Long Distance Reflexives, Blocking Effects and the Structure of Mandarin Comparatives

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Abstract: Drawing on data concerning the long distance dependency of the Mandarin bare reflexive *ziji* 'self' in embedded comparatives, this squib compares two types of analyses of Mandarin comparatives, the Reduction Analysis and the Direct Analysis. The discussion shows that the long distance dependency of *ziji* in an embedded comparative can be easily captured in the Reduction Analysis, where a deletion operation is involved in the derivation; on the other hand, the Direct Analysis, where the constituent size of the standard of comparison is transparent, encounters challenges when facing the same data.

1. The Clausal/Phrasal Debate concerning Mandarin Comparatives

In research on degree syntax and semantics, two types of analyses have been suggested for an English comparative like (1).

(1) John is taller than Mary.

In one type of analysis, the complement of *than* has a clausal or clause-like structure and involves another occurrence of the gradable predicate. At the surface, the gradable predicate in the *than*-constituent is deleted (Bresnan 1973; von Stechow 1984; Lechner 2004; a.o.; see (2) for an illustration).[1] Here following Bhatt and Takahashi (2011), I term this kind of analysis **the Reduction Analysis**. In the Reduction Analysis, the comparative morpheme *–er* denotes a 2-place predicate and may have the denotation in (2c). Here I assume that gradable predicates such as *tall* are of type $<d, <e, t>>$ (see von Stechow (1984) and others).

(2) *Reduction Analysis*
    a. Surface: John is tall-er than [Mary ~~is tall~~]
    b. LF: $[[_{DegP} –er [_{CP} Op_3 [_{C'} \text{than Mary is } [_{AP} t_3 [_{A'} \text{tall}]]]]]]_1 \ 1 \ [\text{John is } [_{AP} t_1 [_{A'} \text{tall}]]]]$
    c. $[\![\text{-er}]\!] = \lambda f_{<d, t>}. \ \lambda g_{<d, t>}. \ max(g) > max(f)$
      (where for any $h_{<d, t>}$, $max(h) = \iota d[d \in h \text{ and } [\forall d' \in h: d \geq d']]$)

In the other type of analysis, the constituent size of the complement of *than* is exactly what it looks like at the surface. In this type of analysis, *than* is followed by a DP in (1) at the surface, and syntactically it takes a DP as its complement as well (Heim 1985; Kennedy 1999; see (3) for an illustration). Along with Bhatt and Takahashi (2011), I term an analysis of this type **the Direct Analysis**. In the Direct Analysis, the comparative morpheme *–er* is a 3-place predicate and may have the lexical entry in (3c).

(3) *Direct Analysis*
    a. Surface: John is taller [than [_{DP} Mary]]
    b. LF: $[\text{John}_2 \ 2 \ [[_{DegP} –er [\text{than } [_{DP} \text{Mary}]]]_1 \ 1 \ [\ t_2 \text{ is } [_{AP} t_1 [_{A'} \text{tall}]]$
    c. $[\![\text{-er}]\!] = \lambda x_e. \ \lambda P_{<d, <e, t>>}. \ \lambda y_e. \ \exists d'[P(d')(y) \text{ and } \neg P(d')(x)]$

<div align="right">(Heim 1985; Bhatt and Takahashi 2011)</div>

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[1] Accounts along the lines of the Reduction Analysis differ on what type of reduction operation is involved and what the size of the reduced object is. For details, see Bhatt and Takahashi (2011) and the references cited therein.

Recently this phrasal/clausal debate has been extended to Mandarin comparatives, an example of which is given in (4).[2] As shown in (4), the comparative marker *bi* serves to introduce the standard of comparison.

(4) Zhangsan bi Lisi gao
    Zhangsan BI Lisi tall
    'Zhangsan is taller than Lisi.'

In one instantiation of the Reduction Analysis, suggested by Liu (1996) (see (5)), the *bi*-constituent adjoins to AP/VP, and the comparative marker *bi* takes a clause-like constituent as its complement. At the surface, the occurrence of the gradable predicate inside the *bi*-constituent is deleted.[3] According to this analysis, the standard of comparison in (4), namely *Lisi*, is the syntactic subject of an elided predicate.

(5) *Reduction Analysis* (Liu 1996)
    Zhangsan [[$_{PP}$ bi [$_{CP}$ Lisi ~~gao~~] [gao]]

On the other hand, several variants of the Direct Analysis have also been proposed for a Mandarin comparative like (4). For instance, Xiang (2005) and Erlewine (2007) have suggested a VP/DegP-shell analysis for Mandarin comparatives (see (6a, b)), though these two analyses differ from each other on what the categorial status of the comparative morpheme *bi* is and how the word order of a Mandarin comparative is derived.

(6) *Direct Analysis* I:
    a. Xiang (2005): Zhangsan [$_{DegP}$ [$_{Deg'}$ bi [$_{AP}$ [$_{DP}$Lisi]$_2$ [$_{A'}$ EXCEED$_1$-gao [$_{DegP}$ t$_2$ [$_{Deg'}$ t$_1$]]]]]]

    b. Erlewine (2007): Zhangsan [bi [$_{vP}$ [$_{DP}$ Lisi] [$_{v'}$ t$_1$ [$_{v'}$ VOICE [$_{V/AP}$ gao]]]]]

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[2]In Mandarin, the meaning of the English comparative in (1) can be expressed by three constructions, one of which is the *bi*-comparative (see (4)). In addition to the *bi*-comparative, the meaning of (1) can be expressed by (ia, b) as well. In (ia), the gradable predicate is suffixed with the morpheme *guo*. In (ib), the gradable predicate, at the surface, is used as a transitive predicate.   In a comparative sentence like (ib), the occurrence of a differential phrase is obligatory. This squib concerns only the *bi*-comparative as in (4).

(i) a. Zhangsan gao-guo Lisi
    Zhangsan tall-GUO Lisi
    'Zhangsan is taller than Lisi.'

  b. Zhangsan gao Lisi *(san   gongfen)
    Zhangsan tall Lisi   three centimeter
    'Zhangsan is 3cm taller than Lisi.'

[3] Erlewine (2012) proposes a multi-dominance analysis for a Mandarin comparative like (4), according to which the target and the standard of comparison syntactically share the same token of the gradable predicate. In this analysis, the *bi*-constituent has a clausal structure though there is no reduction operation involved in the derivation. Given that the supporting arguments he provided may apply to the Reduction Analysis as well, I will not discuss his proposal and simply refer the reader to his paper for details.

Based on their analyses, the standard of comparison is base-generated as the specifier of some verbal/degree projection and has a syntactic status parallel to that of an indirect object, which has been analyzed as originating in the specifier of some verbal projection as well (see (7a, b); see Soh (1998, 2005), Huang, Li and Li (2009) and others for the structure of double object constructions in Mandarin).

(7) a. Zhangsan gei   Lisi yi   ben shu
        Zhangsan give Lisi one CL book
        'Zhangsan gave Lisi a book.'

    b. Zhangsan [VP [V' gei₁ [VP Lisi [V' [t₁ [DP yi ben shu]]]]]]]]]]

On the other hand, Lin (2009), following the spirit of the Direct Analysis, proposes that *bi* and the standard of comparison together form a constituent and adjoin to AP (see (8)).

(8) *Direct Analysis* II: Lin (2009)
    Zhangsan [AP [DegP [Deg' bi [DP Mary]] gao]

In his analysis, the standard of comparison is the complement of DegP headed by the comparative marker *bi*, and the syntactic status of the standard of comparison in (4) is parallel to that of the complement of the PP-adjunct in (9a) (see its structure (9b)).

(9) a. Zhangsan dui Lisi zhanshi yi   fu hua
        Zhangsan to   Lisi exhibit one CL picture
        'Zhangsan showed a picture to Lisi.'

    b. Zhangsan [VP [PP dui [DP Lisi]] [V' zhanshi [DP yi fu hua]]]

        Despite differences in the technical details, these three analyses share the view that in a Mandarin comparative the constituent size of the standard of comparison is syntactically transparent and no reduction operation is involved in the derivation. Crucially, unlike in the Reduction Analysis, the standard of comparison in (4), namely *Lisi*, is not a syntactic subject in these proposals. One of the arguments employed by these researchers to support the Direct Analysis is the unavailability of comparative subdeletion in Mandarin. As shown in (10), both potential forms for the Mandarin counterpart of the English comparative in (10a) (see (10b, c)) are simply ungrammatical.

(10) *English*
    a. This door is taller than that window is wide.

    Mandarin
    b. *Zhe shan men bi [na   shan chuanghu kuan] gao
        This CL   door BI that CL   window   wide tall

    c. *[Zhe shan men gao] bi [na   shan chuanghu kuan]
        This CL   door tall   BI that CL   window   wide

In the Direct Analysis, this can be straightforwardly explained by assuming that the complement of the comparative marker *bi* cannot have a clause-like structure. On the other hand, the unavailability of comparative subdeletion in Mandarin cannot be easily accounted for in the Reduction Analysis. As I will discuss in section 4 however, arguments in favor of the Direct Analysis based on the unavailability of comparative subdeletion are rather superficial and not as convincing as they might initially seem to be.

Liu (2011) has recently suggested that a hybrid analysis is required for Mandarin comparatives. In the case where there is only one constituent behind *bi* (e.g., (4)), the Direct Analysis is required. On the other hand, in the case where the standard is composed of more than one constituent (see (11a)), the complement of *bi* has a clause-like structure and a reduction operation is involved in the derivation. In this analysis, the structure of (11a), where the standard of comparison is composed of two constituents at the surface, may be roughly represented as in (11b).

(11) a. Zhangsan zuotian   zai xuexiao bi Lisi jintian zai jiali   kaixin
         Zhangsan yesterday at   school BI Lisi today at home happy
         'Zhangsan was happier in school yesterday than Lisi was at home today.'

    b. Zhangsan zuotian   zai xuexiao [$_{PP}$ bi [$_{CP}$ Lisi jintian zai jiali ~~kaixin~~]] kaixin

The review and the comparison of these different analyses of Mandarin comparatives are beyond the scope of this squib. The goal of this squib is merely to show that there is one phenomenon, namely the blocking effect of long distance reflexives in comparatives, which, even in the case where the standard is composed of only one constituent at the surface, easily receives a straightforward explanation in the Reduction Analysis but not in the Direct Analysis. The crucial data are shown in (12a-c). As shown in (12a), the bare reflexive *ziji* in the gradable predicate gives rise to an interpretation that is similar to the so called sloppy reading in an elliptical construction (e.g., (13)); with the comparative in (12a), we are comparing the degree of Zhangsan's being nice to Zhangsan himself with that of Lisi's being nice to Lisi himself.[4] In the following, I will call the reading of the kind (12a) carries 'the sloppy reading'.

(12) a. Zhangsan bi Lisi dui ziji hao
         Zhangsan BI Lisi to self good
         Sloppy reading: 'Zhangsan$_i$ is better to himself$_i$ than Lisi$_j$ is to himself$_j$.'

(13) John likes his car, and Mary does, too.
         Strict reading: Both John and Mary like John's car.
         Sloppy reading: John likes his car, and Mary likes her car.

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[4] Some researchers (e.g., Erlewine 2007) claim that (12a) has a reading in which the degree of Zhangsan being nice to himself is compared to the degree of Lisi being nice to Zhangsan. This reading is similar to the so called strict interpretation in an elliptical construction (see (13)). To my ear, such an interpretation, though not totally impossible, is difficult to get and seems to highly depend on the context. The availability of such a reading however is irrelevant to the discussion below and hence I will simply ignore it.

(12b), where the comparative in (12a) is embedded, is ambiguous between two interpretations. In one interpretation, which I term the Long-Distance-Reflexive reading (henceforth, the LDR reading), the bare reflexive *ziji* refers to the matrix subject *Wangwu*. In the LDR reading of (12b), Wangwu is comparing the degree of Zhangsan's being nice to Wangwu with that of Lisi's being nice to Wangwu. In the other reading of (12b), which I term the Non-Long-Distance-Reflexive reading (henceforth, the Non-LDR reading), it is the degree of Zhangsan's being nice to Zhangsan himself and that of Lisi's being nice to Lisi himself that are in comparison in Wangwu's epistemic state.

(12) b. Wangwu renwei Zhangsan bi Lisi <u>dui ziji   hao</u>
        Wangwu think   Zhangsan BI Lisi to   self good
        LDR reading: 'Wangwu$_i$ thinks that Zhangsan is better to him$_i$ than Lisi is to him$_i$.'
        Non-LDR reading: 'Wangwu thinks that Zhangsan$_i$ is better to himself$_i$ than Lisi$_j$ is to himself$_j$.'

Note that in (12b), the matrix subject, the target of comparison and the standard in the embedded comparative share the same person feature. In the case where the person feature of the standard differs from that of the matrix subject or the target of comparison (see (12c)), the LDR reading is blocked; in (12c), only the Non-LDR reading is available.[5]

(12) c. Wangwu renwei Zhangsan bi wo dui ziji hao
        Wangwu think   Zhangsan BI I   to self good
        *LDR-reading: 'Wangwu$_i$ thinks that [Zhangsan is better to self$_i$ than I am to self$_i$]'
        Non-LDR-reading: 'Wangwu thinks that [Zhangsan$_i$ is better to self$_i$ than I$_j$ am to self$_j$]'

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[5] (12c) does not carry the meaning paraphrased in (i).

(i) Wangwu thinks that Zhangsan is better to him than I think Zhangsan is to me.

While at this moment it is unclear to me what causes the unavailability of such a reading in (12c), I suspect that assuming either the Reduction Analysis or the Direct Analysis, the lack of this reading in (12c) might have to do with the lack of the wide-scope interpretation of the degree phrase in Mandarin comparatives. As pointed out in Heim (2001), the comparative in (ii) is ambiguous between the narrow-scope reading (Reading 1) and the wide-scope reading (Reading 2) of the degree phrase.

(ii) This draft is 10 pages long. The paper has to be exactly 5 pages longer than that.
    Reading 1: the paper has to be exactly 15 pages long.   (*have-to>-er-exactly-5-page*)
    Reading 2: the minimal requirement for the paper is 15 pages.   (*-er-exactly-5-page >have-to*)

The wide-scope reading however is unavailable in its Mandarin counterpart.

(iii) Zhe-pian caogao zonggong you   shi yei.
    This-CL   draft totally   have ten page
    Zhengshi-chubande wenzhang bixu bi zhe-ge changdu zhenghao duo   wu yei
    Officially-published article   must BI this-CL length   exactly   many 5   page
    ✓Reading 1; *Reading 2

Further investigation is required to see whether this connection is on the right track.

The discussion in the following therefore centers on how the data in (12a-c) can be addressed in the Reduction Analysis and the Direct Analysis respectively:

i) the 'sloppy' reading in a comparative with *ziji* in the gradable predicate (see (12a));

ii) the LDR reading in the case of an embedded comparative with *ziji* in the gradable predicate (see (12b)); and

iii) the blocking of the LDR reading that results from changing the person feature of the standard of comparison (see (12c)).

The rest of the squib is structured as follows: Section 2 reviews long distance reflexivity in Mandarin. A comparison of the Reduction analysis and the Direct Analysis with respect to the data in (12) is in Section 3. The conclusion and some remarks on the unavailability of subcomparatives in Mandarin are in Section 4.

2. Long Distance Reflexivity in Mandarin

Unlike reflexive pronouns in English, which are subject to a locality restriction (e.g., Binding Condition A (Chomsky 1981)), the bare reflexive *ziji* in Mandarin may take antecedents that are indefinitely far from it (see (14a, b)).

(14) a. *English*
John$_i$ thinks that Bill$_j$ knows that Chris$_k$ likes himself$_{*i/*j/k}$.

b. *Mandarin*
Zhangsan$_i$ renwei Lisi$_j$ zhidao Wangwu$_k$ xihuan ziji$_{i/j/k}$
Zhangsan think Lisi know Wangwu like   self
'Zhangsan$_i$ thinks that Lisi$_j$ knows that Wangwu$_k$ likes self$_{i/j/k}$'.

This long distance dependency, however, is not unconstrained. First, it has been observed that *ziji* is subject-oriented; with a few exceptions (see 2.1.3), only subjects can be the antecedent of the bare reflexive *ziji*. For instance, as shown in (15), an indirect object cannot be an antecedent of *ziji* though it c-commands *ziji* in the same clausal domain (Soh (1998, 2005; Huang, Li and Li 2009; and others).[6,7]

(15) Wangwu$_i$ renwei Zhangsan$_j$ gei-le   Lisi$_k$ yi-pian guanyu ziji$_{i/j/*k}$-de   wenzhang
Wangwu think Zhangsan give-PERF Lisi one-CL about self-POSS   article
'Wangwu$_i$ said that Zhangsan$_j$ gave Lisi$_k$ an article about self$_{i/j/*k}$.'

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[6] It is reported in Tang (1989) and others that 'sub-commanders' such as possessors may serve as antecedents of *ziji* and trigger blocking effects. Bošković and Hsieh (2012) show that in Mandarin, a possessor may c-command and hence bind out of a nominal projection; to the extent that their proposal is on the right tract, it is not surprising that sub-commanders may serve as the antecedent of *ziji* and trigger the blocking effect.

[7] The abbreviations given in (i) are used in glosses throughout this squib.

(i) CL: classifier; NEG: negation; PART: particle; PERF: perfective; POSS: possessive marker; PROG: progressive marker; REL: relativizer.

Furthermore, as observed by many researchers (Cole and Sung 1994; Huang and Liu 2001; a.o.), for *ziji* to corefer with a non-local antecedent, all the possible antecedents of *ziji* must agree in person. This is indicated by the contrast in (16a, b): (16a) shows that coreference of *ziji* with a long distance antecedent is possible when all the possible antecedents between *ziji* and its actual antecedent in the sentence share the same person feature (in (16a), 3rd-person); on the other hand, as shown in (16b), such coreference is blocked as long as one of the possible antecedents between *ziji* and its actual antecedent in the sentence differs from the others in person.

(16) a. Wangwu$_i$ renwei Zhangsan$_j$ xihuan ziji$_{i/j}$
　　　Wangwu think　Zhangsan like　　self.
　　　'Wangwu$_i$ thinks that Zhangsan$_j$ likes self$_{i/j}$.

　　b. Wangwu$_i$ renwei wo$_j$ xihuan ziji$_{*i/j}$
　　　Wangwu think　I　　like　　self$_{*i/j}$.
　　　'Wangwu$_i$ thinks that I$_j$ like self$_{*i/j}$.

Crucially, nominal expressions that are not subjects and hence are not possible antecedents, such as an indirect object (see (17)) or the complement in a PP (see (18)), do not trigger the blocking effect.

(17) a. Wangwu$_i$ renwei Zhangsan$_j$ gei　Lisi/wo$_k$ yi-pian guanyu ziji$_{i/j/*k}$ de　　wenzhang
　　　Wangwu think　Zhangsan give Lisi/me one-CL about　self　REL　article
　　　'Wangwu$_i$ said that Zhangsan$_j$ gave me$_k$ an article about self$_{i/j/*k}$.'

　　b. Wangwu renwei Zhangsan [$_{VP}$ [$_{V'}$ gei$_1$ [$_{VP}$ Lisi/wo [$_{V'}$ t$_1$ [$_{DP}$ yi-pian guanyu ziji-de wenzhang]]]]]]]

(18) a. Wangwu$_i$ renwei Zhangsan$_j$ <u>dui Lisi/wo$_k$</u> zhanshi ziji$_{i/j/*k}$ de　zuopin
　　　Wangwu think　Zhangsan to Lisi/I　　exhibit self　POSS work
　　　'Wangwu$_i$ thinks that Zhangsan$_j$ showed Lisi/me$_k$ the work of self $_{i/j/*k}$.'

　　b. Wangwu renwei Zhangsan [$_{VP}$ [$_{PP}$ [$_{P'}$ dui [$_{DP}$ wo/Lisi]]] [$_{V'}$ zhanshi [$_{DP}$ ziji-de zuopin]]]]]

What is crucial for the purpose of this squib is the long distance dependency of *ziji* in the case of embedded subordination. In (19) and (20), the embedded clause has a subordination structure with an occurrence of *ziji* inside both the main clause and the subordinate clause (i.e. the *if*-clause in (19) and the *because*-clause in (20)) respectively. (19a) and (20a) show that when the subjects in the embedded subordinated clause and the embedded main clause agree with the matrix subject in person, an LDR reading, where both tokens of *ziji* in the embedded subordinate clause and the embedded main clause corefer with the matrix subject, is available. On the other hand, when the subject in the embedded subordinate clause differs from the matrix subject in person, an LDR reading is blocked (see (19b) and (20b)). Here I assume that in (19) and (20), the *if*-clause and the *because*-clause adjoin to TP (see (19c) and (20c) for the syntactic structures of (19a, b) and (20a, b) respectively).

(19) a. Wangwu renwei [ruguo Zhangsan dui ziji hao, Lisi jiu   hui dui ziji hao]
     Wangwu think   if   Zhangsan to self nice Lisi then will to self nice
    LDR-reading: $Wangwu_i$ thinks that [if Zhangsan is nice to $self_i$, then Lisi will be nice to
            $self_i$].
    Non-LDR-reading: Wangwu thinks that [if $Zhangsan_i$ is nice to $self_i$, then $Lisi_j$ will be
             nice to $self_j$].

  b. Wangwu renwei [ruguo wo dui ziji hao, Lisi yei   hui dui ziji hao]
    Wangwu think   if   I   to self nice Lisi also will to self nice
    *** LDR**-reading: $Wangwu_i$ thinks that [if I am nice to $self_i$, then Lisi will be nice to $self_i$].
    Non-LDR-reading: Wangwu thinks that [if I_i am nice to $self_i$, then $Lisi_j$ will be nice to
             $self_j$].

  c. [$_{TP}$ Wangwu …[$_{VP}$ renwei [$_{CP}$ [$_{C'}$ C^0 [$_{TP}$ [$_{CP}$ ruguo Zhangsan/wo dui ziji hao][$_{TP}$ Lisi jiu hui
    dui ziji hao]]]]

(20) a. Wangwu renwei [yinwei Zhangsan dui ziji hao, suoyi Lisi yei dui ziji hao]
    Wangwu think   because Zhangsan to self nice so   Lisi also to self nice
    LDR-reading: '$Wangwu_i$ thinks that [because Zhangsan is nice to $self_i$, Lisi is also nice to
            $self_i$].'
    Non-LDR-reading: 'Wangwu thinks that [because $Zhangsan_i$ is nice to $self_i$, $Lisi_j$ is also
             nice to $self_i$].'

  b. Wangwu renwei [yinwei wo dui ziji hao, suoyi Lisi yei dui ziji hao]
    Wangwu think   because I   to self nice so   Lisi also to self nice
    *** LDR**-reading: $Wangwu_i$ thinks that [because I am nice to $self_i$, Lisi is also nice to $self_i$].
    Non-LDR-reading: Wangwu thinks that [because I_i am nice to $self_i$, Lisi is also nice to
            $self_i$]

  c. [$_{TP}$ Wangwu …[$_{VP}$ renwei [$_{CP}$ [$_{C'}$ C^0 [$_{TP}$ [$_{CP}$ yinwei Zhangsan/wo dui ziji hao][$_{TP}$ suoyi Lisi
    yei hui dui ziji hao]]]]

(21) shows that regardless of the person feature of the subject in the embedded subordinated
clause, a reading is possible where the occurrence of *ziji* in the embedded main clause corefers
with the matrix subject while that in the embedded subordinated clause is locally bound.[8]

(21) a. Context: Lisi bad-mouths Wangwu a lot, and Wangwu thinks that Lisi does so because
    Lisi thinks Wangwu is the reason why I/Zhangsan treats myself/himself badly.
    Therefore…

    $Wangwu_j$ renwie [ruguo wo/$Zhangsan_i$ dui $ziji_i$ hao, Lisi jiu   hui tingzhi piping $ziji_j$]
    Wangwu thinks   if   I   Zhangsan to self nice Lisi then will stop   criticize self
    '$Wangwu_j$ thinks [if I am nice to myself, Lisi then will stop criticizing $self_j$].

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[8] Crucially, the subject in the embedded main clause and the matrix subject must agree in person.

(19)-(21) together hence show that the syntactic subject in an adjoined constituent that differs from the matrix subject may block the coreference of *ziji* in the adjoined constituent with the matrix subject.

In the literature, various analyses have been suggested for the long-distance dependency of *ziji* and the blocking effect. Among them, Huang and Tang (1989), Cole and Sung (1994), Cole and Wang (1996) and others have suggested a structure-dependent account for the long-distance dependency of *ziji*, in which *ziji* undergoes successive cyclic LF-movement to the position where it is locally c-commanded by its antecedent at LF. On the other hand, several accounts that are semantically- or pragmatically-oriented have also been suggested where *ziji* with a long-distance dependency is analyzed as a logophor à la Clements (1975) (Huang and Liu 2001; Pollard and Xue 2001; a.o.) or a *de se* pronoun à la Lewis 1979 (Pan 2001).[9] Even in the semantic/pragmatic accounts of long distance *ziji* (e.g., Pan 2001; Pollard and Xue 2001) however, the relationship between *ziji* and its antecedent is still subject to some notion of structure dependency.

The comparison of these approaches is beyond the scope of this squib. Instead of making reference to a specific theory of reflexivity in Mandarin, the following discussion merely makes use of the generalizations from the observation above (summarized as in (22)).

(22) a. The dependency of the Chinese bare reflexive *ziji* shows subject-orientation (see (15)).

b. In an embedded subordination structure, the subject of the embedded adjoined constituent that does not share the same person feature with the matrix subject blocks the coreference of *ziji* in the embedded adjoined constituent and the matrix subject (see (19)-(21)).

c. The Indirect object of a double object construction and the PP-complement do not trigger this blocking (see (17)-(18)).

The main point I would like to make in this squib only relies on the generalizations summarized in (22), and the main task in the following discussion is to see how the dependency of the bare reflexive *ziji* in a comparative may be connected to these established observations under the Reduction Analysis and the Direct Analysis respectively. Crucially, no reference is made to any specific theory of reflexivity in Mandarin. While the observations in (22) may receive a straightforward account along with a syntactic analysis (e.g., Huang and Tang (1989), Cole and Sung (1994), Cole and Wang (1996) and others), any semantic or pragmatic theory of reflexivity in Mandarin that provides an adequate account of the data above may be coupled with the Reduction Analysis or the Direct Analysis and lead to the predictions discussed in the following.

2.1 Excursion: more on the subject-orientation of *ziji* and the blocking effect

While the data in (15)-(18) have led many researchers to conclude that *ziji* is subject-oriented and that only subjects may trigger the blocking effect, these two claims are far from uncontroversial. An anonymous reviewer brings up the examples in (23)-(24)), which seemingly pose a challenge to these two assumptions. The reviewer points out that in (23),

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[9] To be more accurate, Huang and Liu (2001) and Polllard and Xue (2001) only treat long-distance *ziji* as a logophor; in their system, the locally bound *ziji* is an English-type reflexive anaphor and is subject to Binding Condition A. Furthermore, in Huang and Liu (2001), the logophoric *ziji* undergoes operator-movement to the specifier of SourceP.

which he attributes to Chen (1992), the bare reflexive *ziji* may corefer with either the subject *yisheng* 'the doctor' or the indirect object *Laowang*; this would seem to be a counterexample to the claim that *ziji* is strictly subject-oriented.

(23) Yisheng$_i$ tixing   Laowang$_j$ chaoshide tianqi   dui ziji$_{i/j}$-de   shenti bu-hao
      doctor   remind Laowang humid   weather to self-POSS body   NEG-good
      'The doctor$_i$ reminds Laowang$_j$ that the humid weather is bad for self$_{i/j}$'s body.'

This reviewer further points out that in (24), an example of the kind that has been discussed repeatedly in various research (Chen 1992; Pan 1997, Huang and Liu 2001), it is 'extremely difficult' for him to get coreference with the matrix subject *laoshi* 'the teacher' seemingly because of the first person indirect object *wo* 'I/me'.

(24) Laoshi$_i$ tongzhi wo Xiaoming$_j$ you   zai   nuedai ziji$_{*i/j}$ le
      teacher inform me Xiaoming again PROG abuse   self   PERF
      'The teacher informed me that Xiaoming was abusing self$_{*i/j}$ again.'

The following two remarks are aimed to address these concerns.

2.1.1   Remarks on subject-orientation
        Although at first glance (23) poses a challenge to the claim that *ziji* is subject-oriented, there are well-grounded reasons to believe that the expression *ziji* in this example should be treated as a generic pronominal expression, which is similar to the arbitrary PRO or the English generic pronoun *one* (see (25)), rather than a genuine anaphoric reflexive pronoun.

(25) a. [**PRO** to know me] is [**PRO** to love me].   (Battistella and Xu 1990)
      b. **One** cannot be an angel without wings.

        Li and Thompson (1981, pp. 139) and Battistella and Xu (1990) have pointed out a special use of *ziji* as a generic pronoun in statements about general truths. In this use, *ziji* does not require an antecedent or a definite referent, but instead, *ziji* with this use refers to anyone. Examples of this kind are given in (26). As indicated by the gloss of these examples, this use of *ziji* is parallel to the use of the arbitrary PRO and that of the generic pronoun *one* in (25).

(26) a. Ziji you qian   zui   hao
        self have money SUPL good
        'It is the best/optimal to have money.'

      b. Ziji-de   guoshi yao jishi   gaizheng
         self-POSS mistake must immediately correct
         'one's mistake should be corrected immediately.'

Battistella and Xu (1990) further point out that *ziji* in this use is limited to the subject and the possessive position. They suggest that this use of *ziji* may be treated as the combination of a null

pronoun PRO and an emphatic adverbial *ziji* '*self*' as in *John **himself** closed the door*', an idea they attribute to James Huang.[10]

If *ziji* in (23) is a generic pronominal expression and refers to anyone, then it is not surprising that it can corefer with either the indirect object *Laowang* or the matrix subject *yisheng* 'the doctor'. Moreover, on these grounds, arguments against the subject orientation of *ziji* that appeal to examples like (23) are severely weakened since the occurrences of *ziji* in (23) and the data discussed above may not be the same creature and hence as suggested in Battistella and Xu (1990), deserve different treatments. The following examples strongly support the claim that *ziji* in (23) is of the generic use rather serving as a genuine reflexive nominal expression. First consider (27), where *ziji* is in the object position rather than the possessive position and hence cannot have the generic use. In (27), the only coreferential reading available is the one in which *ziji* refers to the matrix subject *yisheng* 'the doctor'.

(27) Yisheng$_i$ tixing Laowang$_j$ chaoshide tianqi   dui ziji$_{i/*j}$ bu-hao
      Doctor   remind Laowang humid   weather to self   NEG-good
      'The doctor reminded Laowang that the humid weather is bad for self$_{i/*j}$'

Recall that *ziji* with the generic use only occurs in the subject and the possessive position; the contrast between (23) and (27) then suggests that *ziji* in (23) is in a generic use.

The contrast between (23) and (28) lends further support to treating *ziji* in (23) as a generic pronominal expression rather than a reflexive one. *Ziji* in (28), just like that in (23), is in the possessive position; however, unlike that in (23), *ziji* in (28) occurs in an episodic context rather than a generic context. The coreferential reading of *ziji* and the indirect object *Laowang*, as indicated, is unavailable. That the switch from a generic context to an episodic context leads to the loss of the coreferential reading of *ziji* and the indirect object *Laowang* strongly indicates that *ziji* in (23) is a generic pronominal expression, not a reflexive pronoun.

(28) Yisheng$_i$ tixing Laowang$_j$ ziji$_{i/*j}$-de nyuer   ganggang bei bangjia le
      Doctor   remind Laowang self-POSS daughter just-then PASS kidnap PERF
      'The doctor$_i$ reminded Laowang$_j$ that self$_{i/*j}$'s daughter was just kidnapped.'

(27) and (28) together further show that once we exclude the factors that license the generic use of *ziji*, the claim that *ziji* is subject-oriented does hold.

2.1.2   Remarks on the blocking effect

(24)) is presented by a reviewer as a counterexample to the claim that only subjects can trigger the blocking effect; according to this reviewer, it is extremely difficult for him to get coreference of *ziji* with the matrix subject *laoshi* 'teacher', and this difficulty seems to result from the intervention of the first person indirect object *wo* 'I/me'.

(24) Laoshi$_i$ tongzhi wo Xiaoming$_j$ you   zai   nuedai ziji$_{*i/j}$ le
      teacher inform me Xiaoming again PROG abuse self   PERF
      'The teacher informed me that Xiaoming was abusing self$_{*i/j}$ again.'

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[10] I refer the reader to Battistella and Xu (1990) and the references cited therein for a detailed discussion of this emphatic use of *ziji*. I also refer the reader to Eckardt (2001) for a possible analysis of the emphatic reflexive adverbials.

Examples like (24) (i.e. sentences with the schema in (29)) have been employed to argue against the claim that only subjects can trigger the blocking effect. I however do not think arguments based on this kind of example are as convincing as they might initially seem to be.

(29) [$_S$ Subj V Obj [$_S$ Subj … ziji …]]

The first argument for this conclusion comes from the contrast between (24) and (30). (30) differs from (24)) only in the person feature of the object: while the object nominal in (24) carries the first person feature, that in (30) carries the third person feature.

(30) Laoshi$_i$ tongzhi Wangwu Xiaoming$_j$ you   zai   nuedai ziji$^{??/*}_{i/j}$ le
　　teacher inform Wangwu Xiaoming again PROG abuse   self   PERF
　　'The teacher informed Wangwu that Xiaoming was abusing self$_{*i/j}$ again.'

Despite the fact that the object nominal agrees with the matrix subject and the embedded subject in person, it is still difficult for most native speakers I have consulted to get in (30) coreference of the matrix subject and *ziji*. A similar observation has also been reported in Battistella and Xu (1990) (pp. 229, (9)). In an informal survey, Battistella and Xu (1990) observed that presented with (31), an example very similar to (30), the overwhelmingly majority of the speakers they tested picked the embedded subject *Wangwu* as the only possible antecedent of *ziji* rather than marking this sentence as ambiguous between coreference of *ziji* with the embedded subject *Wangwu* or with the matrix subject *Zhangsan*.

(31) Zhagsan   tongzhi Lisi Wangwu yijing   jietuo-le   ziji
　　Zhangsan inform Lisi Wagwu   already relieve-PERF self
　　'Zhagsan informed Lisi that Wangwu was already relieved.'

(30) and (31) suggest that blaming the first person pronoun in the indirect object position for the difficulty in getting coreference of *ziji* and the matrix subject in (24)) is empirically unjustified since the same difficulty exists as well in the case of the indirect object nominal agreeing with the matrix and embedded subject in person.
　　Second, saying that coreference of *ziji* with the matrix subject in a construction like (24) is hard to get does not equal saying that such a reading is totally impossible. As shown in (32), with the designated context and a different choice of the embedded verbs, coreference of *ziji* and the matrix subject *Laoshi* 'the teacher' becomes much easier to get.

(32) Context: After receiving a call asking for help, you, a police officer, say to your colleague:
　　Laoshi$_i$ ganggang tongzhi wo Laowang you   zai   chaoxiao/saorao/$^?$nuedai ziji$_i$ le
　　teacher just   inform me Laowang again PROG mock/harass/abuse   self PERF
　　'The teacher$_i$ just informed me that Laowang was mocking/harassing/abusing self$_i$'

That coreference of *ziji* and the matrix subject is possible in (32) shows that the claim cannot stand that non-subject nominals (e.g., the object nominal in (24) may trigger the blocking effect at least before all the possible interfering factors (e.g., the influence of the contextual information and the selection of the embedded verbs) can be sorted out.

One note worth mentioning before closing this remark: in their informal survey, Battistella and Xu (1990) observed that there is great variation among the examples of the syntactic schema (29) even though in all these examples the indirect object carries the third person singular feature. While the overwhelming majority pick the embedded subject as the antecedent of *ziji* in some of their examples (e.g., (31)), the matrix subject is significantly preferred in other examples.[11]   The variation in speakers' judgments on these examples further suggests that the picture one can get from (24) (and (30)-(31)) is far from complete, and the conclusion based solely on examples of this kind that non-subjects may trigger the blocking effect is premature.

Lastly, but not the least, as mentioned in (22), the discussion in the following only makes use of the well-established observation that i) the subject of an embedded adjoined constituent counts as a potential blocker for *ziji* in the same adjoined constituent (see (22b)) and ii) the indirect object of a double object construction and the PP-complement do not count as potential blockers (see (22)). Whether a non-subject nominal like the object *wo* in (24) may count as a potential blocker is irrelevant and does not affect the conclusion in the following discussion in any way.

2.1.3 *Ba-* and *bei*-constructions[12]

Cole and Wang (1996) observe that there are seemingly two exceptions to the generalization that *ziji* is subject-oriented; one is the nominal after the disposal marker *ba* (see (33a)), and the other that after the passive marker *bei* (see (33b)).

(33) a. Zhangsan$_i$ yiwei Lisi$_j$ hui ba ni/Wangwu$_k$ ling-hui   ziji$_{i/j/k}$-de jia
       Zhangsan$_i$ think Lisi$_j$ hui BA you/Wangwu lead-back self-POSS home
       'Zhangsan$_i$ thought Lisi$_j$ would take you/Wangwu$_k$ back to self$_{i/j/k}$'s home'

   b. Zhangsan$_i$ yiwei Lisi$_j$ hui bei ni/Wangwu$_k$ ling-hui   ziji$_{i/j/k}$-de jia
      Zhangsan think Lisi will BEI you/Wangwu lead-back self-POSS home
      'Zhangsan$_i$ thinks that Lisi$_j$ would be taken by you/Wangwu$_k$ back to self$_{i/j/k}$'s home.'

Unlike other nominals that are potential antecedents of *ziji*, nominals after *ba* and *bei* do not trigger the blocking effect; as shown in (33), long distance dependency of *ziji* is possible in a *ba-* or *bei-* construction even if the nominal after *ba* or *bei* does not agree with the embedded subject and the matrix subject in person.

Various analyses have been proposed for the *ba-* and *bei*-constructions. In one type of analysis, *ba/bei* together with the nominal that occurs after them are treated as an independent constituent; in another, *ba* and *bei* are treated as functional heads that take a clause-like complement. The claim that *ziji* is subject-oriented can be easily maintained along with the latter type of analysis, where *ba/bei* is analyzed as a higher functional head that takes a clause-like complement: in such an analysis, the nominal after these two elements can be seen as the syntactic subject of the clausal(-like) complement of *ba/bei* (see (34a, b)) and hence it is not surprising that the nominal after *ba/bei* may serve as an antecedent of *ziji*.[13] Huang (1999) and

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[11] Unfortunately Battistella and Xu (1990) did not present in their paper any of those examples in which the majority of the subjects prefer the matrix subject as the antecedent of *ziji*.

[12] I am grateful to an anonymous reviewer for pointing out the importance of the discussion in this subsection.

[13] The analysis suggested by Cole and Wang (1996) belongs to the latter type .

Huang, Li and Li (2008) have provided strong evidence in favor of this type of analysis; here I simply refer the reader to these two works and the references cited therein.[14]

(34) a. Zhangsan yiwei [$_{TP}$ Lisi [$_{T'}$ hui [$_{FP}$ [$_{F'}$ ba [ni/Wangwu ling-hui ziji-de jia]]]]]
    b. Zhangsan yiwei [$_{TP}$ Lisi [$_{T'}$ hui [$_{FP}$ [$_{F'}$ bei [ni/Wangwu$_k$ ling-hui ziji -de jia]]]]]

      An anonymous reviewer has raised a question regarding the possibility of treating the nominal after the comparative marker *bi* on a par with that after the disposal marker *ba* and/or the passive marker *bei*. The contrast between (12c) and (33a, b) is a problem for a variant of the Direct Analysis that assigns to the Mandarin *bi*-comparative (e.g., (4) and (12a)) a structure paralleled with that of the *bei*- and *ba*-constructions; as shown in (12c), the nominal after *bi*, unlike that after *ba* and *bei*, does block a long-distance reading of *ziji* (see (12a, b)). Furthermore, treating the nominal after *bi* on a par with that after *ba*/*bei* would have difficulty accounting for why (12a) lacks the strict interpretation paraphrased (35).

(12) a. Zhangsan bi Lisi dui ziji hao
     Zhangsan BI Lisi to self good

(35) The degree of Zhangsan's being nice to Lisi is greater than that of Lisi's being nice to Lisi.

That the strict interpretation paraphrased in (35) is unavailable to (12a) suggests that it is questionable that the nominal after *bi*, unlike that after *ba*/*bei*, may serve as a 'real' antecedent of *ziji*.

3. Long Distance Reflexives and Comparatives

      As shown in (12a) (repeated below), a Mandarin comparative sentence with a gradable predicate that contains *ziji* carries a sloppy reading.

(12) a. Zhangsan bi Lisi dui ziji hao
     Zhangsan BI Lisi to self good
     'Zhangsan$_i$ is better to himself$_i$ than Lisi$_j$ is to himself$_j$.'

On the other hand, the LDR reading of (12b) (repeated below) shows that it is possible for *ziji* inside the gradable predicate to corefer with the matrix subject when the comparative is embedded.

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[14] As shown in the following (see (40a, b)), the *ba*- and *bei*- nominal may occur after the comparative marker *bi* and serve as the standard of comparison. If the latter type of analysis of the *ba/bei* construction is on the right track, the fact that the *ba*- and *bei*- nominal may occur in the *bi*-constituent (see (40a, b)), as pointed out by Liu (2011), provides another piece of evidence in favor of the Reduction Analysis. In the latter type of analysis, *ba/bei* and the nominal after them do not form a constituent; hence, reduction has to be involved in the derivations of examples like (40a, b).

(12) b. Wangwu renwei Zhangsan bi Lisi dui ziji   hao
  Wangwu think   Zhangsan BI Lisi to   self good
  LDR reading: 'Wangwu$_i$ thinks that Zhangsan is better to him$_i$ than Lisi is to him$_i$.'
  Non-LDR reading: 'Wangwu thinks that Zhangsan$_i$ is better to himself than Lisi$_j$ is to
          himself$_j$.'

Such a long distance dependency however, as shown in (12c) (repeated below), is blocked when the standard of comparison in the embedded comparative does not agree with the matrix subject (and the target of comparison) in person.

(12) c. Wangwu renwei Zhangsan bi wo <u>dui ziji hao</u>
  Wangwu think   Zhangsan BI I   to self good
  *****LDR** reading: 'Wangwu$_i$ thinks that Zhangsan is better to self$_i$ than I am to self$_i$.'
  Non-LDR reading: 'Wangwu thinks that [Zhangsan is better to self$_i$ than I$_j$ am to self$_j$.]

The discussion in the following shows that while the sloppy reading in (12a) and the contrast between (12b, c) straightforwardly follow from the Reduction Analysis and the generalization shown in (22), they pose a serious challenge to the Direct Analysis.

3.1 The Reduction Analysis
    Recall that in the Reduction Analysis, an occurrence of the gradable predicate is elided in the *bi*-constituent. Furthermore, the target and the standard of comparison both have the status of being a syntactic subject. Here departing slightly from Liu (1996), I assume that the *bi*-constituent adjoins to *v*P. With this assumption, the syntax and LF of (12a) may be represented as in (36a, b) respectively under the Reduction Analysis. For convenience, I assume here that in (12a), the sentential subject and the target of comparison *Zhangsan* are interpreted *v*P-internally at LF.

(36) a. Surface Syntax: [$_{TP}$ Zhangsan$_i$ [$_{vP}$ [bi Lisi ~~dui ziji hao~~] [$_{vP}$ t$_i$ dui ziji hao]]]

    b. LF: …[$_{vP}$ [bi Lisi$_i$ dui ziji$_i$ hao] [$_{vP}$ Zhangsan$_j$ dui ziji$_j$ hao]]

    The sloppy reading of (12a) is then cashed out in a straightforward manner.   As shown in (36), the derivation and the LF representation of (12a) involve two occurrences of the gradable predicate and hence two occurrences of *ziji*. The LF representation in (36b) shows that each occurrence of *ziji* may be locally bound by the target *Zhangsan* and standard *Lisi* respectively, and in this case the sloppy reading results.
    Now consider (12b), where (12a) is embedded. With the assumptions above, the surface and the possible LF representations of (12b) can be represented as in (37a, b) respectively. As shown in (37), the *bi*-constituent adjoins to the embedded *v*P; the gradable predicate inside the *bi*-constituent contains an occurrence of *ziji* and is elided at the surface. If both occurrences of *ziji* in the embedded comparative are locally bound by the target and the standard of comparison respectively (see LF 2 in (37b)) at LF, the sloppy reading results. On the other hand, if both tokens of *ziji* are remotely bound by the matrix subject *Wangwu* at LF (see LF 1 in (37b)), the LDR reading results.

(37) a. Surface Syntax: [$_{TP}$ Wangwu [$_{VP}$ renwei [$_{CP}$ [$_{TP}$ Zhangsan [$_{vP}$ [bi Lisi [$_{AP}$ ~~dui ziji hao~~]] [$_{vP}$ t$_i$ [$_{AP}$ dui ziji hao]]]]]]]

    b. LF 1: [$_{TP}$ Wangwu$_i$ … [$_{CP}$ [$_{TP}$… [$_{vP}$ [bi Lisi [$_{AP}$ dui ziji$_i$ hao]] [$_{vP}$ Zhangsan [$_{AP}$ dui ziji$_i$ hao]]]]]]]

        LF 2: [$_{TP}$ Wangwu … [$_{CP}$ [$_{TP}$… [$_{vP}$ [bi Lisi$_i$ [$_{AP}$ dui ziji$_i$ hao]] [$_{vP}$ Zhangsan$_j$ [$_{AP}$ dui ziji$_j$ hao]]]]]]]

Given the Parallelism Constraint on Ellipsis (Rooth 1985; Fox 2000; a.o.), according to which the elided constituent and its antecedent must receive parallel interpretations, the two LF's in (37b) are the only two possible LF representations. An LF representation is illegitimate where one occurrence of *ziji* is bound by the matrix subject and the other one is locally bound by the subject in the *bi*-constituent.

    Assuming the Reduction Analysis, the blocking of the LDR reading in (12c) follows from The Parallelism Constraint on Ellipsis together with the generalization from (19) and (20). Given the Parallelism Constrain on Ellipsis, LF 1 and LF 2 in (36b) are the only possible LFs for (12c). In both LFs, the subject in the *bi*-constituent *wo* 'I' differs from the matrix subject in person. Since syntactic subjects in the adjoined constituent that do not agree with the matrix subject in person block coreference of *ziji* in the adjoined constituent with the matrix subject (see (19b) and (20b)), LF1 in (38) is unavailable; the LDR reading is hence blocked in (12c).

(38) a. Surface Syntax: [$_{TP}$ Wangwu [$_{VP}$ renwei [$_{CP}$ [$_{TP}$ Zhangsan [$_{vP}$ [bi wo [$_{AP}$ ~~dui ziji hao~~]] [$_{vP}$ t$_i$ [$_{AP}$ dui ziji hao]]]]]]]

    b. *LF 1: [$_{TP}$ Wangwu$_i$ ……[$_{CP}$ [$_{TP}$……[$_{vP}$ [bi wo [$_{AP}$ dui ziji$_i$ hao]] [$_{vP}$ Zhangsan [$_{AP}$ dui ziji$_i$ hao]]]]]]]

        LF 2: [$_{TP}$ Wangwu ……[$_{CP}$ [$_{TP}$……[$_{vP}$ [bi woi$_i$ [$_{AP}$ dui ziji$_i$ hao]] [$_{vP}$ Zhangsan$_j$ [$_{AP}$ dui ziji$_j$ hao]]]]]]]

    The account presented above, as pointed out by an anonymous reviewer, predicts that an LDR reading is possible when the standard contains a non-subject nominal that does not agree with the matrix subject and the embedded subject in person. More specifically, the account presented above leads to the expectation that there is no blocking effect triggered by a nominal in the standard that is an indirect object of a double object construction or a PP-complement, given the generalization from (17) and (18). This prediction, as shown in (39), is borne out.[15, 16]

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[15] I am grateful to the anonymous reviewer for pointing out this prediction.

[16] The case of indirect objects in the double object construction is untestable given that as shown in (i), comparison involving indirect objects of the double object obstruction simply leads to ungrammaticality for unknown reasons.

(i) a. *Zhangsan gei Lisi bi (gei) Wangwu geng   duo wenzhang
      Zhangsan give Lisi BI give Wangwu even/more many article

  b. *Zhangsan Lisi bi Wangwu gei (le) geng   duo wenzhang
      Zhangsan Lisi BI Wangwu give perf even/more many article
      Intended reading: 'Zhangsan gave Lisi more articles than he gave Wangwu.

(39) Wangwu$_i$ renwei Xuexiao wei Zhangsan bi wei Lisi/wo hua-le   geng   duo
     Wangwu think   school   for   Zhangsan BI for Lisi/I   spend-PERF even/more many
     ziji$_i$ juanxian de qian
     self donate REL money
     'Wangwu$_i$ thinks that the school spent more money that self$_i$ donates for Zhangsan than for
      Lisi.'

A similar prediction arises for the *ba*- and *bei*-constructions. The nominal after *ba* and *bei*, as shown in (33a, b), does not trigger the blocking effect. As shown in (40a, b), the *ba/bei*- nominal in the standard does not trigger the blocking effect either, a prediction that follows from the Reduction Analysis.

(40) a. Wangwu$_i$ renwei xuexiao bei Zhangsan bi bei wo huadiao geng   duo   ziji$_i$-de
      Wangwu think   school   BEI Zhangsan BI BEI I   spend   even/more many self-POSS
      qian
      money
      Lit: 'Wangwu thinks that the school was affected by Zhangsan spending more money that
      Wangwu donated than it was by me spending money that Wangwu donated'.

    b. Wangwu$_i$ renwei pingshen ba Zhangsan bi ba wo ma-de   rang ziji$_i$ geng   nanguo
      Wangwu think   judge   BA Zhangsan BI BA I   scold-PART let   self even/more sad
      Lit: 'Wangwu thinks that the judges scolded Zhangsan so that Wangwu is more upset
      than that they scolded me so that Wangwu is upset.'

3.2 The Direct Analysis

      In the Direct Analysis, there is only one occurrence of the gradable predicate and hence only one token of the reflexive pronoun *ziji* in the structure of the comparative (12a). Furthermore, the standard of comparison in (12a), namely *Lisi*, is not a syntactic subject; along the lines of Xiang (2005) and Erlewine (2007) (see (37a, b)), the standard of comparison *Lisi* has a syntactic status parallel to that of the indirect object in (17); on the other hand, along the line of Lin (2009) (see (41c)), the standard of comparison *Lisi* is the complement of the DegP that adjoins to AP and has a syntactic status paralleled to that of the complement of PP in (18).

(41) a. Xiang (2005):
      Zhangsan [$_{DegP}$ [$_{Deg'}$ bi [$_{AP}$ [$_{DP}$ Lisi$_2$] [$_{AP}$ [$_{PP}$ dui ziji] [$_{A'}$ hao-EXCEED$_1$ [$_{DegP}$ t$_2$ [$_{Deg'}$ t$_1$]]]]]]

    b. Erlewine (2007):
      Zhangsan [bi [$_{vP}$ [$_{DP}$ Lisi] [$_{v'}$ t$_1$ [$_{v'}$ VOICE [$_{V/AP}$ dui ziji hao]]]]]

To express the intended reading in (i), relativization has to be used in the target and the standard of comparison, as shown in (ii).

(ii) Zhangsan gei   Lisi de wenzhang bi (Zhangsan) gei   Wangwu de   wenzhang duo
     Zhangsan give Lisi REL article   BI Zhangsan give Wangwu REL article   many
     'The articles Zhangsan gave Lisi are more than those that Zhangsan gave Wangwu.

c. Lin (2009)
    Zhangsan [$_{AP}$ [$_{DegP}$ [$_{Deg'}$ bi [$_{DP}$ Lisi]] [dui ziji hao]

Given the single occurrence of the reflexive pronoun *ziji*, the sloppy reading in (12a) cannot be derived syntactically in the Direct Analysis as it is in the Reduction Analysis; however, such a task may be achieved semantically.

As shown in (6c), in the Direct Analysis, the denotation of the gradable predicate is used twice in the truth conditions of a comparative; hence, if one assumes that the reflexive pronoun *ziji* denotes a reflexivization function and reflexive-marks a predicate (see Reinhart and Reuland (1993)), the sloppy reading in the comparative (12a) can also be captured in the Direct Analysis. Here I will take (41c) to be the surface syntax of (12a) and (42a) to be its LF and demonstrate in (42b, c) how this can be done. I assume that the preposition *dui* is semantically vacuous; furthermore, I assume that the degree argument of *hao* 'nice' is saturated by a degree variable which is bound by the λ-abstractor 7 (see Heim and Kratzer 1998).

(42) a. LF of (12a): Zhangsan [$_{AP}$ [$_{DegP}$ [bi [$_{DP}$ Lisi]] [7 [dui-ziji [hao-d$_7$]]]

b. $[\![$ bi $]\!] = \lambda x_e.\, \lambda f_{<d,\, <e,\, t>>}.\, \lambda y_e.\, \exists d'[f(d')(y)$ and $\neg f(d')(x)]$
    $[\![$ ziji$]\!] = \lambda f_{<e,\, <e,\, t>>}.\, \lambda x_e.\, f(x)(x)$
    $[\![$ hao$]\!] = \lambda d_d.\lambda x_e.\, \lambda y_e.\, y$ is d-nice to x
    $[\![$ dui ziji hao-d$_7$ $]\!]^g = [\![$ ziji$]\!]([\![$ hao$]\!](g(7))) = [\![$ ziji$]\!]([\lambda x.\, \lambda y.\, y$ is g(7)-nice to x])
                $= \lambda x.\, x$ is g(7)-nice to x
    (where g is an assignment function that maps an integer n to a value assigned to a
      variable indexed with n)

c. $[\![$ (12a)/(42b)$]\!] = [\![$ bi $]\!]([\![$ Lisi$]\!])(\lambda d.\, [\![$ dui ziji hao-d$_7$ $]\!])([\![$ Zhangsan$]\!])$
                $= [\![$ bi $]\!](Lisi)([\lambda d.\, [\![$ ziji$]\!]([\![$ hao$]\!](d)])(Zhangsan)$
                $= [\![$ bi $]\!](Lisi)(\lambda d.\, [\lambda x.\, [x$ is d-nice to x])(Zhangsan) $= 1$
    iff $\exists d'[[\![$ *dui ziji hao* $]\!](d')(ZS)$ and $\neg [\![$ *dui ziji hao* $]\!](d')(LS)]$
    iff $\exists d'[Zhangsan$ is d'-nice to Zhangsan and Lisi is not d'-nice to Lisi]

As illustrated in (42), assuming that *ziji* in (12a) reflexive-marks the gradable predicate *hao* 'nice', the sloppy interpretation in (12a), where the degree of Zhangsan's being nice to Zhangsan and that of Lisi's being nice to Lisi, are in comparison, is derived semantically by applying twice the denotation of the gradable predicate *dui ziji hao* 'be nice to self' in the truth conditions. The sloppy interpretations of (12b/c) are captured in the same way (see the LF in (43)).

(43) LF of (12a)/(12c): [$_{TP}$ Wangwu renwei [$_{CP}$ … Zhangsan [$_{AP}$ [$_{DegP}$ [bi [$_{DP}$ Lisi]] [7 [dui-ziji
            [hao-d$_7$]]]

Note that in the Direct analysis, it is essential to assume that *ziji* denotes a reflexivization function rather than simply a variable; given that under the Direct Analysis there is only one occurrence of *ziji*, the sloppy reading cannot be derived by the variable binding relation between *ziji* and its antecedent(s).

On the hand, along with the same assumption, namely that the reflexive pronoun *ziji* denotes a reflexivization function, the LDR reading of (12b) may be captured by having the *v*P-

internal trace of the matrix subject (in (12b), *Wangwu*) and the variable that saturates the embedded reflexive-marked predicate via the λ-abstraction at the matrix clause (see (44)).

(44) a. LF of (12b) (for the LDR-reading):
　　　[TP Wangwu 6 [vP t$_6$ [renwei [CP …Zhangsan [AP [DegP [Deg' bi [DP Lisi]] [7 [dui t$_6$ hao-d$_7$]]]

　　b. ⟦(44a)⟧^{g} = [λx. x thinks that Zhangsan is nicer to x than Lisi is nicer to x](Wangwu)=1
　　　iff Wangwu thinks that Zhangsan is nicer to Wangwu than Lisi is to Wangwu

In (44a), the individual argument of the reflexive-marked predicate in the embedded clause and the *v*P-internal trace of the matrix subject are bound by the same λ-abstractor 6; as shown in (44b), the LDR-reading then is obtained by combining the matrix subject with the reflexive predicate created by λ-abstraction over these two variables together. .
　　　While the contrast between (12b, c) suggests that the first person pronoun *wo* 'I/me' in the standard should be blamed for the unavailability of the LDR reading in (12c), it is unclear how the blocking effect in (12c) may be accounted for under these versions of the Direct Analysis. Crucially, under these variants of the Direct Analysis, any mechanism that accounts for the lack of the LDR reading of (12c) due to the change of the person feature of the post-*bi* nominal would wrongly exclude the long distance coreference of *ziji* and the matrix subject in (17) and (18): recall that under the Direct Analysis, the nominal in the standard of comparison (i.e., the constituent that follows *bi*) is treated syntactically on a par with an indirect object (e.g., (41a, b)) or a PP-complement (e.g., (41c)). Given that the indirect object of a double object construction and the PP-complement do not trigger the blocking effect (see (17) and (18)), a mechanism suggested for the blocking effect in (12c) would also wrongly predict that the long distance dependency of *ziji* in (17) and (18) is impossible due to the different person feature of the indirect object nominal in (17) and the PP-complement in (18).

4. Conclusion
　　　In this squib, I compared two types of analyses of the Mandarin comparative, the Reduction Analysis and the Direct Analysis. The crucial data concerned the long distance dependency of the bare reflexive *ziji* 'self' in an embedded comparative. As I showed above, the nominal that serves as the standard in an embedded comparative triggers the blocking effect of the long distance dependency of *ziji* when it differs from the matrix subject and the target of comparison in person. The discussion showed that such a blocking effect can easily be accounted for by the Reduction Analysis but not by the Direct Analysis. This suggests that arguments that the *bi*-constituent does not have a clause-like structure are not as conclusive as they are taken to be in the literature (Xiang 2005; Erlewine 2007; Lin 2009; cf. Liu 2011).
　　　As mentioned in the introduction, while the prediction that Mandarin does not allow subcompartives like (10a) and (45a) (see their Chinese counterparts (10b) and (45b/c) respectively) straightforwardly follows from the Direct Analysis, it poses a challenge to the Reduction Analysis. This has led several researchers to conclude that the *bi*-constituent in a Mandarin comparative cannot be formed via reduction (e.g., Xiang 2005; Erlewine 2007; Lin 2009).

(10) *English*
　　　a. This door is taller than that window is wide.

Mandarin
b. *Zhe shan men bi [na shan chuanghu kuan] gao
This CL   door BI that cl   window   wide tall

(45) *English*
a. John speaks better English than Mary speaks French.

Mandarin.
b. *Zhangsan yingwen [bi [Lisi shuo(-de   hao) fawen]] shuo-de hao
Zhangsan English   BI Lisi speak-PART well French   speak-PART well

c. *Zhangsan yingwen [bi [Lisi fawen shuo(-de   hao)]] shuo-de hao
Zhangsan English   BI Lisi French speak-PART well   speak-PART well

While at this moment it is unclear to me how the Reduction Analysis may account for the ungrammaticality of comparative sub-deletion, I would like to point out in the following that the argument against the Reduction Analysis based on the lack of comparative subdeletion is not as convincing as it might appear at first, for the reason that the underlying assumption of such an argument that a language allows comparative sub-deletion if it has a clause-like comparative cannot be maintained. The following discussion hence suggests that arguments against the Reduction Analysis based on the ungrammaticality of subcomparatives like (10b) and (45b/c) do not provide conclusive evidence in favor of the Direct Analysis.

4.1 Remarks on comparative sub-deletion in Mandarin
        Arguments against the Reduction Analysis based on the ungrammaticality of comparative sub-deletion in Mandarin are built on the following assumption: if the *bi*-constituent is formed via reduction and has a clause-like structure, (10b) and (45b/c) should be grammatical. Given the ungrammaticality of these two examples, the *bi*-constituent cannot be formed via reduction. Yet, this line of reasoning is empirically unmotivated because there exist languages, Spanish for instance, that clearly exhibit evidence in favor of the Reduction Analysis but do not allow comparative sub-deletion. That a Spanish comparative like (46a) is formed via reduction is supported by its contrast with (46b); while *que* may be followed by a pronoun in the nominative case, a pronoun in the accusative case after *que* leads to ungrammaticality (see Price 1990 and others). (47) further shows that the first person pronoun in Spanish has to appear in the accusative case when it is a PP-complement.

(46) a. Es más grande que yo
        is   big   than I

    b. * Es más grande que   mí
        is   big   than me
      'He is bigger than I'

(47) Este paquete es para mí/*yo.
    This package is for   me/I.
    'This package is for me.'

As shown in (48a, b) however, Spanish does not allow comparative sub-deletion.

(48) a. *La mesa es más   alta que la   puerta es ancha.
     The table is COMP tall than the door   is wide
     'the table is higher than the door is wide.'

    b. *María leyó más libros que Juan leyó revistas.
     Mary read more books than John read magazines
     'Mary read more books than John read magazines.'

The data from Spanish suggests that a language may still disallow comparative sub-deletion even though there exists strong evidence that this language makes use of reduction to form comparatives. Furthermore, as extensively discussed in Shimoyama (2011), the lack of comparative subdeletion (see (49)) in Japanese does not exclude the possibility that a Japanese *yori-* comparative involves reduction and has a clause-like structure in the *yori*-constituent.

(49) *Hanako-no   te-wa   [Taro-no asi-ga   nagai]-yori habahiroi
    Hanako-GEN hand-WA Taro-GEN foot-NOM long   than wide
    'Hanank's hands are wider than Taro's feet are long.'

Given that their underlying assumption is not empirically well-motivated, arguments against the Reduction Analysis of Mandarin comparatives based on the lack of comparative subdeletion are weakened.
     One thing is worth noting: while the Spanish example (48b) and the Mandarin example (45b) are ungrammatical, both Spanish and Mandarin have rescue strategies for these two examples. As pointed out in Price (1990), Reglero (2007) and the references cited therein, gapping in the *que*-constituent turns (48b) fully grammatical (see (50)).[17]

(50) María leyó más libros   que Juan revistas
    Mary read more books than John magazines
    'Mary read more books that John read magazines.'

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[17] Another strategy in Spanish that can rescue (48b) is inversion inside the *que*-constituent (see (i)). As shown in (ii)) however, this rescue strategy is not available in Mandarin.

(i) María leyó más libros que revistas   leyó Juan
   Maria read more books than magazines read John
   'Maria read more books than John read magazines.'

(ii) *Zhangsan yingwen [bi [fawen Lisi shuo(-de   hao)]] shuo-de hao
    Zhangsan English   BI French Lisi speak-PART well   speak-PART well

Similarly, the Mandarin example (45b) can be rescued by the deletion of the verbal element in the *bi*-constituent (see (51)).[18]

(51) Zhangsan yingwen [bi Lisi fawen] shuo-de   hao
      Zhangsan English   BI Lisi French speak-PART well
      'Zhangsan speaks better English than Lisi speaks French.'

A reduction-based account that captures the lack of comparative sub-deletion in Mandarin and the similarity between Spanish and Mandarin is therefore desirable, but for now will have to be left as a direction for future research.

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[18] Liu (2011), based on examples like (51), suggests that subcomparatives are unavailable in Mandarin because the standard constituent has to be minimally c-commanded by the target; in addition, the target has to be paralleled to the standard in category and semantics. I am concerned that this analysis may simply be a re-statement of the observed facts, but I refer the reader to Liu (2011) for further details.

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