.'

Two possible analyses are presented: one is the Variable Analysis (Huang 1989) and the other is the Pronominal Analysis (Xu 1986). I will argue that the Variable Analysis

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provides a straightforward account for the interpretation of the empty category (EC) in (1), under the present proposal that bi is a special head which has its own projection. The present analysis strongly supports Huang's (1984) view that the object EC in Chinese is a variable, not a pro. This paper is organized as follows: Section 2 argues that bi is a special head, and it is neither a verb nor a preposition; Section 3 considers two possible alternatives for the syntactic status of the EC in Chinese comparative constructions; Section 4 presents a brief summary.

2. Syntactic Properties of Chinese Comparatives:

In the Chinese comparative constructions, the comparative head, bi, a word corresponding to than in English, has to appear preverbally, whereas the than phrase occurs postverbally, as is illustrated below:

(2) a. Ta bi ni gao.

he than you tall

'He is taller than you.'

b. *Ta gao bi ni.

he tall than you

'He is taller than you.'

(3) John is stronger than you.

Moreover, the bi phrase can contain an empty category as in (4), which is never allowed in languages like English, as in (5):

(4) Wode nianling bi ni(de) ____ da.

my age than you(rs) big

'I am older than you.'

(5) *My age is older than you.

In (4), the speaker is not comparing wode nianling with ni, but with nide nianling.

This means that there is a missing element following ni and it refers to the preceding NP, namely nianling. Moreover, the occurrence of the implicit argument in Chinese comparative constructions is quite productive. The implicit argument can be any NPs, as long as their references can be determined by the preceding NPs in the comparative construction:

(6) Tade pongyou bi wo(de) __ duo. (animate NP)

his friend than my more

'He has more friends than I.'

(7) Nide qian bi lao Wang(de) __ hai shao. (inanimate NP)

your money than old Wang's still little

'You have less money than old Wang.'

(8) Wode Weiwuji bi ni(de) __ chungming.¹ (proper name)

my Weiwuji than you(rs) smart

'My Weiwuji is smarter than yours.'

The above two syntactic properties of bi immediately invite the question as to what syntactic category bi belongs to. Chinese has the so-called coverbs (Chao 1986, Li 1981) like ba, bei, gen etc., which function sometimes like a verb but sometimes like a preposition. Take gen for example:

(9) Ta gen le wo hen jiu, shemme ye mei xue dao.

he with Asp I very long what too not learn achieve

'He has followed me for a long time, but he hasn't learned anything.'

(10) Ta chang gen ren dajia.

he often with man fight

'He often fights with others.'

As we can see, gen behaves like a verb in (9), where an aspectual marker le appears after it; however, it can behave like a preposition as well as in (10), where the

main verb is dajia. The fact that bi can both take an aspectual marker like zhe as in (11), and bi ni can be an optional phrase (i.e. an adjunct) as in (12), implies that bi may be a coverb, too.

(11) Ta bi zhe zuozi, yiju hua ye bu shuo.

he point Asp table a word too not say

'He pointed at the table, but didn't say anything.'

(12) a. Ta bi ni ai jianghua.

he than you love talk

'He likes to talk more than you do.'

b. Ta ai jianghua.

he love talk

'He likes to talk.'

As shown above, bi behaves both like a verb and a preposition.

2.1 Is bi a verb?

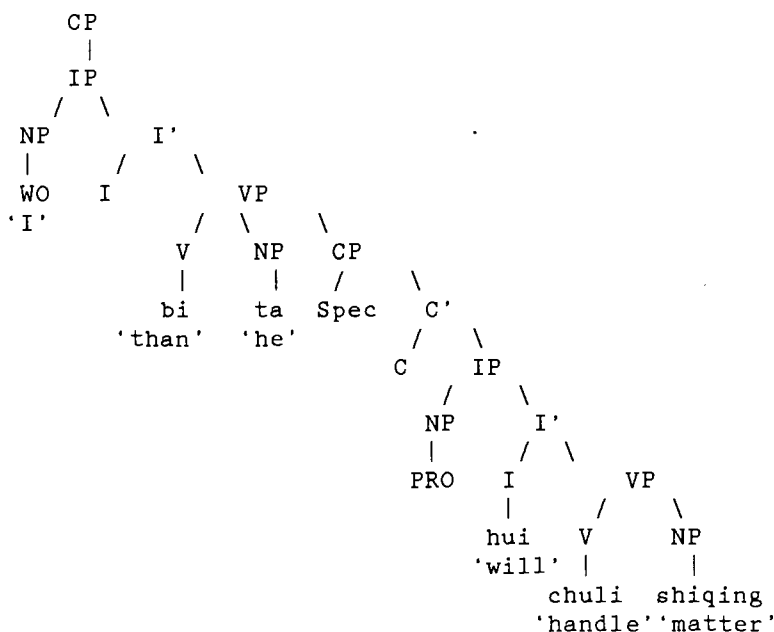
If it is a verb, then one of the possible syntactic structures of (13), a common comparative sentence, will be (14), in which bi selects an NP and a complement clause:

(13) Wo bi ta hui chuli shiqing.

I than he able handle matter

'I know how to handle things more than he does.'

(14)



Syntactically speaking, (14) is problematic in two ways. First, it assumes that *bi* is like a control verb which takes a CP complement. However, sentence (15) shows that a genuine control verb is different from *bi* in that the embedded subject can appear overtly in (15)², but not in (16):

(15) Wo daying Zhangsan wo hui zuowan zhejian shi.

I promise Zhangsan I will finish that matter

'I promised Zhangsan that I would finish the work.'

(16)*Wo bi Zhangsan wo hui xian zuowan zhejian shi.

I than Zhangsan I will early finish that matter

'I will finish the work earlier than Zhangsan.'

Second, the object of a control verb generally can undergo topicalization, and a resumptive pronoun will then show up in the object position of the control verb, as in (17):

Moreover, topicalizing the embedded subject of an ECM verb is possible in English, since the ECP is not violated at LF:

(20) John, I believe _____ to be smart.

(21) [_{CP} [_{IP} John_i [_{IP} I believe [_{IP} t_i to be smart]]]]]

Sentence (20) is grammatical because the embedded subject position is a properly governed position as in (21). However, topicalizing the embedded subject of bi will be wrongly predicted to be possible, under the assumption that bi is an ECM verb:

(22)*Zhangsan, wo bi _____ xian lai.

Zhangsan I than early come

'I arrived earlier than Zhangsan.'

(23) [_{CP} [_{IP} Zhangsan_i [_{IP} wo bi [_{IP} t_i xian lai]]]]]

Since the LF representation in (23) is identical to that in (21), we would expect the trace of Zhangsan to be properly governed by bi. In this case, we will rule in (22), an ungrammatical sentence.

As we have seen so far, theoretically speaking, to assume that bi is a verb is not desirable. Moreover, empirical evidence does not support the claim that bi is a verb. As we know, a verb can always be used as a short reply in Chinese as in (24)b, or take an aspectual marker as in (25):

(24) a. Ta zou le ma?

he leave Asp Q

'Did he leave yet?'

b. _____ zou le.

(he) leave Asp

'He ate three bowls of rice.'

However, bi can neither occur independently as a short reply as in (26)b, nor take an aspectual marker as in (27):

(26)a. Ni bi ta gao ma?

you than he tall Q

'Are you taller than he?'

b.* _____ bi _____ .

(you) than (he)

(27)*Ta bi le ni zao dao.

he than Asp you early arrive

'He got here earlier than you.'

Since the syntactic projection and empirical evidence we find do not argue that bi is a verb, we may consider the other possibility, i.e., that bi is a preposition.

2.2 Is *bi* a preposition?

Empirically speaking, bi seems to behave like a preposition since its complement can never be missing, even though it is understood from the discourse as in (28) or from the previous topic as in (29):

(28)* Suiran Zhangsan hen fuyou, meiren zhidao wo bi _____ geng fuyou.

though Zhangsan very rich nobody know I than(he)more rich

'Though Zhangsan is very rich, nobody knows that I am richer than he.'

(29)*Zhangsan, wo bi _____ lihai.

Zhangsan I than(he) good

'I am better than Zhangsan.'

Interestingly, prepositions in Chinese have the above two distinctive properties as well. Take dui and gen for example. They do not take missing elements nor can they be stranded, as can be seen below:

(30) Mali hen kelien. *Wo dui _____ hen hao.

Mali very pitiful I to (she) very good

'Mali is very pitiful. I am very nice to her.'

(31) Wang, wo chang gen _____ liaotian.

Wang I often with (he) talk

'I often talk with him.'

If bi is a preposition, then the bi phrase is likely to adjoin to a VP, as shown in

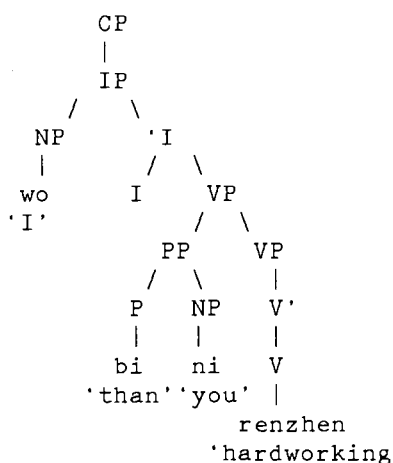
(33), a structure of (32):

(32) Wo bi ni renzhen.

I than you hardworking

'I work harder than you.'

(33)



Given (33), we are then able to rule out sentences with an empty category in the object position of bi, under the assumption that prepositions are not proper governors in Chinese. Hence, the ECP will be violated if ni in (33) is moved to the Topic position (c.f. Chen 1994)³.

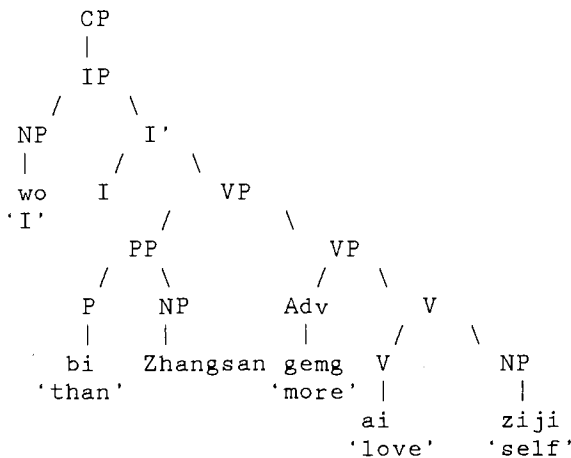
However, problems arise when we consider the interpretation of reflexives below:

- (34) Wo_i bi Zhangsan_j geng ai zij_i/*_j.
I than Zhangsan_j more love self
'I love myself more than Zhangsan does.'

- (35) wo_i bi Zhangsan_j geng ai tazij_i/*_j.
I than Zhangsan_j more love himself
'I love Zhangsan more than he does.'

Crucially, for most speakers the bare reflexive ziji can only refer to the subject, wo, rather than Zhangsan. The assumption that bi is a preposition seems to make a correct prediction on the interpretation of ziji, since wo is the only argument c-commanding ziji in (36):

(36)



Since Zhangsan in (36) cannot c-command the object ziji , it is not a qualified antecedent.⁴ Likewise, we will predict that sentence (36) should be ungrammatical, since taziji cannot be bound by its antecedent Zhangsan. However, in Chinese a compound reflexive can either be bound by the object of bi as in (35) or by the subject of the sentence as in (37):

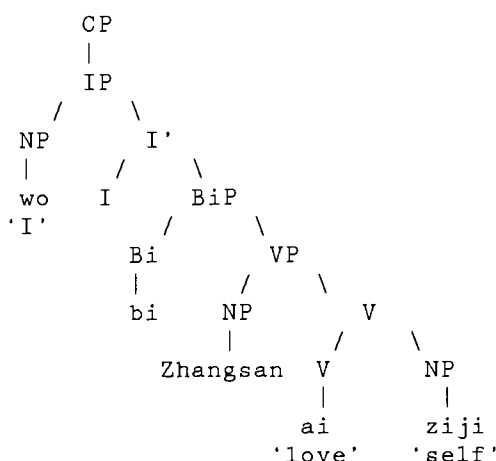
(37) Wo_i bi Zhangsan_j geng ai woziji/*i.

I than Zhangsan more love myself

'I love myself more than Zhangsan does.'

In this case, both wo and Zhangsan can be the antecedents c-commanding the reflexive. That is to say, to assume that bi is a preposition is problematic as well. Hence, in spite of Pollock (1989), I propose that bi should head its own project, as shown in (38), a structure of (37):

(38)



As can be seen in (38), bi selects the VP as its complement. I assume that subjects in Chinese are either base-generated in Spec of VP to receive governed Case (c.f. Koopman and Sportiche 1991, or in Spec of IP to receive agreement Case (c.f. Chen 1991). That is to say, ziji in (38) can either be bound by the matrix subject wo or by Zhangsan. However, the reading tends to be determined by the subject orientation phenomenon in Chinese. Hence, the matrix subject is usually favored.

3.Implicit Arguments in the Chinese Comparative Constructions:

As discussed in Section 2, implicit arguments are always found in the Chinese com-

parative constructions, as can be seen in (39):

- (39) Wode jingyian bi ta(de) fongfu.
 my experience than his abundant
 'My experience is greater than his.'

In (39), the speaker is actually comparing his experience with the addressee's experience, an implicit argument is needed in (39). Then, it becomes important to clarify the syntactic status of this empty category. Four options are available. First, since an overt NP can sometimes occupy this position as in (40), this position must be a governed position:

- (40) Nide qien yizhi bi wode qien duo.
 your money always than my money more
 'You always have more money than I.'

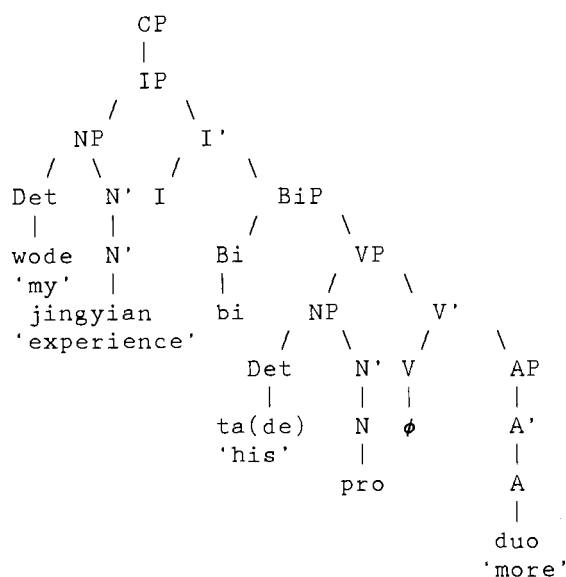
Though (40) is a little awkward, it is a grammatical sentence. The addressee knows quite well that the second occurrence of qien is emphasized. That is to say, since qien can occur overtly after wode as one constituent of bi in (40), in order to obey the Case filter it must be Case marked somehow by a Case marking head. The only possible candidate will be bi. Assuming that bi assigns the accusative Case to wode qien, we can then conclude that the EC in (39) cannot be PRO, according to the PRO Theorem. Meanwhile, this assumption also entails that the second option---that the empty category in (39) is an NP trace---is not convincing. That is, since it is a Case position, there is no need to trigger NP movement. This leads us to consider that the EC is either a pronominal or a variable. In the following section, I will consider each option in turn.

3.1 The Pronominal Analysis

As argued in Section 2, bi heads its own projection. That is to say, (41) will be the structure of (39) with the empty category being base-generated inside the object

position of bi:⁵

(41)



If the empty category is a *pro*, we would expect that it should be licensed by a Case marking head (cf. Rizzi 1986) and be identified by the closest c-commanding NP (cf. Huang 1989). In (41), the licensing condition is satisfied, under the present assumption that bi assigns the accusative Case to its object. However, the identification condition on *pro* is rather complicated. According to Huang's (1989) GCR, its antecedent jingyian is unable to c-command *pro*, since the first branching node that dominates jingyian will be Spec of IP. Hence, there will be no Principle B violation, since *pro* will be free in its governing category, namely IP. But sentence (39) will be wrongly predicted to be ungrammatical simply because the identification condition on *pro* is not satisfied. In order to rule in (39), we need a condition like (42):

(42) Condition on Feature Percolation

The feature of a head can percolate up to its mother node.

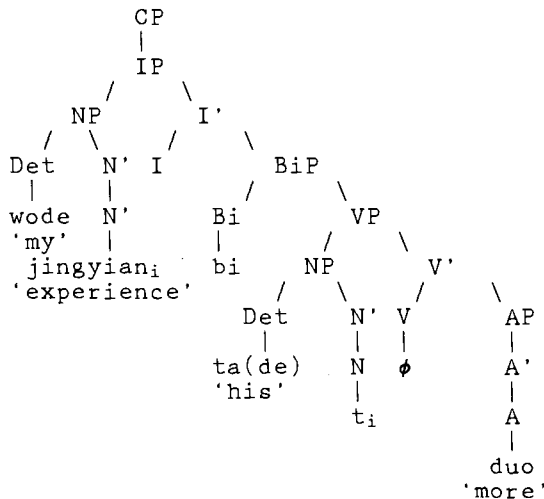
After feature percolation, we will have the index of jingyian on NP, the matrix sub-

ject. Hence, *pro* in (41) can be identified by the NP. Though the identification condition holds now, Principle B becomes problematic, after feature percolation. Since the feature of *jingyian* will percolate up to the matrix subject, *pro* will be accidentally bound. This will violate Principle B. Only if we can distinguish the checking stages of Principle B from that of the identification condition can we say that the Pronominal Analysis is workable.⁶ However, such a distinction itself is stipulative. In order to assume that the EC in (39) is *pro*, we need a condition on feature percolation and a stipulative rule to separate the application stage of Principle B from that of the identification condition.

3.2 The Variable Analysis

As argued so far, since the EC in (39) cannot be PRO, nor an NP-trace, nor *pro*, this means that the empty category is a variable, if Chomsky's (1981 and 1986) classification of nouns is correct. However, if the Variable Analysis is problematic as well, then we may need to adopt Xu's (1986) proposal that Chinese has free empty categories (FECs), instead of PRO, NP-traces, *pro*, and variables. Let us first look at the structure of (39), as is shown in (43):

(43)



In (43), t_i is a variable which shares the same index with jingyian. Since jingyian does not c-command the variable, Principle C will not be violated. However, this raises a question as to what binds the variable. In GB, a variable needs to be bound by an operator in A' position. Since jingyian cannot c-command the variable, it is obvious that it cannot bind the variable. In order to make a correct prediction on (39), an operator is needed. I will follow Huang's (1984) proposal that the embedded subject is a *pro*, and the embedded object, a variable:

(44) a. Zhangsan shuo ____ hui lai.

Zhangsan say (he) will come

'Zhangsan_i said that he_i would come.'

b. Zhangsan shuo Wangwu mei kanjian ____ .

Zhangsan say Wangwu not see (he)

'Zhangsan_i said that Wangwu_j didn't see him_k.'

According to Huang's observation, the embedded subject can refer to Zhangsan in (44)a, but the embedded object cannot in (44)b.

However, some native speakers might have the embedded object refer to the matrix subject Zhangsan in (44)b. Huang explains this dialectal variation by saying that the embedded object is bound by an empty operator coindexed with Zhangsan, as in (44):

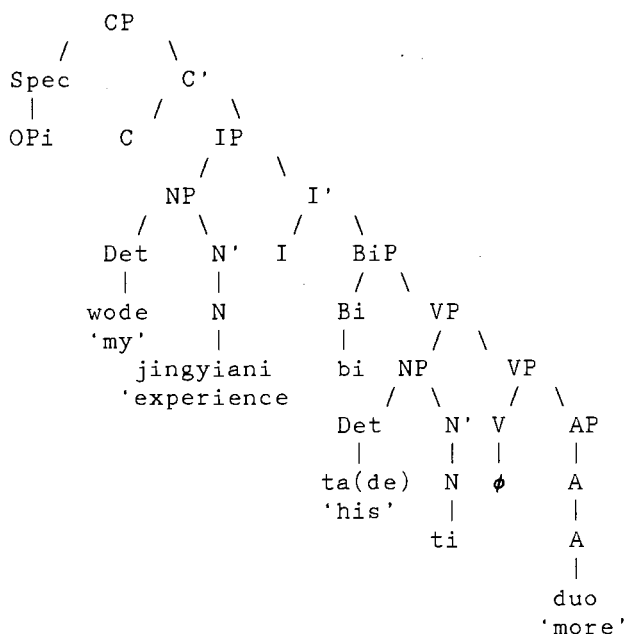
(45) [OP_i [Zhangsan_i shuo [Wangwu_j mei kanjian t_i]]]?

Zhangsan say Wangwu not see

'Zhangsan_i said that Wangwu_j didn't see him_i.'

Following Huang we may now assume that an empty operator is available in a topic-prominent language like Chinese. Then, the structure of (39) will be (46):

(46)



In (46), t_i is now bounded by the empty operator OP_i in Spec of CP. Hence, it matches the standard assumption that a variable needs to be bound by an operator, and also it does not violate Principle C, since the EC is in Spec of CP, an A' position.

The claim that there is an empty operator in the Chinese comparative constructions seems to be purely theory-driven. However, empirical evidence also shows that a topic is likely to occur in (47):

- (47) Jingyian ma, wode jingyian zhende bi ta fongfu.
 experience Part. my experience really than he abundant
 'As for experience, I have more experience than he.'

As (47) shows, the overt identical NP jingyian can indeed occur in the topic position. This strongly supports the present analysis and the claim that there is an empty operator in (46).

4. Conclusion:

In this paper, I have argued that bi is neither a verb nor a preposition; instead, it heads its own project, BiP. Moreover, I have also presented several arguments for the present claim that the implicit argument in Chinese comparative constructions must be a variable bound by an empty operator to avoid a Principle C violation.

Notes

1. In order for speakers to accept sentence (8), there must be a proper context such that Weiwuji is a robot, and everyone has one at home. The sentence becomes meaningful when two speakers are comparing their robots in their conversation.
2. In English, a control verb like promise can take a CP complement, as in (i):
 (i) I promise you that I will finish the assignment.
 where the embedded subject can be overt as well.
3. In Chen (1994), I assume that the moved topic lands in Spec of CP, but base-generated non-gap topics in Spec of TopicP.
4. C-command here is defined in terms of the first branching node.
5. In Chinese, a copular verb like shi is always dropped when its following complement is an AP, a PP, but not an NP:
 (i) Ta ___ hen shuai.
 he (is) very handsome
 'He is very handsome.'
 (ii) Ta ___ zai jia.
 he (is) at home
 'He is at home.'

(iii)*Ta ____ ge laoshi.

he (is) a teacher

'He is a teacher.'

6. For instance, one may say that Principle B applies before feature percolation, but the identification condition is examined after feature percolation.
7. Huang's explanation seems to be convincing in that the variable is now bound by the empty operator in (45); however, if we say that the matrix subject and the empty operator share the same index it seems that we will be unable to avoid an apparent Principle C violation. Hence, Huang must assume that the index of Zhangsan serves only a referential purpose. It is different from that of the binding index. This is a weak point of the GB theory as well. The theory of indices vaguely applies most of the time.

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比較句中的約束理論

陳純音

中文摘要：

本文旨在支持黃正德教授（一九八四年、一九八九年）對中文空詞（empty category）的看法，強調中文的受詞位置之空詞應屬變數（variable），而非代名詞（pro）。同時，文中亦藉著探討比較句中空詞的語法角色及其所屬約束理論，提議比較句之「比」字乃一特殊詞類（亦即非動詞、亦非介詞），且自組成一「比」字片語。

關鍵詞：約束理論、比較句、中文