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Mandarin Chinese as an *Exceed*-type Language

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This paper deals with the relation between the *bi*-comparative and the bare comparative in Mandarin Chinese. In most of the previous work addressing these two types of comparative constructions, it is usually assumed that the bare comparative is derived from the *bi*-comparative via head-movement. However, if we adopt this analysis, we cannot provide a satisfactory explanation for why a measure phrase has to appear obligatorily in the bare comparative while it does not in the *bi*-comparative. In this paper, I suggest that the optionality of a measure phrase be attributed to differences of the argument structures of these two comparative constructions.

1. Introduction

Basically, there are two types of comparative constructions in Mandarin Chinese, the *bi*-comparative and the bare comparative. To the best of my knowledge, most of the previous work focuses on the syntax and semantics of the former type.

(1) The *bi*-comparative:
Yuehan bi Mali gao wu gongfen
John BI Mali tall five centimeter
"John is 5-cm taller than Mary."

(2) The bare comparative:
Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."

Although semantically these two sentences are similar, they have two major structural differences. The first one is concerned with word ordering: the standard of comparison *Mali* 'Mary' precedes the adjective *gao* 'tall' in (1) but follows it in (2); the second one is about whether a measure phrase has to be present obligatorily or not. As the following pair of sentences shows, the measure phrase can be omitted in the *bi*-comparative while this omission is not allowed in the bare comparative.

(3) The *bi*-comparative
Yuehan bi Mali gao
John BI Mary tall
"John is taller than Mary."

(4) The bare comparative
* Yuehan gao Mali
John tall Mary
"John is taller than Mary."

This paper aims to account for the contrast between these two types of comparative constructions and to see why Mandarin Chinese displays this property from a syntactic point of view.

This paper is organized as follows. Section 2 shows that cross-linguistically it is quite common to use a particular type of comparative construction in which an overt comparative marker taking a standard of comparison as argument. In Section 3, in addition to the *bi*-comparative and bare comparative, two more comparative constructions will be addressed. Moreover, based on a detailed comparison between the *bi*-comparative and bare comparative, I propose that although they have certain syntactic and semantic properties in common, they are not related to each other transformationally. In Section 4, with the help of non-comparative sentences I argue that the phenomenon that we have in comparative constructions in Mandarin Chinese is not co-incident, but follows from a fact that Chinese is an analytic language. Section 5 concludes the paper.

2. Types of comparative constructions

Stassen (1985) classifies comparative constructions into several different types. Five of them are the separative comparative, the allative comparative, the locative comparative, the exceed comparative, and the conjoined comparative.[1]

(5) a. The separative comparative
Nihon-go wa doitsu-go yori muzukashi (Japanese)
Japanese TOP German from difficult
"Japanese is more difficult than German."
b. The allative comparative (Breton)
Jazo bras-ox wid-on
He big-PRT for-me
"He is bigger than me."
c. The locative comparative (Chuckchee)
Gamga-qla'ul-ik qetvu-ci-um

[1] For more comparatives and detailed discussions, please see Stassen (1985).

All -men-on strong-more-1SG
"I am stronger than all men."

d. The exceed comparative (Yoruba)
O tobi *ju* u
He big exceed him
"He is bigger than him."

e. The conjoined comparative (Sika)
Dzarang tica gahar, dzarang rei kesik
Horse that big horse this small
"That horse is bigger than this horse."

Among these comparatives, the *exceed*-comparative is special in that it contains a lexical item whose meaning is close to that of *exceed* in English. Examples from other languages are listed below.[2] (Also see Beck et al. 2008, Kennedy 2005, and Vanderelst 2008.)

(6) a. Cambodian
Bony- sreuy khngom crieng pirueh *crieng* nih
elder- sister my sing good exceed this
"My elder sister sings better than this."

b. Jabem
Tamoc kapoeng ke-*lelec* ae su
father is-big he-exceed me ready
"My father is taller than me."

This cross-linguistic phenomenon suggests that it is not uncommon to express the concept of comparison by using a lexical item that can be glossed as *exceed*. From this point of view, Mandarin Chinese can be classified as an *exceed*-type language as well since it has a type of comparative construction that looks like those we have above.[3]

(7) Yuehan gao-*guo* Mali
John tall-exceed Mary
"John is taller than Mary."

3. Comparative constructions in Mandarin Chinese

3.1 Previous analyses

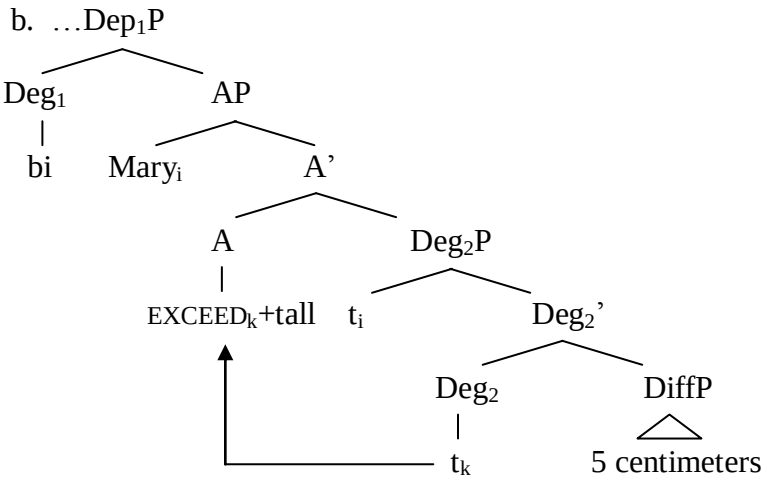
In order to accommodate the properties of comparative constructions in Mandarin Chinese, Xiang (2005) proposes that the comparative construction in Chinese is similar to

[2] Instead of using *exceed*, Ansaldo (2004, 2010) use *surpass* to gloss the comparative marker.
[3] As the discussion proceeds, *guo* will have a different gloss.

the double object construction in English in that there is one head in the construction that takes two elements as its arguments. Inspired by Hale and Keyser (1993), Huang (1997), Larson (1991), and Lin (2001), she builds the following structure for the *bi*-comparative on the concept of the Larsonian VP-shell.

(8) a. Yuehan bi Mali gao wu gongfen
John BI Mary tall five centimeter
"John is 5-cm taller than Mary."

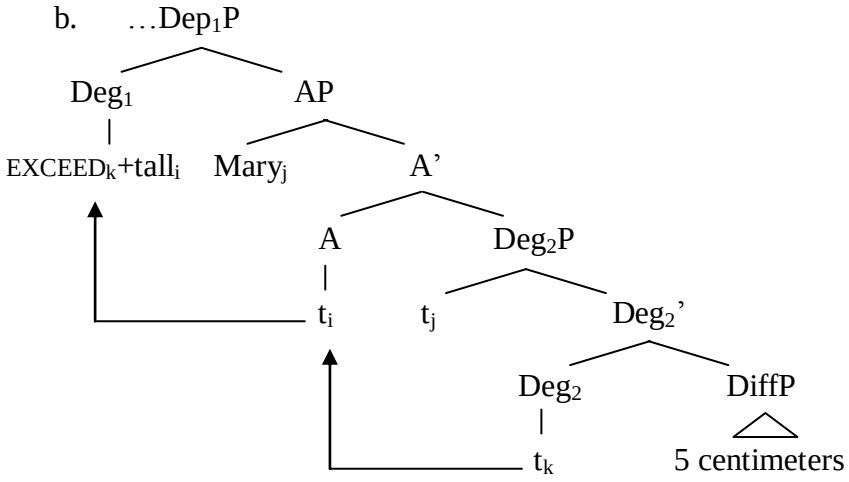
b. …Dep_1P



According to Xiang (2005), AP is flanked by two separate degree projections and a phonologically null element EXCEED heading Deg_2P is assumed to take the standard phrase and the differential value as its arguments. The standard phrase, which is base-generated in Spec, Deg_2P, raises to Spec, AP, and *bi* is assumed to be the head of a higher DegP right above the adjectival projection.

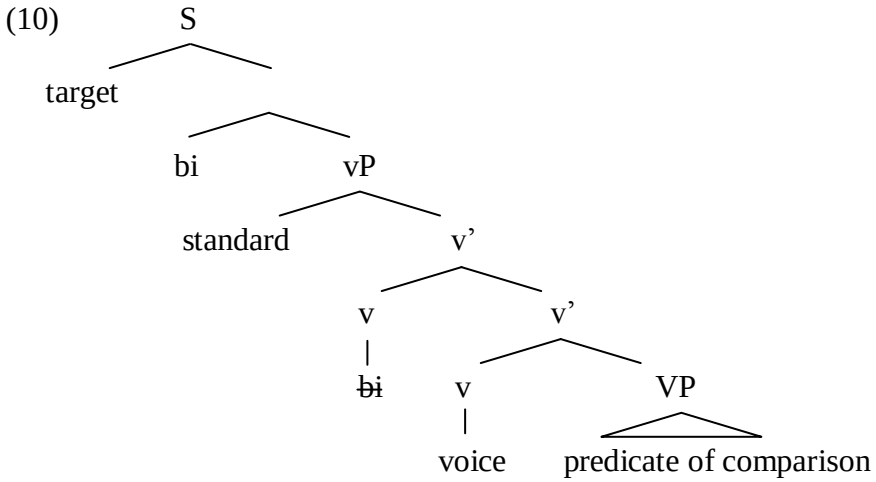
The crucial analysis in her paper with respect to the relation between the *bi*-comparative and the bare comparative is that the bare comparative is derived from the *bi*-comparative by moving the combined EXCEED+tall sequence further upwards to the empty Deg_1. The derivation is shown below.

(9) a. Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."



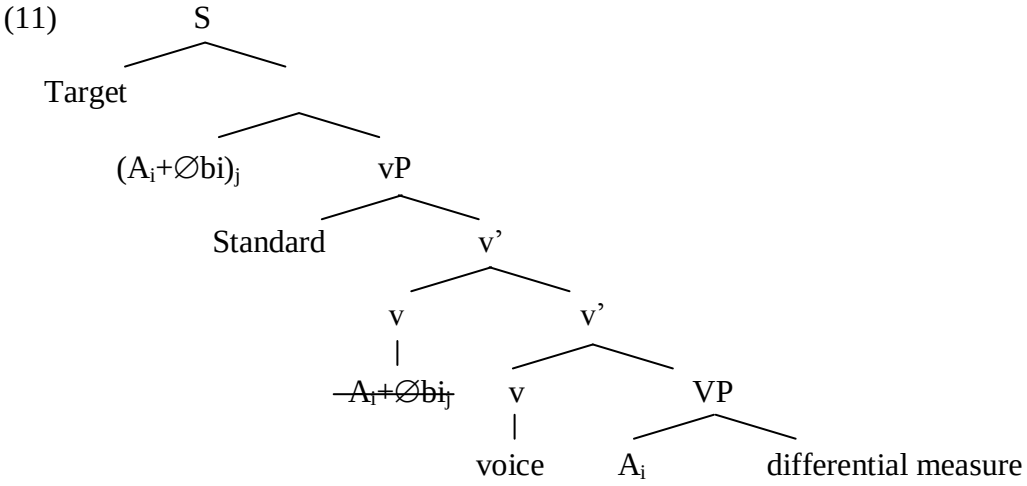
This analysis is appealing in the sense that the word order of the bare comparative is captured correctly. However, the problem facing this analysis is that if this is the case that these two comparatives share the same argument structure, there is no principled way to account for why the measure phrase which expresses a differential value is obligatory in the bare comparative while it is optional in the *bi*-comparative, as shown in (3) and (4).

Erlewine (2007) deals with the *bi*-comparative in terms of event semantics and argues that *bi* heads its own projection and indirectly subcategorizes for a predicate with an intervening *voice* head. After the basic structure is constructed, *bi* raises to a higher position, giving rise to the desired *bi*-comparative.



As for the bare comparative, which is called the transitive comparative in his paper, Erlewine proposes the following structure.

(11)



He suggests that there exist a phonologically null *bi* and the movement of adjectives takes place prior to another movement in which the combination of the null *bi* and adjective lands in a higher position.

Although Erlewine (2007) and Xiang (2005) provide detailed analyses for comparative constructions, they run into the same problem of not being able to account for why measure phrases have to be present in the bare comparative while they do not have to in the *bi*- comparative, since both of them assume that the *bi*- comparative and the bare comparative share the same structure.

3.2 The bare and not-so-bare comparatives in Chinese

In this section, I will discuss several Mandarin comparative constructions, especially focusing on whether or not measure phrases can be omitted and why they behave this way.

So far, we have discusses the *bi*-comparative and the bare comparative. In fact, Mandarin has two more comparative constructions, one of which has been briefly mentioned earlier.

(12) a. The *guo*-comparative

Yuehan	gao-*guo*	Mali	(wu	gongfen)
John	tall-VSUR	Mary	five	centimeter

"John is (5-cm) taller than Mary."

b. The *chu*-comparative

Yuehan	gao-*chu*	Mali	*(wu	gongfen)
John	tall-VEXC	Mary	five	centimeter

"John is taller than Mary by 5-cm."

The *chu*-comparative is similar to the *guo*-comparative in that this comparative construction also contains an overt comparative marker, but different from it in that the measure phrase is required to be present obligatorily. If we consider the optionality of a measure phrase as a tool to classify comparative constructions, we should think about the *chu*-comparative on a par with the bare comparative and group the *bi*-comparative together with the *guo*-comparative since measure phrases are required to appear in the former group of comparatives, but such a requirement does not hold in the latter two types of comparative constructions.[4]

The fact that *chu* and *guo* are similar in meaning might lead one to wonder if they have the same function in comparative constructions. The following pair of sentences shows that in fact *chu* and *guo* behave differently.

(13) a. Yuehan gao-*chu* yibai gongfen
John tall-VEXC 100 centimeter
"John is taller than someone/something by 100-cm.
b. Yuehan gao-*guo* yibai gongfen
John tall-VSUR 100 centimeter
"John is taller than 100 centimeters."

That the measure phrase serves as a differential value in (13a) but a standard of comparison in (13b) can be attributed to the difference in the meanings of *chu* and *guo*. That is, *chu* has to select a differential value as argument and *guo* has to choose a standard of comparison. Two more pieces of evidence showing that *chu* and *guo* behave differently are represented as follows.

(14) a. Yuehan gao-*guo* shei
John tall-VSUR who
"Whom is John taller than?"
b. *Yuehan gao-*chu* shei
John tall-VEXC who
"Whom is John taller than?"

Since *guo* is assumed to introduce the standard of comparison into the structure, it is not surprising that we can question who the person that John surpasses in height is. However, such a question cannot be formed in the *chu*-sentence (14b). On the other hand, if we want to ask the differential value between two compared entities, we need to use *chu* since it selects a measure phrase denoting a differential value as argument. (15b)

[4] Cantonese has similar comparative constructions. For examples and analyses, please see Mok (1998).

shows that this is indeed the case, and the ungrammaticality in (15a) once again confirms that *chu* and *guo* are different.

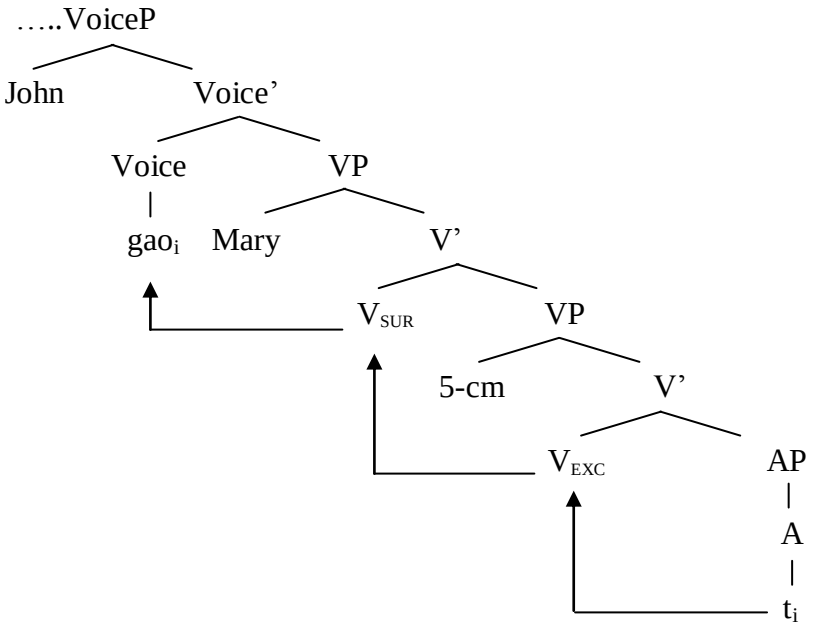
(15) a. *Yuehan gao-*guo* duoshao
John tall-VSUR how-much
Intended reading: "How much is the difference between John and someone else in height?"

b. Yuehan gao-*chu* duoshao
John tall-VEXC how-much
Intended reading: "How much is the difference between John and someone else in height?"

Taking all of these facts into account, I propose the following structure for the bare comparative.[5]

(16) a. Yuehan gao Mali wu gongfen
John tall Mary five centimeter
"John is taller than Mary by 5-cm."

b.



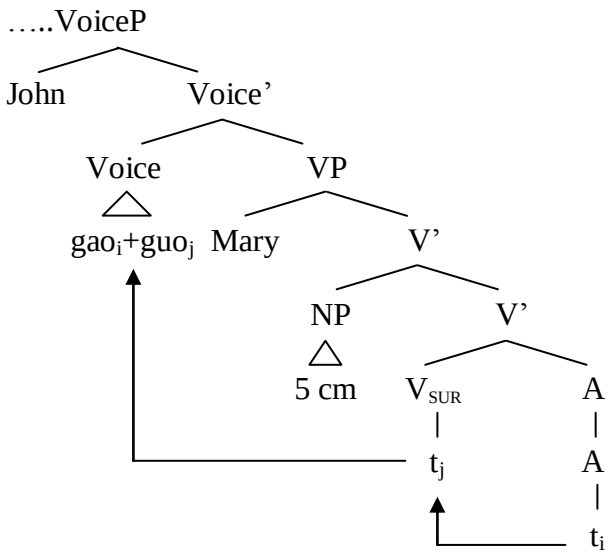
[5] That I gloss *chu* and *guo* as VEXC(EED) and VSUR(PASS) does not mean that *chu* and *guo* are exactly the same as *exceed* and *surpass* in English. This usage is just for convenience.

For the bare comparative, I propose that the measure phrase and the standard of comparison are not arguments of adjectives but are arguments of VEXC and VSUR respectively. Moreover, I propose that due to the affixal features of VEXC and VSUR the adjective has to move cyclically to the head of VoiceP.[6]

As for the *guo*-comparative, I propose that the measure phrase is not an argument at all, but serves merely as an adjunct, coming into the structure by left-adjoining to V'. This is why it is optional.

(17) a. Yuehan gao-*guo* Mali (wu gongfen)
John tall-VSUR Mary five centimeter
"John is (5-cm) taller than Mary."

b.

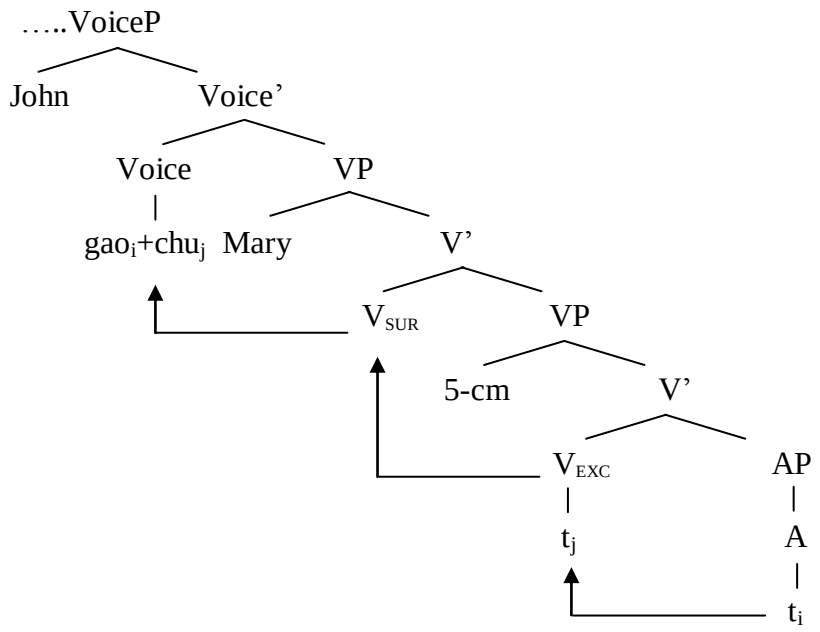


As for the *chu*-comparative, its syntactic structure is shown below.

(18) a. Yuehan gao-chu Mali wu gongfen
John tall-VEXC Mary five centimeter
"John is taller than Mary by 5-cm."

[6] As what is proposed in Kratzer (1996), the function of *Voice* is to introduce an external argument into the structure.

b.



The *chu*-comparative basically is similar to the bare comparative except for the fact that the head of VEXC is overtly realized as a lexical item *chu*.

In the constructions that I propose for the bare comparative, the *chu*-comparative and the *guo*-comparative, the adjective always raises to a higher position, combining with heads with verbal properties.[7] This analysis is evidenced by the following sentences.

(19) a. Yuehan gao-le Mali wu gongfen
John tall-PERT Mary five centimeter
"John is taller than Mary by 5-cm."

b. Yuehan gao-chu-le Mali wu gongfen
John tall-VEXC-PERF Mary five centimeter
"John is taller than Mary by 5-cm."

c. Yuehan gao-guo-le Mali
John tall-VSUR-PERF Mary
"John is taller than Mary."

It is usually assumed that the aspectual marker *le* only combines with verbs in Mandarin, so what we observe in (19a-c) implies that the adjectival head *gao* 'tall' is not the same as the one that comes into the structure in the beginning of derivation since it has acquired a verbal property from different heads at different stages.

[7] *Chu* and *guo* were used as independent verbs and could stand alone in earlier Chinese.

3.3 The *bi*-comparative

If a standard of comparison is assumed to be introduced into the structure by the head V_{SUR} in comparatives, then the next question we need to answer is what kind of role *bi* plays in a comparative construction. C.-S. Liu (1996) proposes that the standard of comparison is *bi*'s complement and they together constitute a prepositional phrase. If it is true that the lexical item *bi* functions to introduce a standard of comparison into the structure, we can predict that *bi* cannot co-occur with *guo* in sentences in which there is only one standard of comparison. (20) shows that this prediction is borne out.

(20) a. * Yuehan bi Mali gao guo
John BI Mary tall V_{SUR}
"John is taller than Mary."
b. *Yuehan bi guo Mali gao
John BI V_{SUR} Mary tall
"John is taller than Mary."
c. *Yuehan guo bi Mali gao
John V_{SUR} BI Mary tall
"John is taller than Mary."

The fact that sentences containing both *bi* and *guo* are always ungrammatical supports the analysis that like *bi*, V_{SUR}/guo also serves to introduce a standard of comparison. Based on this information, I propose that *bi* is base-generated in the same position as V_{SUR} does, so that we can account for why the presence of one excludes that of the other. Contrastively, *bi* has no problem occurring with the overt form of V_{EXC}, shown in (21). These facts confirm that the measure phrase and standard of comparison come into the structure with different heads, V_{EXC}/chu and V_{SUR}/guo.

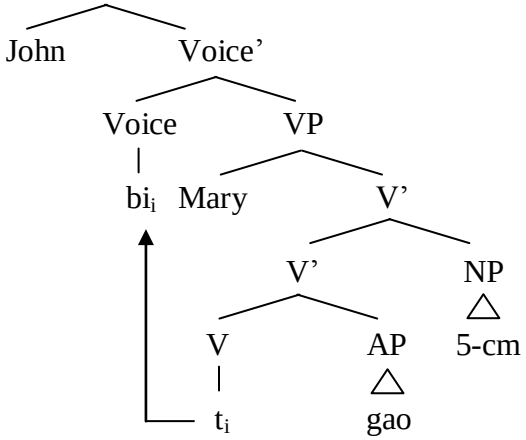
(21) Yuehan bi Mali gao-chu wu gongfen
Yuehan BI Mary tall-V_{EXC} five centimeter
"John is 5-cm taller than Mary."

Given these observations, I propose that the *bi*-comparative and the bare comparative do not share the same argument structure, and the reason why a measure phrase is optional in the *bi*-comparative is because it is just an adjunct.[8]

[8] Based on coordination and other phenomena, C.-S. Liu (1996) and Lin (2009) propose that the *bi*+standard sequence is a constituent. In this paper, following Erlewine (2007), I analyze *bi* as an independent head and it is one of the building blocks constituting the main predicate.

(22) a. Yuehan bi Mali gao (wu gongfen)
John BI Mary tall (five centimeter)
"John is (5-cm) taller than Mary."

b. ……. VoiceP



One may notice that if *bi* and V_{SUR} are base-generated in the same position, why does an adjective have to move upwards when the head of a higher projection is V_{SUR} while this movement does not take place when the head is *bi*? If the movement happened in the *bi*- comparative, the sentence would be ungrammatical.

(23) *Yuehan gao bi Mali wu gongfen
John tall BI Mary five centimeter
Intended meaning: "John is 5-cm taller than Mary."

The answer to this question, I believe, lies in the properties of V_{SUR}/guo and *bi*. As a full-fledged lexical item, *bi* can occur independently without combining with another element. But, since *guo* has undergone grammaticalization, it has lost the ability to stand alone and consequently acquired an affixal feature that needs to be checked. In other words, the requirement of feature checking in the non-*bi* comparatives is the impetus for movement.

4. Further discussion

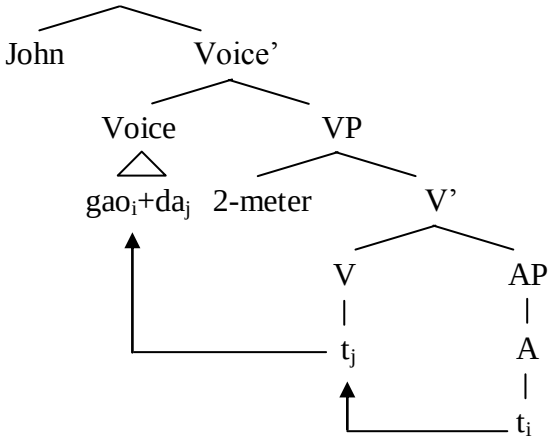
In the previous sections, I propose that comparative sentences have their constructions built on different heads. If it is the case that the functions of different heads are detectable in comparatives of Mandarin Chinese, we may be able to observe similar phenomena in non-comparative constructions. The following sentences confirm our expectation and support the analysis that different heads are needed to establish a relation between an adjective and a degree modifier.

(24) a. Yuehan gao-da liang-mi
John tall-reach two-meter
"John is 2-meter tall."

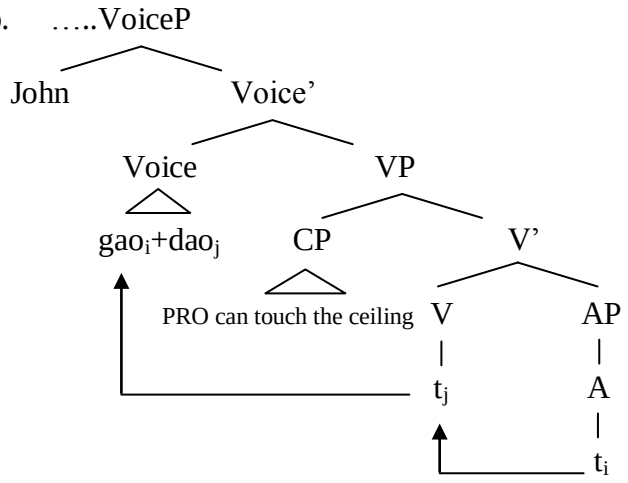
b. Yuehan gao-dao keyi modao tianhuaban
John tall-arrive can touch ceiling
"John is tall enough to touch the ceiling."

In (24a) and (24b), two morphemes following *gao* 'tall' are *da* 'reach' and *dao* 'arrive', which can be thought of as posing restrictions on what types of degree modifiers can appear in relevant sentences. Their structures are illustrated in (25a) and (25b) respectively.

(25) a.



b.



What *da* 'reach' selects in the specifier position has to be a specific degree, while the element licensed by *dao* 'arrive' has to be an interval of degree which matches with the dimension denoted by the adjective. If the assumption that *dao* and *da* select their own arguments is on the right track, we can predict that switching the positions of two degree modifiers in (25a) and (25b) will result in ungrammaticality. (26) shows that this prediction is borne out.

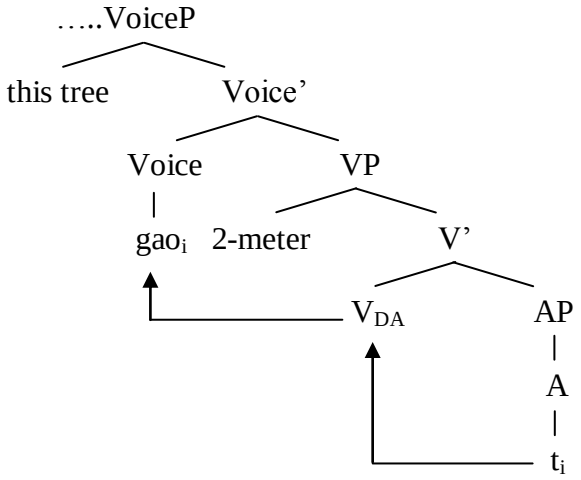
(26) a. ??Yuehan gao-dao liang-mi
John tall-arrive two-meter
"John is 2-meter tall."
b. *Yuehan gao-da keyi modao tianhuaban
John tall-reach can touch ceiling
"John is tall enough to touch the ceiling."

One more piece of evidence in favor of the proposal that heads on top of adjectives play an important role comes from (27), which has two possible interpretations.

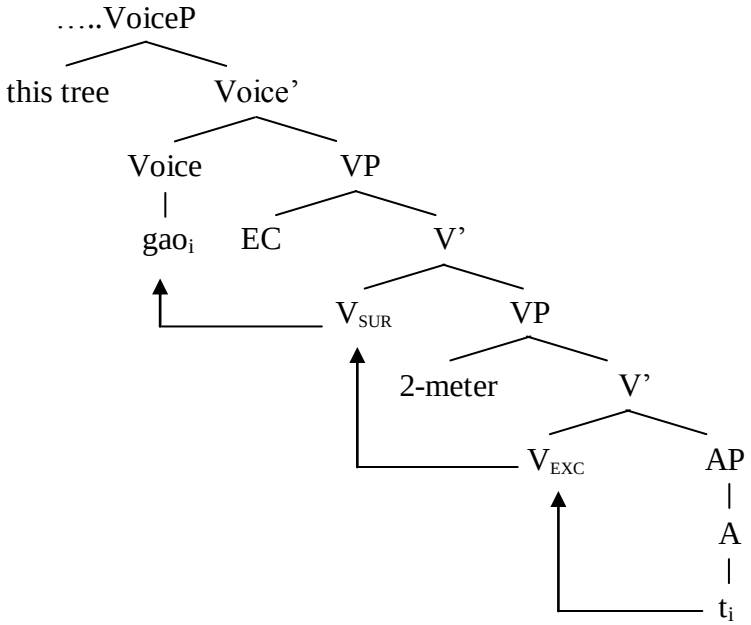
(27) Zhe-ke shu gao liang-mi
this-CL tree tall two-meter
Reading1: "This tree is 2-meter tall."
Reading2: "This tree is 2-meter taller (than some other thing)."

Under this analysis, I propose that the ambiguity of (27) results from the differences in their argument structures.

(28) a. Reading 1:



b. Reading 2:



The crucial difference between these two interpretations is dependent on the semantics of the heads merged with adjectives. In (28a), I assume that there exists a covert head V_{DA} which is similar to its overt counterpart *da* 'reach' in that it also functions to pick a degree on the dimension denoted by an adjective. In this case, the relevant degree is 2-meter and it is ascribed to the nominal phrase *zheke shu* 'this tree'. On the other hand, the comparative reading in (28b) stems from the fact that the heads VEXC and VSUR select a differential value and a standard of comparison as argument respectively, though the standard of comparison is an empty category. In sum, although (27) consists of a single string of lexical items on the surface, it can be mapped to two syntactic structures, giving rise to different interpretations.

5. Conclusion

This paper shows that the bare comparative is not derived from the *bi*-comparative and the reason why a measure phrase is optional in the *bi*-comparative is because it comes into the structure by adjunction. As for the bare comparative, I propose that the head introducing a measure phrase is part of building blocks of the whole structure, so the appearance of a measure phrase is obligatory. In addition, several pieces of evidence demonstrate that heads contributing to the meanings of comparative constructions as well as non-comparative constructions can be detected by observing the interactions between degree modifiers and other components in the same structure. The analysis proposed in this paper, I think, matches with the fact that Mandarin Chinese is an analytic language, in which different functions are realized separately.

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