

The Verbal Nature of Mandarin Comparative *bi*^{*,†}

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1. Introduction

In many languages, the identification of parts of speech is often a fundamental piece of both our theoretical and practical lexical knowledge. Yet in the study of Mandarin Chinese, the inventory of and relationships between basic grammatical categories are often controversial. Entire categories such as “adjective” and “preposition” have been questioned as possibly being classes of verbs (McCawley 1992). Syncategorematic items such as *ba* and *bei* have been argued to be prepositions, verbs, case markers, or none of the above (Bender 2000; Sybesma 1999; Ting 1998; Ziegeler 2000; others). The mere invocation of the category “coverb” (e.g. Li and Thompson 1981) itself suggests long-standing difficulties in the proper part of speech assignment of common Mandarin words.

In light of this debate, we will here examine the Mandarin comparative morpheme (“morepheme”) *bi* as observed in the word order (1). In examples (2a-c), we note that the predicate of comparison may be a verb or adjective of varying complexity. The only requirement then is that it be a gradable predicate.

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(1)

target

 bi

standard

predicate of comparison

- (2) a. wo bi ta gao
 1sg bi 3sg tall
 ‘I am taller than him/her.’
- b. wo bi ta xihuan mian
 1sg bi 3sg like noodles
 ‘I like noodles more than he/she does.’
- c. wo bi ta qi de kuai
 1sg bi 3sg ride DE fast
 ‘I ride faster than he/she rides.’

A *bi* comparative may also be used to describe two more detailed events or possibilities through a “clausal” comparative, where both the target and standard are clauses, as opposed to the “phrasal” comparatives in (2). Below are two examples of the clausal comparative:

- (3) a. [wo qu] bi [ni qu] hao
 1sg go bi 2sg go good
 ‘It would be better if I went than if you went.’
- b. [Yuehan qi ma] bi [Mali qi niu] qi de kuai
 John ride horse bi Mary ride cow ride DE fast
 ‘John rides horses faster than Mary rides cows.’

In this paper we will focus exclusively on phrasal comparatives.¹

The morpheme *bi* is often glossed as a preposition in dictionaries and descriptive grammars. In the theoretical literature, *bi* has been analyzed as a verb, preposition, Degree head, conjunction, and complementizer (respectfully, Chao 1968; Liu 1996; Xiang 2005; Hong 1991; Chung 2006; among others). Unfortunately, much of this work has been motivated by analogy to theoretical developments in the analysis of the English comparative

¹A straightforward extension of the proposal laid out here to clausal comparatives is demonstrated in Erlewine (2007).

(e.g. Bresnan 1973; Heim 1985; Kennedy 1999), which behaves quite differently from the Mandarin *bi* comparative. Mandarin-specific tests must first be employed to understand the proper syntactic relationships between *bi*, the predicate of comparison, the target, and the standard.

One particularly important difference between English and Mandarin comparatives is the phrasal comparative's inability to compare directly over object positions. Consider, for example, the ambiguous English sentence 'John likes Mary more than Tom.' The subject may be the target of comparison, yielding the reading 'John likes Mary more than Tom does,' or the object 'Mary' may be the target: 'John likes Mary more than he likes Tom.' Now consider the Mandarin approximation in (4).

- (4) Yuehan bi Tangmu xihuan Mali
John bi Tom like Mary
'John likes Mary more than Tom does.'
* 'John likes Mary more than he likes Tom.'

- (5) [Yuehan xihuan Mali] bi [Yuehan xihuan Tangmu] xihuan de duo
John like Mary bi John like Tom like DE more
'John likes Mary more than he likes Tom.'

Notice that (4) is unambiguous, and can only have the subject-targeted reading. Instead, to compare over object position, we must use a clausal comparative, such as in (5). The basic descriptive fact here, then, is that the phrasal comparative cannot take an object position as its target or standard. I will refer to this fact as the **Internal Argument Prohibition**.

In this paper we offer a variety of syntactic and semantic evidence for a verbal treatment of the Mandarin comparative *bi*. In section two, we first examine two previous analyses of the *bi* comparative. Next, we examine syntactic evidence for a verbal syntax in section three. In particular, unique evidence from passivization and the distributive quantifier *ge* lead us to position *bi* as part of the extended verbal projection with category *v*. Finally

in section four we lay out a new syntax/semantics for *bi* based on the observed data and demonstrate how this analysis trivially derives the Internal Argument Prohibition.

2. Previous accounts

While the systematic generative treatment of the comparative in Chinese begins with the Transformational account of Fu (1978), we will here review the work of two more recent scholars: Liu (1996) and Xiang (2003; 2005) (see Chung 2006 and references there for other recent works on the subject). Along the way, we will note (a) how each analyzes the syntactic structure of *bi* and (b) what solutions are offered for the Internal Argument Prohibition.

2.1 Liu (1996)

Couched in terms of the wider antecedent-contained deletion (ACD) literature, Liu (1996) aims to examine the Mandarin comparative as an instance of ACD and see what implications it will have for possible solutions to ACD. We will focus here on his syntactic analysis and his arguments for the clausal analysis of phrasal comparatives.

His arguments against the coordination view comes from binding facts and from the positions of the temporal adverb *yizhi* ‘always’ and VP-adverbs such as *kuaide*. He notes that these adverbs may occur before *bi* and concludes that *bi* and the standard must be inside the VP and, thus, *bi* is not a coordinator. He then offers a basic syntactic configuration that posits *bi* and the standard as constituting a prepositional phrase, together an adjunct to the gradable predicate: [_{AP} [_{PP} *bi*_P standard] AP]. He gives no evidence for *bi* being a preposition,² though he does offer one piece of evidence for *bi* and the standard being a

²except to note that he is following Lü (1980), a Chinese reference dictionary/grammar. Lü (1980) indeed

constituent, based on coordination:

- (6) Zhangsan bi Lisi huozhe bi Wangwu gao
Zhangsan bi Lisi or bi Wangwu tall
'Zhangsan is taller than Lisi or Wangwu.'

He then goes on to argue that the standard in surface-phrasal comparatives are underlyingly clausal, a view known as the "clausal analysis" of phrasal comparatives. This idea was introduced by Bresnan's (1973) work on the English comparative, applying ellipsis in the standard clause.

- (7) John is taller than [_S Mary ~~is x-much tall~~].

First, Liu offers the following datum:

- (8) Guojing jintian [_{PP} bi Huangrong zuotian] gaoxing
Guojing today bi Huangrong yesterday happy
'Guojing is happier today than Huangrong was yesterday.'

Ignoring for the moment his assumed constituency of *bi Huangrong zuotian*, we note the interesting standard in this example. Indeed, we are comparing happiness across two "dimensions," comparing two situations contrasting in both experiencer and time. Liu argues that this is best explained with an underlyingly clausal standard.³

A second argument for the clausal analysis is from the existence of surface-clausal comparatives. While the standard is clearly clausal in these examples, he implicitly assumes that they have the same underlying structure as the surface-phrasal comparatives. As for the details of the clause-internal deletion, he notes that the standard does not and cannot include the dummy auxiliary *shi* (cf. English *do*) and thus offers that the deletion in the

glosses the relevant instances of *bi* as *jieci* 'preposition' but does not give any justification for it.

³I offer a possible alternative analysis in Erlewine (2007).

standard is a case of \bar{I} -ellipsis. He notes that, without a local I node, the subject of the standard clause (the phrasal standard) would not pass the Case Filter—that is, Huangrong would have no Case assigner in (9). He solves this by letting *bi* exceptionally case mark the standard across the clausal boundary.

(9) Guojing jintian [_{PP} bi [_{CP} **Huangrong** zuotian ~~gaoxing~~]] gaoxing

(10) * Guojing jintian [_{PP} bi [_{CP} Guofu renwei (‘think’) [_{CP} **Huangrong** zuotian ~~gaoxing~~]]] gaoxing

Liu’s proposal, then, comfortably explains the Internal Argument Prohibition, as the phrasal standard is underlyingly a subject of the reference event, and thus cannot correspond to an object.

2.2 Xiang (2003, 2005)

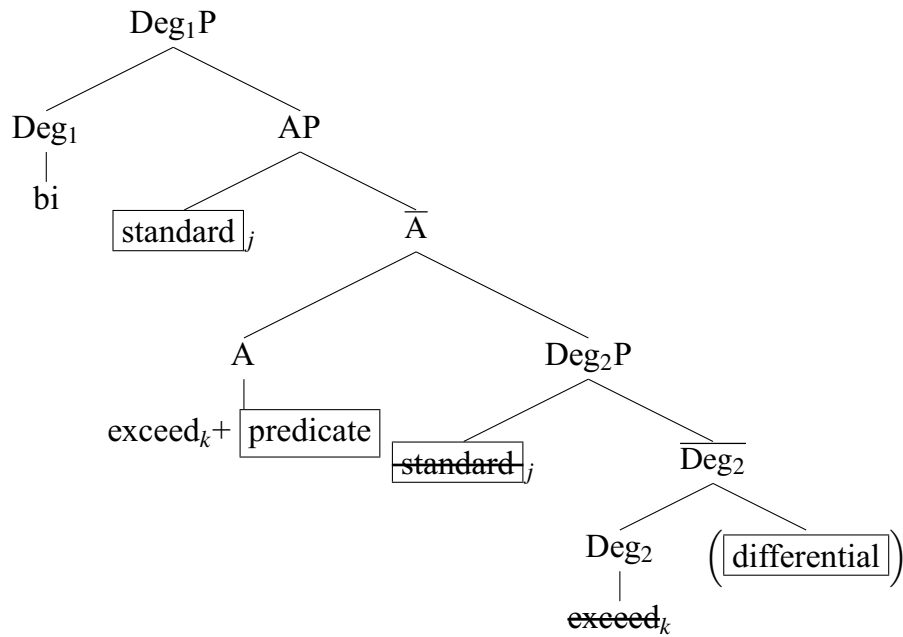
Ming Xiang argues against the clausal analysis of phrasal comparatives in Xiang (2003), arguing that Liu’s ECM explanation to the Case Filter issue is inadequate. She continues in Xiang (2005) to examine a number of semantic facts related to the comparative and proposing a unique syntax/semantics for the adjectival phrasal comparative.

Xiang bases her syntax on Larson’s (1991) DegP-shell structure with configuration (12), based on its similarity to the familiar vP-shell structure Larson (1988) proposed for the double object construction. This is motivated by her observation that the standard must asymmetrically c-command the predicate of comparison and its differential degree argument (see 11 below). Note here that she posits a phonologically null comparative morpheme, *exceed*, which is separate from *bi*.

(11) Zhe-gen shengzi bi na-gen shengzi chang yiban
This-CL rope bi that-CL rope long half

‘This rope_i is longer than that rope_j by a half (of that rope_{*i/j}).’

(12)



Xiang (2005) goes against both Liu (1996) and Xiang (2003) by examining some evidence against the view of *bi* and the standard forming a PP adjunct. In particular, she explains away Liu’s coordination evidence (6) as an instance of ellipsis inside VP-coordination, or ATB movement. She also notes that many adverbs are seen freely before or after *bi* and the standard, but that this does not necessarily mean *bi* and the standard form an adjunct. Finally, she refers back to her previous binding evidence.

It is interesting that, given that a DegP-shell analysis was chosen based on its syntactic properties shared with the *v*P-shell, she did not consider the comparative’s projection to be more verbal itself. In fact, she even mentions that “instead of being a preposition, *bi* behaves more like a verb,” and “according to these arguments, I will assume that *bi* is a verb, not a preposition.” (Xiang 2005:194) The only argument she cites here, however, comes from historical evidence that the morpheme/grapheme *bi* is also a verb meaning ‘compare.’ Though philologically interesting, I dismiss such considerations as not being reliable clues in a synchronic analysis.

Xiang’s intuition that there are similarities between Larson’s *v*P-shell and the structure

of the Mandarin comparative is a striking one and one which I argue is, ultimately, not accidental. As Xiang only entertains adjectival predicates of comparison, she offers no solution for the Internal Argument Prohibition.

3. The verbal nature of *bi*

In this section we will introduce evidence for the verbal nature of *bi*, by examining *bi*'s interactions with the standard, reflexive *ziji*, A-Not-A questions, the distributive quantifier *ge*, and passive voice.

3.1 The *bi* and the standard

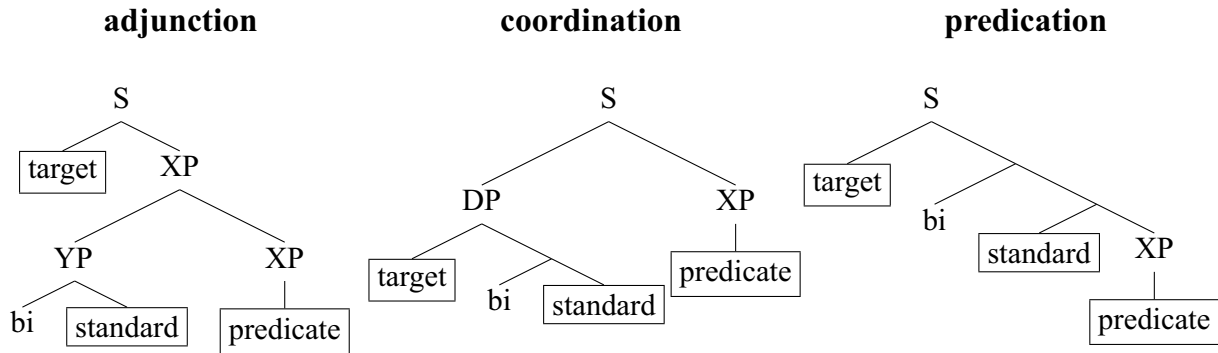
We recall that *bi* and the standard surface after the target and immediately before the predicate of comparison. We see here from the contrast in (13) that adverbs after the standard, for example, are interpreted as part of the predicate of comparison.

- (13) a. Yuehan **jintian** bi Mali gaoxing
John **today** bi Mary happy
'John is happier today than Mary is (always).'
- b. Yuehan bi Mali **jintian** gaoxing
John bi Mary **today** happy
'John is happier today than Mary is today.'

A crucial question for any analysis of *bi* is the relationship between *bi* and the standard. Based solely on surface word-order facts, we hypothesize the following three configurations as possible syntactic structures for the phrasal and clausal comparatives.^{4,5}

⁴We assume here that the target c-commands the standard, as the reflexive *ziji* in the standard can refer to the target. We also assume binary branching.

⁵The coordination hypothesis here is quite interesting, though not worth serious consideration. Here, [target bi standard] would be analyzed as a constituent, akin to the complex quantification of Keenan and Stavi (1986).



Our first test will be to see if we can establish the constituency of *bi* and the predicate. We note that the standard cannot be dislocated with or without stranding *bi*, nor can it appear after the predicate of comparison. Note also that nothing else (such as a temporal adverb) can come between *bi* and the standard.

- (14) a. *Mali, Yuehan *bi* gao
 Mary, John *bi* tall
- b. **bi* Mali, Yuehan gao
bi Mary, John tall

- (15) *Yuehan *bi* jintian Mali gao
 John *bi* today Mary tall

We see from these examples that the evidence for the constituency of *bi* and the standard is non-negative but weak.

3.2 Evidence from reflexivization

In this subsection we explore binding constraints of the Mandarin reflexive *ziji* in a comparative context. We recall the basic descriptive generalizations of *ziji*:

Analyzing *bi* as coordination trivializes the issue of the target and standard matching in category and, indeed, this approach is taken by Hong (1991) in the GPSG framework (see discussion in Chung (2006)). However, we recall Liu's (1996) binding evidence against *bi* as a coordinator, and also note that Mandarin lacks the type of complex quantifiers examined by Keenan and Stavi. In addition, various syntactic evidence to follow will clearly lead us to another hypothesis.

(16) (Xue et al. 1995):

- a. Subject Orientation: The antecedent of *ziji* must be in subject position.
- b. The Blocking Effect: The antecedent of *ziji* need not be in the minimal clause containing *ziji*, as long as the referent and all other intermediate subjects have the same ϕ -features as the minimal clause subject.
- c. Animacy Restriction: The antecedent of *ziji* must be animate.

There is evidence, however, that certain ‘coverb’ argument positions may also be able to receive reference from *ziji*:

(17) Yuehan gei Mali song ziji de xin
John give Mary send self GEN letter
‘John_i sent Mary_j her_j own letter.’
‘John_i sent Mary_j his_i letter.’

(18) Yahoan dui Mali diu ziji de qiu
John toward Mary throw self GEN ball
*‘John_i threw Mary_j her_j own ball.’
‘John_i threw Mary_j his_i ball.’

We note that in a comparative, an argument in the predicate of comparison can refer to the standard:

(19) Yuehan bi Mali xihuan ziji
John_i bi Mary_j like self_{i/j}
‘John_i likes himself_i more than Mary_j likes herself_j.’ or
‘John_i likes himself_i more than Mary_j likes him_i.’

The felicity of the first reading tells us that *ziji* is able to refer to *Mali*, even though it seems to not be a subject. Given that *ziji* is a reflexive pronoun, we conclude that the standard c-commands the predicate of comparison. This rules out both the coordination hypothesis and the adjunct hypothesis.

3.3 Evidence from A-Not-A questions

Mandarin has a unique form of yes-no questions involving negation, referred to as A-Not-A questions (Li and Thompson 1981). In this construction, a verb in the sentence is followed by its negated form. This construction also applies to adjectives as well.

- (20) a. Yuehan **xi(huan)** **bu** **xihuan** Mali
John like Neg like Mary
'Does John like Mary?'
- b. Yuehan **gao** **bu** **gao**
John tall Neg tall
'Is John tall?'

When constructing an A-Not-A question of a *bi* comparative, *bi* is the element that is reduplicated, rather than the predicate of comparison.

- (21) a. ni **bi bu bi** ta gao
2sg bi Neg bi 3sg tall
'Are you taller than him?'
- b. *ni bi ta **gao bu gao**
2sg bi 3sg tall Neg tall

We see here that *bi* patterns together with verbs, participating in A-Not-A questions in lieu of the predicate of comparison.

3.4 Evidence from the distributive quantifier *ge*

Another diagnostic we may employ is the distribution of the distributive quantifier *ge*. Soh (2005) discusses the syntactic position of the adverb *ge* 'each' concluding that the following conditions must be met for *ge* to be licensed:

- (22) (Soh 2005:165):
- a. There must be a vP or a VP for GE to adjoin to;

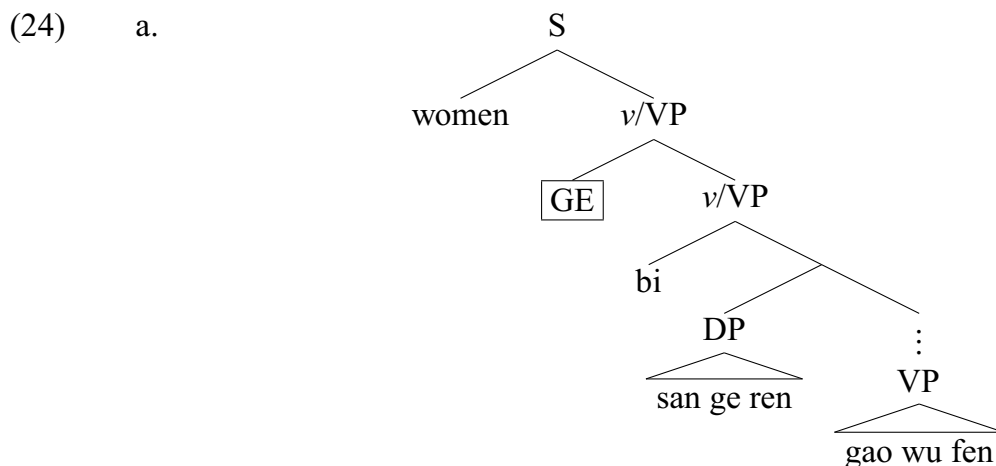
- b. There must be an indefinite expression c-commanded by GE;
- c. There must be a plural argument within the sentence when GE adjoins to *v*P, and within *v*P (or FP) when GE adjoins to VP;
- d. In a case when GE adjoins to *v*P, the event denoted must be complete in the sense that all event internal modifiers are included in the projection.

Soh's condition (23a) therefore lets us use *ge* as a detector of *v*/VP projections, as long as we satisfy the other conditions. We find that in a *bi* comparative, there are two such possible positions for *ge* to attach to.⁶

(23) Situation: having taken a test.

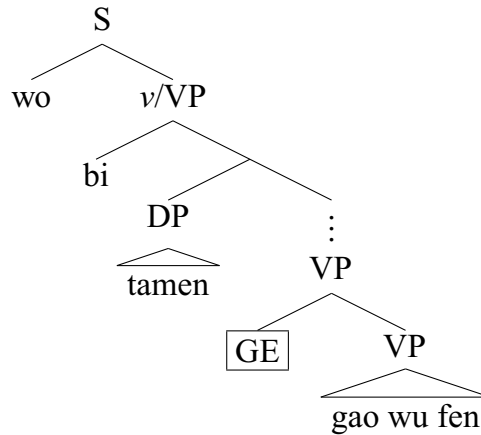
- a. women **ge** bi san ge ren gao wu fen
 1pl GE bi three CL_{person} person high five CL_{points}
 'Each of us were five points higher than three people.' (where each of our 'three people' may be distinct)
- b. wo bi tamen **ge** gao wu fen
 1sg bi 3pl GE high five CL_{points}
 'I was five points higher than each of them.'

Assuming the same underlying predicative structure for the *bi* comparative, we yield the following configurations for examples (23).



⁶The verification of conditions (22b-d) for examples (23) are left as an exercise for the reader.

b.



Crucially, this evidence from (23), combined with Soh’s (2005) conditions on GE-licensing, strongly motivates a structure in which *bi* and the standard are within a higher *v/VP* projection, above the predicate of comparison VP but below the target. The ability of GE to adjoin to two different positions strengthens the argument for the *bi* to head a verbal projection of type *v* or V.

3.5 Evidence from passivization

Finally, we investigate the relationship between *bi* and voice. We first note that in English, comparison can co-occur with the passive voice.

(25) John was respected more by Mary than by Bill.

(26) John was respected by Mary more than Bill was.

A sentence equivalent in sense to (25) may be ‘John was respected by Mary more than John was respected by Bill.’ In this sentence, we are comparing two experiencers of respect with a common theme. On the other hand, (26) is equivalent to ‘John was respected by Mary more than Bill was respected by Mary,’ comparing two themes with a common experiencer.

Comparison and passivization can also co-occur in Mandarin, but it is more restricted. Here, we consider the relation *zunjing* ‘respect’ which is passivizable and, being an emotional attitude verb, can also be used as the predicate of comparison.

- (27) a. John **bei** Mali zunjing
 John **bei** Mary respect
 ‘John is respected by Mary.’
- b. Mali **bi** Tangmu zunjing Yuehan
 Mary **bi** Tom respect John
 ‘Mary respects John more than Tom does.’
- c. Yuehan **bi** Tangmu **bei** Mali zunjing
 John **bi** Tom **bei** Mary respect
 ‘John is respected by Mary more than Tom is.’
- d. *Yuehan **bei** Mali **bi** (**bei**) Tangmu zunjing
 John **bei** Mary **bi** (**bei**) Tom respect
 intended: ‘John is respected by Mary more than by Tom.’

We note that only examples akin to (26) are possible in Mandarin. Descriptively, we observe the passive morphology *bei* only surfacing after *bi*. We may view the passive here as being part of the whole predicate of comparison: *bei Mary zunjing*, ‘be respected by Mary.’ In other words, comparison operates above voice and voice may not act above comparison.

3.6 The evidence suggests... a verbal *bi* head above voice

In this section, we looked at a variety of syntactic evidence which point out the verbal nature of Mandarin comparative *bi*. Evidence from *ziji* reflexivization advocates the predication model over adjunction or coordination, requiring *bi* to head its own projection. *bi* also patterns with other main verbs in A-not-A questions. Using the distributive quantifier *ge* as a diagnostic, we see that the comparative construction must indeed have an additional *v*/VP projection above the predicate of comparison. Finally, interactions with passivization showed that the *bi* projection must be above the voice *v*P projection.

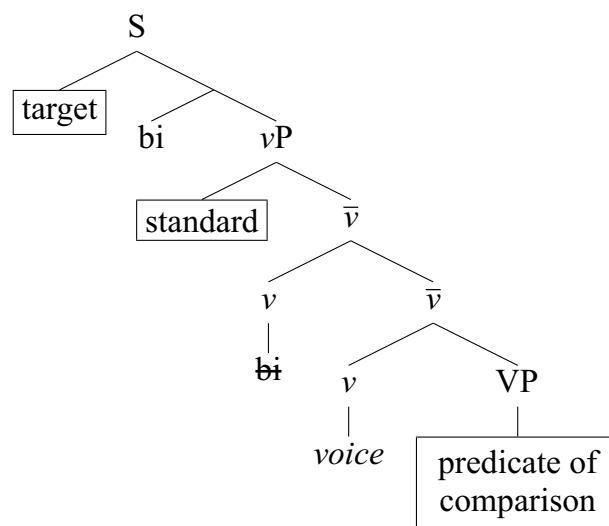
In the next section I will introduce my proposal for the syntax/semantics of *bi*.

4. A new syntax/semantics for *bi*

4.1 The syntactic proposal

In this proposal, I argue that *bi* is a verbal functional head—part of the extended projection of VP—with category v . *bi* subcategorizes for a voice \bar{v} which, in turn, has subcategorized for the predicate of comparison, which we call this here a VP, encompassing both adjectival and verbal predicates. We yield the observed word order through head movement of *bi* out of vP (Paul 2000).

(28)



This unique syntactic arrangement offers a natural semantic path which ultimately offers clear explanations and corroborates with observed data. Next, we will explore this trajectory.

4.2 The semantics of *bi* above *voice*

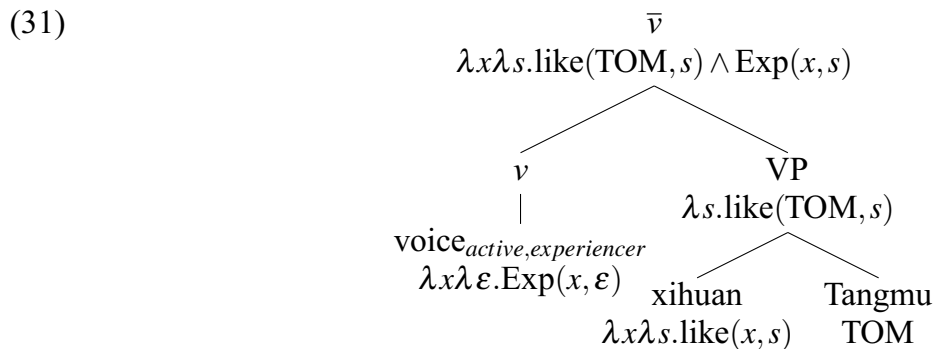
Following the neo-Davidsonian semantics of voice first characterized in Kratzer (1996), we assume that the *voice* v node introduces an eventuality variable ε .⁷ For example, consider the simple phrasal comparative sentence (29). Our active *voice* node would have semantics

⁷Here I will use the metavariable ε to represent both events and states (s), as appropriate. The elements referred to by semantic type e , then, are the individuals D_e .

as in (30), and merge with the predicate of comparison via Event Identification (Kratzer 1996).

- (29) Yuehan bi Mali xihuan Tangmu
 John bi Mary like Tom
 ‘John likes Tom more than Mary does.’

(30) $[[\text{voice}_{\text{active,experiencer}}]] = \lambda x \lambda \varepsilon. \text{Exp}(x, \varepsilon)$



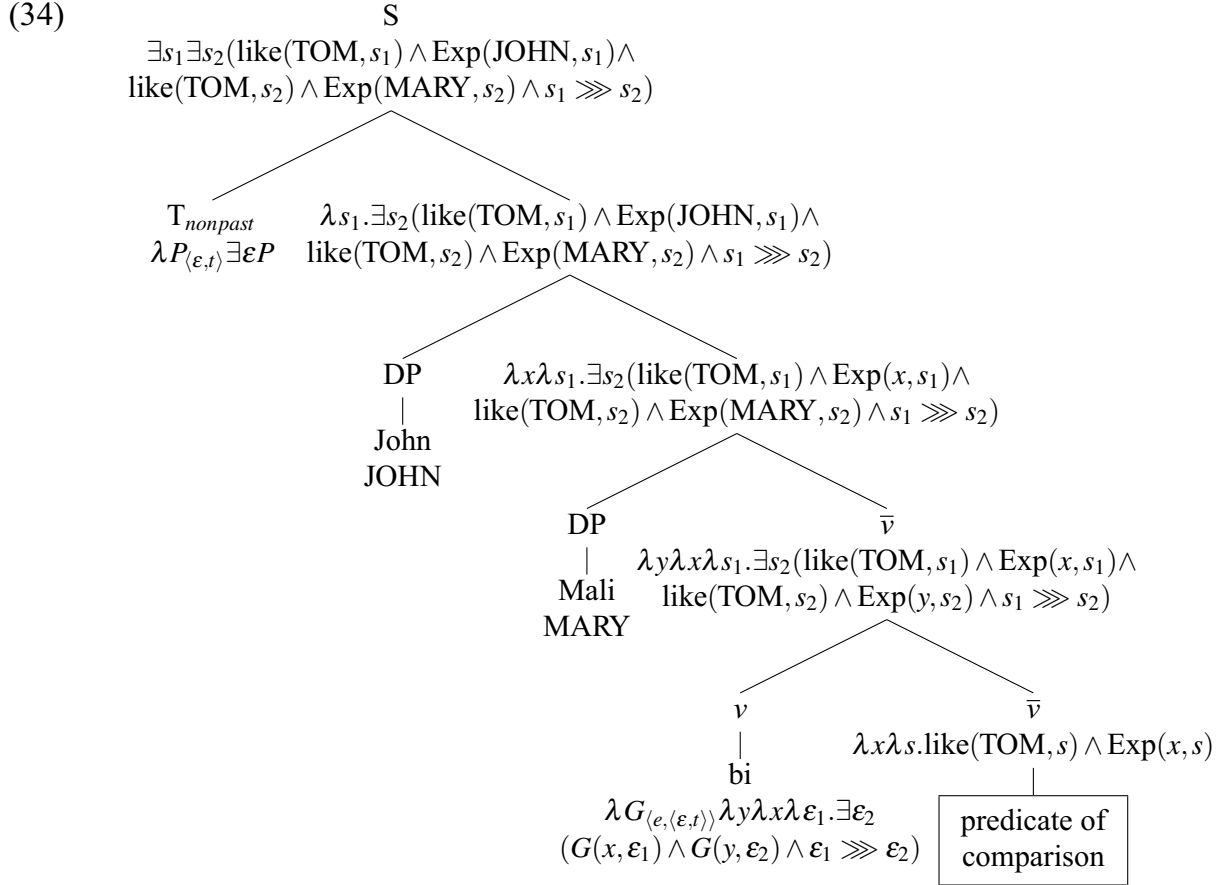
The semantics of *bi* then has a three functions: it uses two eventuality variables ε_1 and ε_2 and establishes two external arguments (to be selected), one for each of the eventualities; it existentially binds the standard’s eventuality ε_2 ; and, finally, it establishes the comparative semantics of ε_1 being greater than ε_2 along a scale established by the predicate. To introduce the comparative itself I will adopt Kennedy’s (1999) conclusion against the use of explicit degree variables and introduce a proposition of the form $\varepsilon_1 \ggg \varepsilon_2$. Analogous to the way that eventualities may be ordered in time, \ggg defines an *intensity* ordering.⁸

(32) $[[\text{bi}]] = \lambda G_{\langle e, \langle \varepsilon, t \rangle \rangle} \lambda y \lambda x \lambda \varepsilon_1. \exists \varepsilon_2 (G(x, \varepsilon_1) \wedge G(y, \varepsilon_2) \wedge \varepsilon_1 \ggg \varepsilon_2)$

After this product is merged with our standard and target and the target eventuality ε_1 is existentially closed by Tense, we yield an interpretable expression:

(33) $[[\text{(29)}]] = \exists s_1 \exists s_2 (\text{like}(\text{TOM}, s_1) \wedge \text{Exp}(\text{JOHN}, s_1) \wedge \text{like}(\text{TOM}, s_2) \wedge \text{Exp}(\text{MARY}, s_2) \wedge s_1 \ggg s_2)$

⁸It is important to know that not all eventualities are \ggg -comparable (*commensurable*): for example, if e_1 represents a liking state while e_2 represents a riding event, a \ggg -ordering cannot be established.



4.3 Deriving the Internal Argument Prohibition

One advantage of this particular analysis is its natural explanation of the Internal Argument Prohibition: the v position of *bi* and its neo-Davidsonian semantics clearly explain why we can only compare over subject position (the external argument). For example, suppose we intend to construct a Mandarin sentence equivalent to the phrasal reading of (35) (equivalent in sense to (36)) using a phrasal comparative with the semantics explored above.

(35) John_i likes Tom more than Mary.

(36) John_i likes Tom more than he_i likes Mary.

As *bi* subcategorizes for a voice \bar{v} node, which in turn contains the predicate of comparison, we must first identify our predicate of comparison. Note that the predicate is a VP with semantic type $\langle \varepsilon, t \rangle$. At this point we have already run into a problem. When

constructing the predicate of comparison, we will have to introduce the internal argument of *xihuan* ‘like’: the object of liking. Due to the semantic type of the VP, it is impossible to let this argument be a free variable, bound later by an argument of *bi*. In this way, a phrasal derivation (as above) of comparison over an object position is impossible. Crucially, topic and subject positions can be compared as, under a neo-Davidsonian semantics, the external argument is a semantic argument of voice, not of the verb. This simple explanation derives the Internal Argument Prohibition.

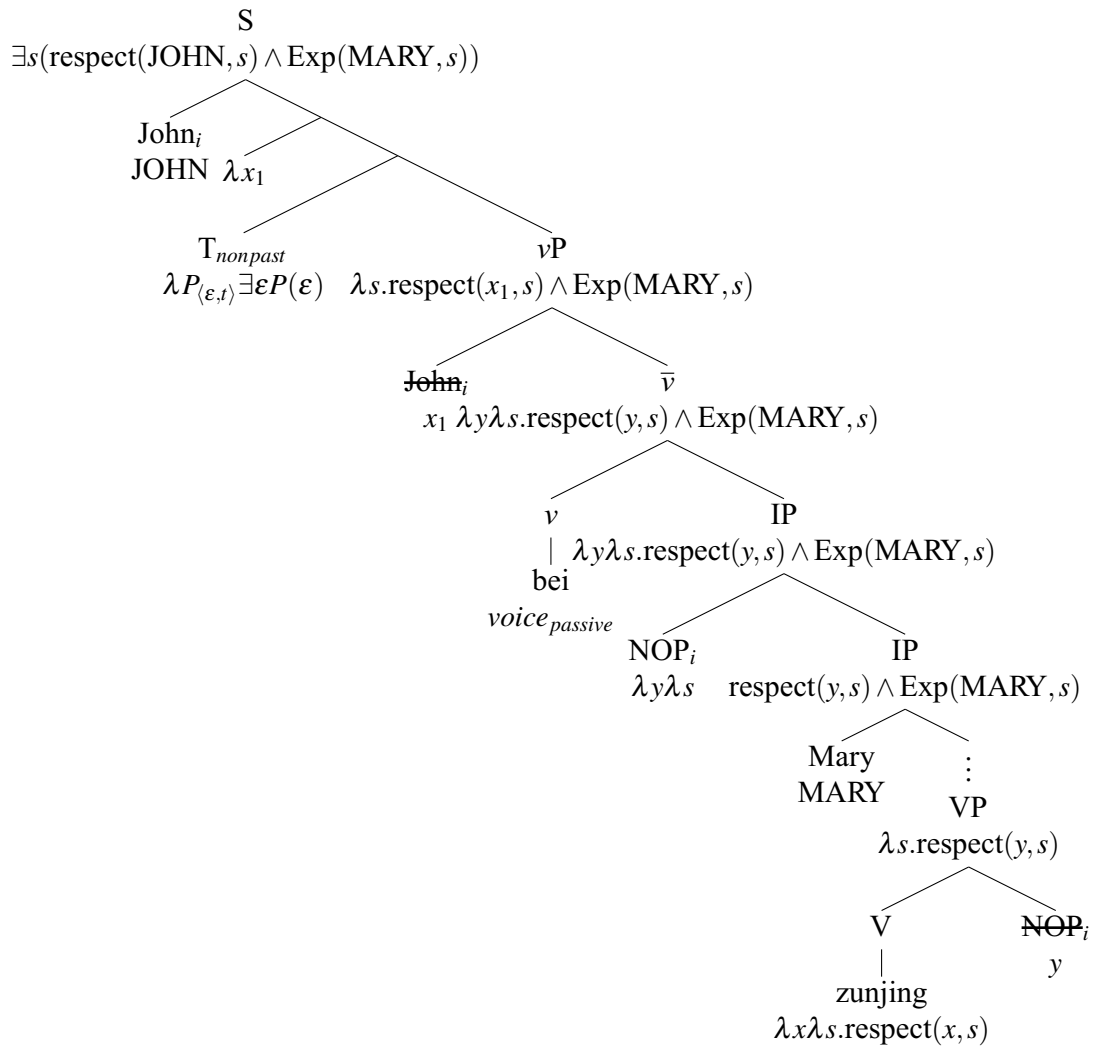
4.4 Deriving the passive example

Now that we have introduced a semantics based on the syntactic evidence of *bi* above *voice*, let us examine how a structure such as (27c), reproduced below, would be constructed. Following the work of Huang (1999) and Tang (2001), here I will adopt a null operator analysis of the Mandarin “long passive,” with *bei* being a voice *v* node, in line with our neo-Davidsonian approach. In such an approach, the straightforward passive (27a) is analyzed syntactically as in (37).⁹

- (27) a. John **bei** Mali zunjing
 John **bei** Mary respect
 ‘John is respected by Mary.’
- c. Yuehan **bi** Tangmu **bei** Mali zunjing
 John **bi** Tom **bei** Mary respect
 ‘John is respected by Mary more than Tom is.’

⁹The analysis of the Mandarin *bei* passive continues to be an area of controversy, but what is important for our analysis here is that the alternation is controlled by a voice node which, after the movement of a null operator, is of type $\langle e, \langle \varepsilon, t \rangle \rangle$, where the outermost argument will correspond to the surface subject.

(37)



The crucial point to note in the analysis above is the introduction of a phonologically null operator which first satisfies *zunjing*'s object position, then adjoins to the intermediate IP. As Huang argues, through λ -abstraction, this modifies the IP into a predicate of 'being respected by Mary.'¹⁰ Semantically, this structure then applies to the subject *Yuehan*, and

¹⁰Huang (1999) did not consider how the null operator would affect the event-semantic description. I argue that the matrix sentence must continue to access the same event description, requiring the null operator to not only open up the y variable as an argument, but also to make the ε variable accessible.

Unfortunately, however, we note that our analysis does not accurately rule out (27d), the passive of a comparative: following Huang's (1999) null-operator analysis, a null operator could be base generated as the object of respect within the predicate of comparison.

- (27) d'. *Yuehan bei NOP Mali bi Tangmu zunjing **NOP**
 John bei NOP Mary bi Tom respect **NOP**

voice \bar{v} node.¹¹

5. Discussion

In this paper we presented evidence for the verbal nature of the Mandarin morpheme *bi*, and against the a PP-adjunct analysis (Liu 1996). In particular, evidence from passivization positions *bi* as a *v* head above voice. The Mandarin-specific diagnostics employed in this study are tools which may be used in debates on the proper grammatical categorization of other Mandarin syncategoremes as well.

This syntactic investigation led us to a new neo-Davidsonian semantics of comparison which clearly explains the Internal Argument Prohibition, taking advantage of the rift between external and internal arguments, following Kratzer (1996). We recall that Liu (1996) explained the Internal Argument Prohibition facts through \bar{I} -ellipsis and Case facts, but then resorted to exceptional case marking over a clause boundary, as criticized by Xiang (2003). Xiang (2003; 2005) limited her discussion to adjectival predicates of comparison, and thus did not address the issue.

There are, however, more details of this new semantics which must be fleshed out. In particular, the notion and commensurability merits further study: what types of eventualities are \ggg -comparable, and which are not? In addition, applications of this general analysis to

¹¹The alternative would be to introduce multiple distinct *bi* lexical entries which apply the appropriate θ -role to the target and standard, depending on the predicate. Intuitively, this approach would be collapsing both the voice morphology and the function of *bi* as analyzed here. The correct *bi* would be introduced through Event Identification (Kratzer 1996). My approach here was chosen, even with the nonstandard selection of a \bar{v} node, (a) to keep the voice and comparative functions separate, reflecting the analytic spirit inherent in the language's morphology, and (b) because in the case of a passive predicate of comparison, as examined here, *bi* and the passive morpheme *bei* clearly act as two separate morphemes in the morphosyntax.

other types of Mandarin comparatives, including those with differential measures, should be considered. These results should also be considered in the broader comparative comparatives discussion and contrasted with evidence from other languages. Having a new syntax-semantics for the Mandarin *bi* comparative suggests new options for the analysis of comparatives in other languages as well.

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