《Article》

The Movement Derivation of Long-Distance Reflexives[1]

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Building on Ito's (2010a,b) null operator movement analysis, this paper discusses the syntax and semantics of long-distance reflexives (LDRs) focusing on their property of obligatory de se *construal.   I propose that LDRs' property of obligatory* de se *construal falls out naturally from the interaction of a null operator movement and a semantic condition imposed by LDRs. Specifically, it is argued (i) that the null operator movement creates a lambda-abstract with an individual variable and provides a value for that variable by the null operator being bound by a local subject and (ii) that LDRs impose a condition that the relevant attitude holder has an "I" or "you"-thought.   Some consequences of the proposed account for the Blocking Effect in Chinese are also addressed, with implications for the phase-based dynamic derivational model and the syntax-discourse interface.*

Keywords: long-distance reflexives (LDRs), de se, the Blocking Effect, syntax-discourse interface, phase

1. Introduction

Ever since the Government-Binding era, the fact that reflexive pronouns in some languages are apparently not bound in the minimal clause in which they are contained has constituted an explanandum for sytacticians (see Cole and Sung (1994), Manzini and Wexler (1987), and Progovac (1992, 1993) for early attempts):

(1)   Italian

Gianni$_i$ crede   [che Paolo$_j$ odi   la   propria$_{i/j}$ moglie].

G.   believes that P.   hates the   LDR   wife

'Gianni$_i$ believes that Paolo$_j$ hates his$_{i/j}$ wife.'   (Giorgi 2006: 1033)

(2)   Chinese

Zhangsan$_i$ renwei [Lisi$_j$ hen ziji$_{i/j}$].

Z.   think   L.   hate LDR

'Zhangsan$_i$ thinks that Lisi$_j$ hates himself$_j$/him$_i$.'   (Huang and Liu 2001: 142)

(3)   Icelandic

Jón$_i$ segir[að   Pétur$_j$ raki   sig$_{i/j}$ áhverjum degi].

J.   says that P.   shaves LDR   every   day

'John$_i$ says that Peter$_j$ shaves himself$_j$/him$_i$ every day.'   (Hicks 2009: 270)

(4)   Japanese

Mary$_i$-wa [John$_j$-ga zibun$_{i/j}$-o   semeta to] omotta.

M.-Top   J.-Nom   LDR-Acc blamed C   thought

'Mary$_i$ thought that John$_j$ blamed himself$_j$/her$_i$.'   (Nishigauchi and Kishida 2008: 67)

Recently, this phenomenon of long-distance reflexives (LDRs) has attracted a fair amount of semanticists' attention as well, starting with the influential discussion in Schlenker (1999, 2003) on the semantics of indexicality

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and attitude ascriptions.   As has been pointed out since Chierchia (1989), the distinctive property of LDRs is that they force *de se* (viz. first-personal) interpretations:

(5) a.   Pavarotti crede [che i suoi pantaloni siano in fiamme]. Ma non si e'accorto che i pantaloni sono i propri.
          'Pavarotti believes that his pants are on fire. But he hasn't realized that the pants are his own.'
     b. # Pavarotti crede [che i propri pantaloni siano in fiamme]. Ma non si e'accorto che i pantaloni sono i propri.
          'Pavarotti believes that LDR's pants are on fire. But he hasn't realized that the pants are his own.'

                                                                                                          (Chierchia 1989: 24)

Regular pronouns can have both *de se* and non-*de se* interpretations, and the continuation does not trigger contradictoriness in (5a), while LDRs force *de se* interpretations, hence the deviance of (5b).

In his survey of various *de se* expressions, Anand (2006) argues that LDRs are mediated by operator binding. The empirical ground for this claim is that LDRs exhibit an intervention effect which he dubs "the *De Re* Blocking Effect:"

(6) the *De Re* Blocking Effect
     No syntactic *de se* anaphor can be c-commanded by a *de re* counterpart.   (Anand 2006: 10)

(7) Chinese[2]
     a.   John$_i$ renwei [Bill$_j$ gei   ta$_i$ ziji$_{*i/j}$-de shu].
          J.   think   B.   give him LDR-DE book
          'John$_i$ thinks that Bill$_j$ gave him$_i$ his$_{*i/j}$ book.'
     b.   John$_i$ renwei [Bill$_j$ gei   ta$_i$-de mama   ziji$_{i/j}$-de shu].
          J.   think   B.   give he-DE mother LDR-DE book
          'John$_i$ thinks that Bill$_j$ gave his$_i$ mother his$_{i/j}$ book.'   (Anand 2006: 135)
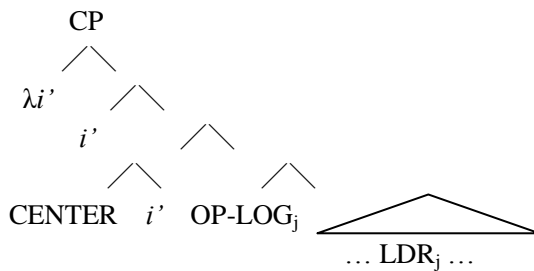

(8) Japanese
     a.   John$_i$-wa [Mary-ga kare$_{*i/j}$-ni [zibun$_i$-ga   tensai-da to] it-ta   to] omot-ta.
          J.-Top   M.-Nom he-Dat   LDR-Nom genius-is C say-Past C think-Past
          'John$_i$ thought that Mary told him$_{*i/j}$ that he$_i$ is a genius.'
     b.   John$_i$-wa [Mary-ga kare$_{i/j}$-no hahaoya-ni [zibun$_i$-ga   tensai-da to] it-ta   to] omot-ta.
          J.-Top   M.-Nom he-Gen mother-Dat LDR-Nom genius-is C say-Past C think-Past
          'John$_i$ thought that Mary told his$_{i/j}$ mother that he$_i$ is a genius.'   (Zushi 2001: 300-301)

(9) Icelandic
     a.   Bill$_i$ segir [John segði honum$_{*i/j}$ [að þu elskaðir sig$_i$]].
          B. said J. told   him.Dat   that you loved   LDR
          'Bill$_i$ said that John told him$_{*i/j}$ that you loved him$_i$.'
     b.   Bill$_i$ segir [John segði moðim hans$_{i/j}$ [að   þu elskaðir sig$_i$]].
          B. said J.   told   mother his   that you loved   LDR
          'Bill$_i$ said that John told his$_{i/j}$ mother that you loved him$_i$.'   (Anand 2006: 157)

Anand's *De Re* Blocking Effect shows convincingly that a structure-based account is required for LDRs

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[2] Anand (2006) observes that Mandarin speakers systematically divide between those who are sensitive to the *De Re* Blocking Effect (Mandarin$_2$) and those who are not (Mandarin$_1$).

(contra Sigurðsson (1990), Thráinsson (1990), Reinhart and Reuland (1991), Reuland (2001a,b), Reuland and Sigurjónsdóttir (1997)). Anand (2006) argues that an attitude verb whose subject serves as an antecedent for LDRs selects a CP of the following structure:

(10)

$$[\![\text{OP-LOG}_j\, \alpha]\!]^g = \lambda x.\, [\![\alpha]\!]^{g\, x/j}$$
$$[\![\text{CENTER}]\!]^g = \lambda i''.\, \text{AUTH}(i'')$$

This structure aims to capture the obligatory *de se* construal of LDRs in the following way: to begin with, adapting Kaplan's (1989) influential theory of indexicality, he postulates two distinct elements of type κ, where $D_\kappa = D_e \times D_e \times D_i \times D_s$, calling one of these quadruple elements an *index* ($i = <author, addressee, time, world>$) and the other a *context* ($c = <author\ of\ utterance, addressee\ of\ utterance, time\ of\ utterance, world\ of\ utterance>$), and posits that intensional quantification by attitude verbs is over indices (e.g. $[\![believe]\!]^g = \lambda P_{<\kappa t>}.\lambda att_e.\lambda i_\kappa.\,\forall i' \in \text{Dox}_{att}\, i\, [P\,(i') = 1]$) and that the reference of indexicals is relative to contexts (e.g. $[\![I]\!]^{c,i,g} = \text{AUTH}(c)$, $[\![you]\!]^{c,i,g} = \text{ADDR}(c)$, etc.). That is, complement clauses are taken to denote a pair-centered proposition, which corresponds to a set of pair-centered worlds, a possible world with an author-center (AUTH(i')) and an addressee-center (ADDR(i')). The idea is that the meaning of attitude verbs is a relation between an individual (*att* = attitude holder) and a set of pair-centered worlds and then *de se* attitudes correspond to a set of pair-centered worlds where the author-center has some property Ψ. Capitalizing on this semantic apparatus, Anand argues that LDRs, bearing a [log] feature, are bound by OP-LOG, which is located in the CP domain and functions as a lambda abstractor. Crucially, OP-LOG takes as its specifier a concept CENTER; CENTER denotes the *author* of an index; hence the *de se* interpretation arises:

(11) $[\![believe]\!]^g\, (\lambda i'.\, \Psi(\text{AUTH}(i'))(i'))(att)(i) = 1$ iff. $\forall i' \in \text{Dox}_{att}\, i\, [\Psi(\text{AUTH}(i'))\,(i') = 1]$
   "In all the pair-centered worlds compatible with *att*'s belief in *i*, the author-center has property Ψ."

Taking Anand's operator binding analysis as its point of departure, Ito (2010a,b) argues that the operator binding at work in LDRs is established by overt movement of a null operator, and presents several empirical arguments for the movement analysis. In this paper, adapting the analysis of Ito (2010a,b), I discuss how the structure created by the null operator movement yields LDRs' property of obligatory *de se* construal. The proposed analysis of LDRs consisits of the following two claims:

(12) a.   A null operator adjoined to an LDR moves to the left periphery (Ito 2010a,b). This movement creates a lambda-abstract with an individual variable and provides a value for that variable by the null operator being bound by a local subject.
      b.   LDRs impose a condition that the relevant attitude holder has an "I" or "you"-thought.

I first review some of the arguments in Ito (2010a,b) in favor of the movement analysis (section 2), and then the issue of *de se* interpretation is addressed in section 3. Section 4 discusses some consequences of the proposed account for the Blocking Effect in Chinese, and section 5 concludes.

2. Empirical Arguments for the Movement Analysis

2.1 Minimality Effects on Long-Distance Reflexives

Note, first of all, that LDRs exhibit unbounded dependency:

(13) a. Jón$_i$ segir [að María$_j$ viti [að Haraldur$_k$ vilji [að Billi$_l$ meiði sig$_{i/j/k/l}$]]. (Icelandic)
   J. says that M. knows that H. wants that B. hurts LDR
   'John$_i$ says Mary$_j$ knows Harold$_k$ wants Bill$_l$ to hurt himself$_l$/him$_{i/k}$/her$_j$.' (Anderson 1986: 66)

   b. Bill$_i$-wa [John$_j$-ga [Mary$_k$-ga zibun$_{i/j/k}$-o hihansita to] itta to] omotta. (Japanese)
   B.-Top J.-Nom M-Nom LDR-Acc criticized C said C thought
   'Bill$_i$ thought that John$_j$ said that Mary$_k$ criticized herself$_k$/him$_{i/j}$.' (Zushi 2001: 295)

   c. Zhangsan$_i$ renwei [Lisi$_j$ zhidao [Wangwu$_k$ xihuan ziji$_{i/j/k}$]]. (Chinese)
   Z. think L. know W. like LDR
   'Zhangsan$_i$ thinks that Lisi$_j$ knows that Wangwu$_k$ likes himself$_k$/him$_{i/j}$.' (Cole et al. 1990: 1)

The crucial observation is that LDRs exhibit systematic gaps in their interpretive possibilities:

(14)[3] Zhangsan$_i$ renwei [Lisi$_j$ zhidao [Wangwu$_k$ ba ziji de shu song-gei le ziji de pengyou]]. (Chinese)
   ZS think LS know WW BA LDR DE book gave-to Perf LDR DE friend
   'Zhangsan$_i$ thinks that Lisi$_j$ knows that…
   a. Wangwu gave his$_i$ books to his$_i$ friends.'
   b. Wangwu gave his$_j$ books to his$_j$ friends.'
   *c. Wangwu gave his$_i$ books to his$_j$ friends.'
   *d. Wangwu gave his$_j$ books to his$_i$ friends.' (Huang and Liu 2001: 147)

(15)[4] Taro$_i$-ga [$_{CP}$ Hanako$_j$-ga [$_{CP}$ mesitukai-ga zibun-no koibito-o zibun-no heya-ni kakusita to] omotteiru
   T.-Nom H.-Nom the.maid-Nom LDR-Gen lover-Acc LDR-Gen room-in hid C think
   to] kanzita toki… (Japanese)
   C felt when
   'When Taro$_i$ felt that Hanako$_j$ thought that…
   a. the maid hid his$_i$ lover in his$_i$ room.'
   b. the maid hid her$_j$ lover in her$_j$ room.'
   *c. the maid hid his$_i$ lover in her$_j$ room.'

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[3] Note that readings where either or both of the LDRs are locally bound are all allowed:
 'Zhangsan$_i$ thinks that Lisi$_j$ knows that…
   a. Wangwu$_k$ gave his$_k$ books to his$_k$ friends.'
   b. Wangwu$_k$ gave his$_i$ books to his$_k$ friends.'
   c. Wangwu$_k$ gave his$_j$ books to his$_k$ friends.'
   d. Wangwu$_k$ gave his$_k$ books to his$_i$ friends.'
   e. Wangwu$_k$ gave his$_k$ books to his$_j$ friends.'
[4] I have omitted the readings that involve local binding of LDRs, as it has been observed since Howard and Niyekawa-Howard that, in Japanese, clausemate LDRs must be interpreted either (i) as both long-distance bound or (ii) as both locally bound (cf. Iida 1992):
 (i) Taro-wa [Hanako-ga zibun-no heya-de zibun-no sigoto-o sitei-ta to] itta.
   T.-Top H.-Nom LDR-Gen room-in LDR-Gen work-Acc be.doing-Past C said
   a. Taro said that Hanako was doing his work in his room.
   b. Taro said that Hanako was doing her work in her room.
   c. *Taro said that Hanako was doing his work in her room.
   d. *Taro said that Hanako was doing her work in his room.' (Howard and Niyekawa-Howard 1976: 230)
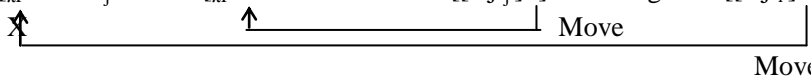
*d.   the maid hid her$_j$ lover in his$_i$ room.'

(16) John$_i$ xiwang[$_{CP1}$Mary$_j$ zhidao [$_{CP2}$ ziji de mama$_k$ renwei [$_{CP3}$ ziji shi yi-ge
       J.   hope   M.   know   LDRDE mother think   LDR COP one-CL
      chengshi de   ren]]].   (Chinese)
      honest   DE   person
      'John$_i$ hopes that Mary$_j$ knows that…
      a.   his$_i$/her$_j$ mother$_k$ thinks that she$_k$ is an honest person.'
      b.   his$_i$ mother thinks that he$_i$/*she$_j$ is an honest person.'
      c.   her$_j$ mother thinks that *he$_i$/she$_j$ is an honest person.'   (Anand 2006: 126)

(17) Taro$_i$-wa [Hanako$_j$-ga [Ken$_k$-ga zibun-ni [zibun-ga katta to] itta to] syutyoositeiru to]
       T.-Top   H.-Nom   K.-Nom LDR-Dat LDR-Nom won C said C claim   C
      omotteiru.   (Japanese)
      believe
      'Taro$_i$ believes that Hanako$_j$ claims that…
      a.   Ken$_k$ told him$_i$/her$_j$ that he$_k$ won.'
      b.   Ken$_k$ told him$_i$ that he$_i$/*she$_j$ won.'
      c.   Ken$_k$ told her$_j$ that *he$_i$/she$_j$ won.'   (Oshima 2006: 101)

Ito's (2010a,b) central thesis is that, by positing a null operator movement to the left periphery, this constraint on interpretive possibilities can be captured as minimanility effects on movement. Specifically, Ito (2010a,b) argues that in a relatively low position in the articulated structure of the left periphery exists a πP layer (a term that evokes *Person* and *Perspective*), to which a null operator adjoined to an LDR moves (see Ito (2010a,b) for empirical evidence in support of the postulation of this projection).[5]

(18) *Minimality effects on null operator movement*
      ZS$_i$ renwei [LS$_j$ zhidao [WW ba ziji$_j$ de shu song-gei le   ziji$_i$ de pengyou]].   (= (20d))

      ZS$_i$ think [$_{πP}$ LS$_j$ know [$_{πP}$ OP π WW ba [[ziji$_j$] t]'s book gave [[ziji$_i$]OP]'s friend]].
                                                                       └── Move
                                                                                    Move

Importantly, this constraint on interpretive possibilities of LDRs cannot be ascribable to semantic factors, for logophoric pronouns (LOGs) in West African languages, which share with LDRs the property of forcing *de se* interpretation (cf. Adesola 2006, Anand 2006, Safir 2005, and Schlenker 2003; the term "logophoric pronoun" was introduced by Hagège 1974) and are also subject to the *De Re* Blocking Effect ((19)), do not exhibit such a constraint on interpretive possibilities:

(19) a.   Olú$_i$ so� [pé ó$_{*i/j}$ rí bàbá òun$_i$]   (Yoruba)
           O.   says that he   see father LOG
           'Olu$_i$ said that he$_{*i/j}$ saw his$_i$ father.'   (Adesola 2006: 2070)

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b.　Olúi soˌ [pé bàbá rèˌi/j ti rí ìyá òuni]
　　O.　say that father his ASP see mother LOG
　　'Olui said that hisi/j father has seen hisi mother.'　　　　　　　　(Adesola 2006: 2090)

(20)　Edo (Baker 2008: 138)
　　Òzói tá [wẹ̀ ẹ̀ Àdésúwàj ròró [wẹ̀ ẹ̀ íreni hoẹ̀mwẹ́n íreṇj]].
　　O.　say that A.　think that LOG like LOG
　　'Ozoi said that Adesuwaj thinks that hei likes herj.'

(21)　Yoruba　　　　　　　　　　　　　　　　　　　　　　　　　　　(Safir 2005: (41))
　　Olúi rò [pé Adej so [pé òun rí ìyá òun]].
　　O.　think that A.　say that LOG see mother LOG
　　'Olui thinks that Adej said that…
　　a.　hei saw hisi mother.'
　　b.　hej saw hisj mother.'
　　c.　hei saw hisj mother.'
　　d.　hej saw hisi mother.'

(22)　Fɔn　　　　　　　　　　　　　　　　　　　　　　　　　　(Kinyalolo 1993: 228)
　　Sìkái tùn [ɖɔ̀ Kɔ̀kúj mɔ́ [ɖɔ̀ émì blé tɔ́ émì tɔ̀n]].
　　S.　know that K.　deny that LOG mislead father LOG Gen
　　'Sikai knows that Kokuj denied that…
　　a.　shei misled heri father.'
　　b.　hej misled hisj father.'
　　c.　shei misled hisj father.'
　　d.　hej misled heri father.'

2.2 The Blocking Effect in Chinese

It has been observed in Chinese that long-distance binding of *ziji* is blocked by intervening first or second person pronouns:

(23)　a.　Zhangsani zhidao [Lisij chang zai bieren mianqian piping zijii/j].
　　　　Z.　　know L.　often at others face criticize LDR
　　　　'Zhangsani knows that Lisij often criticizes himselfj/himi in the presence of others.'
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Huang et al. 2009: 331)
　　b.　Zhangsani zhidao [wo/nij chang zai bieren mianqian piping ziji*i/j].
　　　　Z.　　know I/you often at others face criticize LDR
　　　　'Zhangsan knows that I/you often criticize myselfj/yourselfj/*himi in the presence of others.'
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Huang et al. 2009: 331)
　　c.　Nii zhidao [woj chang zai bieren mianqian piping ziji*i/j].
　　　　you know I often at others face criticize LDR
　　　　'You know that I often criticize myselfj/*youi in the presence of others.'
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Huang et al. 2009: 332)

(24)　a.　Zhangsani danxin [wo/nij hui piping ziji*i/j].
　　　　Z.　　worry I/you will criticize LDR
　　　　'Zhangsani is worried that I/you will criticize myselfj/youselfj/*himi.'

26

b.   Wo$_i$ danxin [Zhangsan$_i$ hui piping ziji$_{i/j}$].
        I   worry Z.   will criticize LDR
        'I$_i$ am worried that Zhangsan$_j$ will criticize himself$_j$/me$_i$.'

c.   Ni$_i$ danxin [Zhangsan$_j$ hui piping ziji$_{i/j}$] ma?
        you worry Z.   will criticize LDR Q
        'Are you$_i$ worried that Zhangsan$_j$ will criticize himself$_j$/you$_i$?'   (Huang et al. 2009: 340)

In Ito (2010a,b), I proposed that this so-called "Blocking Effect" boils down to the licensing requirement for first/second person pronouns. Recently, Baker (2008), Bianchi (2006), and Sigurðsson (2004) among others have suggested that first/second person pronouns are subject to a special licensing requirement, which I adapt and adopt in the following form:

(25) *Licensing requirement for first/second person pronouns*
    Strong phase heads (C, *v*) are responsible for the licensing of first/second person pronouns in their domain.[6]

Capitalizing on this licensing requirement for first/second person pronouns, I suggest that the Blocking Effect follows from (26):

(26)[7] Strong phase heads (C, *v*) involved in movement of OP cannot license first/second person pronouns in their domain.

Under the movement analysis advocated here, long-distance binding of *ziji* in sentences like (23)/(24) involves a null operator movement in the embedded clause. For instance, (23b) requires the following derivation:

(27)
    Zhangsan knows [$_{CP}$ Π^0 I/you often criticize [[ziji] OP]].
                       ↓
                Not Licensed

In that case, the first/second person pronoun in the domain of the embedded C cannot be licensed by (26); hence long-distance binding is ruled out; the only possible interpretation is the one where *ziji* is locally-bound by the subject of the embedded clause.

    The relevance of *v* in (25)-(26) is evidenced by the contrast in (28):

(28) a.   John$_i$ shuo [Bill$_j$ songgei-le wo/ni yiben ziji$_{*i/j}$ de shu].
         J.   say B.   give-Perf me/you one-CL LDR DE book
         'John$_i$ said that Bill$_j$ gave me/you one of his$_{*i/j}$ books.'

    b.   John$_i$ shuo [Bill$_j$ ba ziji$_{i/j}$ de shu   songgei-le wo/ni].
         J.   say B.   BA LDR DE book give-Perf   me/you
         'John$_i$ said that Bill$_j$ gave his$_{i/j}$ books to me/you.'   (Pan 2001: 300)

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[6] I define the domain of a given strong phase head as its c-commanding domain minus the c-commanding domain of the immediately lower strong phase head.

[7] Relevant to this is a cross-linguistic generalization that the Blocking Effect is found only in languages that lack verbal person agreement (cf. Cole, Hermon, and Huang 2001). For instance, Reuland (2005) points out that Faroese, where number contrasts but no person contrasts are found in the verbal morphology, but not Icelandic exhibits the Blocking Effect. A possibility that suggests itself is that the licensing mechanism of first/second person pronouns differs between languages with verbal person agreement and those lacking thereof. Investigation of this issue is beyond the scope of this paper, however, and I leave it for future research.

The *ba* construction in Chinese is commonly analyzed as movement into a position higher than *v*P (cf. Huang et al. 2009: Chapter 5).   Accordingly, it follows that *v* of the embedded clause is involved in the movement of OP in (28a) but not in (28b).   Then, by (26) the first/second pronoun in (28b) but not in (28a) is licensed by the *v*.

(29)   John said [$_{CP}$ OP Π^0 Bill   (ba [[ziji] *t*] de shu)   [$_{vP}$ gave me/you *t*]]

Move   Move

↓
Licensed
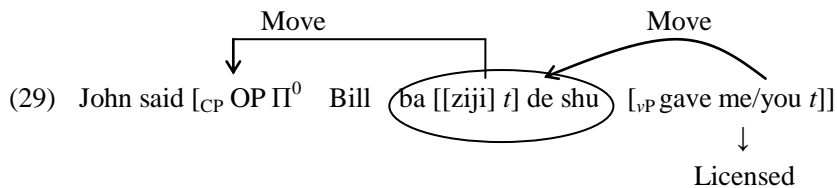
Note that linear order is irrelevant to the phenomena:

(30)   John$_i$ shuo [Mary$_j$ gei   ziji$_{*i/j}$ de   mama   ni   de   shu].
        J.   say   M.   gave LDR   DE   mother you DE   book
        'John$_i$ said that Mary$_j$ gave *his$_i$/her$_j$ mother your books.'   (Anand 2006: 131)

With this much in place, let us look at the sentence in (31), where *v* in the CP$_1$ cannot license the first/second pronoun in its domain when the LDR is long-distance bound by the matrix subject *John*:

(31)   John$_i$ shuo [$_{CP1}$ Bill$_j$ gaosu-guo ni/wo [$_{CP2}$ Mark$_k$ da-le   ziji$_{*i/?j/k}$ yixiar]].
        J.   say   B.   tell-Guo you/me M.   hit-Perf LDR   once
        'John said that Bill told you/me that Mark hit himself$_k$/*him$_i$/?him$_j$ once.'   (Pan 2001: 300)

By (26), this indicates that *v* in the CP$_1$ is involved in the movement of OP to Spec, ΠP of CP$_1$, thus demonstrating that the movement involved in LDRs exhibits successive cyclicity.[8]

2.3 Interim Summary

We have seen in the preceding subsections that LDRs exploit movement of a null operator to the left periphery:

(32)   Jón$_i$ telur   [að María elski   sig$_i$].   (Icelandic)
        J.   believes that M.   loves   LDR
        'John$_i$ believes that Mary loves him$_i$.'

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[8]   Note that the Blocking Effect is also triggered by first/second person pronouns occurring in the *v*P domain of the attitude verb whose subject serves as the antecedent for LDRs:
 (i) Zhangsan$_i$ gaosu   wo [Lisi$_j$ hen   ziji$_{*i/j}$]
    Z.   tell   me L.   hate LDR
'Zhangsan$_i$ told me that Lisi$_j$ hated *him$_i$/himself$_j$.'
(ii) Zhangsan$_i$ dui   wo shuo [Lisi$_j$ chang   piping   ziji$_{*i/j}$]
     Z.   to   me   say   L.   often   hate   LDR
'Zhangsan$_i$ said to me that Lisi$_j$ often criticized *him$_i$/himself$_j$.'   (Huang and Liu 2001: 145)
I assume that these cases are ascribable to factors other than that discussed here; see Cole, Hermon, and Lee (2001) for arguments that apparent blocking effects are not uniform and require differing treatments.

Move

$$\text{John believes [that OP Mary loves [[sig] } t\text{]].}$$

binding

(For x = John) x believes that (for $y = x$) Mary loves y.
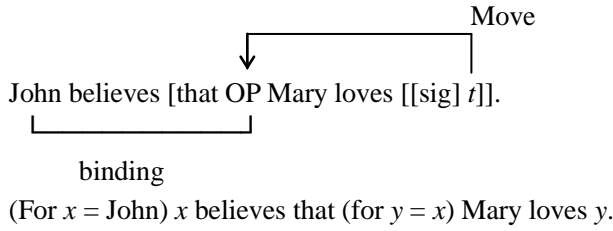
I hypothesize that the null operator movement plays two roles: it (i) creates a lambda-abstract with an individual variable and (ii) provides a value for that variable by the null operator being bound by a local subject.[9,10]   Given that the referent of an LDR is determined by the OP that has moved to the left periphery by hypothesis, a natural question to ask is what semantic contribution (if any) an LDR itself has.   Crucially, LDRs have the property of obligatory *de se* construal, and hence to link the semantic contribution of LDRs with this property is a promising move.   I address this issue in the next section.

3. Deriving *De Se* Interpretation

Anand's treatment of *de se* attitude ascriptions is essentially an adaptation of Lewis's (1979) property account of sentences like (33), and hence the arguments against Lewis's account in the literature directly apply to Anand's analysis.

(33) a.   Heimson believes he is Hume.
      b.   Hume believes he is Hume.

Under Anand's analysis, when the pronoun *he* is interpreted *de se*, the complement clause of both (33a) and (33b) denotes a pair-centered proposition $[\lambda i'. \text{AUTH}(i') = \text{Hume in } i']$.[11]   However, as Higginbotham (2009), Moltmann (forthcoming), and Stalnaker (2008) point out, if the complement clause denotes a function from indices to truth values, it cannot be evaluated as true or false in itself.   The analysis then fails to capture the strong intuition that what Heimson believes is false while what Hume believes is true.   Analogously, as Stalnaker (2008) points out, if the complement clauses of (33a) and (33b) have the same denotation, it does not follow that what Heimson

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[9]   As Zushi (2001) points out, given that the hyphothesized null operator induces no weak crossover effect as seen from the sentences in (7)-(9), the operator should be regarded as non-quantificational (cf. Lasnik and Stowell 1991).

[10]   With Hornstein and Pietroski (2010), I assume that the semantic import of binding is identity of reference/extension.

[11]   Note that *de se* interpretation is optional here.   In line with Percus and Sauerland (2003), Anand postulates a concept-generator G and its generalized form Γ: Γ, taking an attitude holder and a matrix index, yields a G (viz. $\Gamma(att)(i)$ = G); G takes as its argument a *de re* interpreted phrase and returns an individual concept $f_{<\kappa e>}$ ($[\![G]\!] = \lambda x_e$: *att* is acquainted with x. $f_{<\kappa e>}$ such that (i) f is suitable for *att* in i, and (ii) $f(i[\text{AUTH}(i)/att]) = x$.   Correspondingly, the complement clause of attitude verbs denotes a function from concept-generators to propositions:

```
                  ╱╲
       believe   ╱ ╲
          λG    ╱╲
             λi'  ╱╲
                i'  ╱╲
                   ╱╲  …
                  ╱ ╲ i'
                 he  G
```
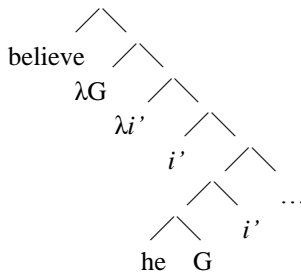
$[\![\text{believe}]\!]^g = \lambda P_{<e\kappa e,\, \kappa t>}.\lambda att_e.\lambda i_\kappa. \exists \Gamma[\forall i' \in \text{Dox}_{att}\, i\, [P(\Gamma(att)(i))\, (i') = 1]]$

De se interpretation arises when G returns the first-personal concept $[\lambda i''.\text{AUTH}(i'')]$.

believes is different from what Hume does.[12]

I propose, instead, to explore the possibility suggested in Cappelen and Hawthorne (2009: 50-54) that *de se* attitude ascriptions constitute a Fregean aspect of meaning, and to this end adopt Chalmers' (forthcoming) semantics of attitude ascriptions, which is framed within two-dimensional semantics, a way of looking at modality that is rich enough to deal with Fregean aspects of meaning (See Chalmers 2002ab, 2004 for the details of the two-dimensional framework).

Frege (1892) introduced the notion of *sense* to account both for the cognitive significance of unembedded sentences and for the truth-conditional contribution of clauses embedded by an attitude verb. For instance, "Hesperus is Phosphorus" and "Hesperus is Hesperus" are both necessarily true sentences, but they have different cognitive significance: the former sentence is cognitively significant (nontrivial) but the latter is cognitively insignificant (trivial). At the same time, "John believes that Hesperus is Phosphorus" and "John believes that Hesperus is Hesperus" have different truth conditions. Frege's notion of sense is designed to deal with these facts: even though "Hesperus" and "Phosphorus" have the same referent (viz. Venus), they have different senses. Accordingly, the sentence "Hesperus is Phosphorus" is nontrivial. With respect to the truth-conditional contribution of embedded clauses, Frege held that in indirect discourse sentences refer to their senses. Hence, "John believes that Hesperus is Phosphorus" and "John believes that Hesperus is Hesperus" differ in truth condition.

Just like Frege's two-tiered sense-reference semantics, two-dimensional semantics associates every expression with two sorts of intension: a primary intension (a function from epistemically possible scenarios (or centered worlds) to extensions) and a secondary intension (a function from (metaphysically) possible worlds to extensions). A primary intension is a semantic value that is constitutively tied to an expression's role in reason and cognition; a secondary intension serves in the metaphysical domain. To take an example, "Hesperus" and "Phosphorus" have distinct primary intensions and identical secondary intensions. Hence, "Hesperus is Phosphorus" is cognitively significant and metaphysically necessary. Chalmers preserves Frege's insight about the truth-conditional contribution of clauses embedded by an attitude verb by invoking a semantic entity of *enriched proposition*. An enriched proposition is an enriched intension of a sentence: the enriched intension of a simple expression is an ordered pair of the expression's primary intension and its extension, and the enriched intension of a complex expression is a structure consisting of the enriched intension of its simple parts, structured according to the extension's logical form; accordingly, an enriched proposition can be regarded as an ordered pair

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[12] Admittedly, these objections are not decisive. An Anandian can reply that there is an index that represents the <*author*, *addressse*, *time*, *world*> coordinates of the relevant believing event and that what Heimson/Hume believes is not the pair-centered proposition denoted by the complement clause but the possible-world proposition obtained by applying the <*author*, *addressee*, *time*> parameters of that index to the denotation of the complement clause. Then, what Heimson believes and what Hume does correspond to distinct sets of possible worlds: the former to the empty set and the latter to the set of all possible worlds (see Moltmann (forthcoming) and Ninan (2010) for attempts along this line).

A problem with this reply is that the index required is not present in the representation of the attitude ascription sentences at issue and it is not immediately clear how it can be obtained. Notice that in Anand's representation of the Heimson/Hume sentences there are only two tokens of indices: the matrix one, in which the attitude verb is evaluated, and the embedded one, which is quantified over by the attitude verb. In fact, Anand postulates what he dubs "a derived index," which is close to the one required here; the derived index $i[\text{AUTH}(i)/att] = <att, \text{ADDR}(i), \text{TIME}(i), \text{WORLD}(i)>$ is constructed by resetting the *author* parameter of the matrix index to the attitude holder. However, it is clear that the derived index does not suffice for the role required here. After all, the matrix index represents the <*author*, *addressee*, *time*, *world*> coordinates of the actual utterance (Anand posits that at the root $i = c$); in order to represent the <*author*, *addressee*, *time*, *world*> coordinates of the relevant believing event, not only the *author* parameter but all the parameters have to be resetted.

An expert reader might have noticed that the problem at issue here is that of *wide content*; the moral of the discussion is that if the complement clause of "believe" is taken to denote a (pair-)centered proposition, it is hard (if not impossible) to capture the wide content of that belief. I concur with Higginbotham (1991, 2009) that this problem is inherent in the standard Hintikkian possible-world semantics of attitude verbs and offers at least a motivation to reconsider that framework.

of a structured primary intension and a Russellian proposition.   For instance, the intuition that my utterance of "You are hungry" and your utterance of "I am hungry" are saying the same thing stems from these utterances sharing their associated Russelian propositions (but not their structured primary intensions).

Assuming that beliefs as well as sentences are associated with enriched propositions, Chalmers submits the following truth condition for attitude ascriptions:

(34)   "x believes that S" is true iff x has a belief with the Russellian content of S and with an S-appropriate structured primary intension.

Formally:

(35)   "x believes that S" is true iff $\exists q \, E\,(x, q) \,\&\, C\,(q, p)$,
where p is the enriched proposition expressed by S, E is the endorsement relation (when x has a belief with enriched proposition q, x endorses q), and C expresses a context-dependent coordination relation (p is coordinate with q iff (i) p and q have the same Russelian content and (ii) p determines an S-appropriate primary intension).

The idea is that belief ascriptions require an appropriate relation (dubbed *coordination*) to hold between the proposition denoted by the complement clause and the proposition associated with the belief ascribed; in a word, "to believe that S" is to have a belief that is coordinate with the denotation of "that S" and not to have a belief with the denotation of "that S."

The S-appropriateness condition nicely explains the above-mentioned truth-conditional difference between "John believes that Hesperus is Hesperus" and "John believes that Hesperus is Phosphorus." The former ascription is true iff John has a belief with an enriched proposition that is coordinate with $[h'/v = h'/v]$ (where "a/b" represents an enriched intension with primary intension a and extension b) while the latter is true iff John has a belief with an enriched proposition that is coordinate with $[h'/v = p'/v]$.   Therefore, even if "John believes that Hesperus is Hesperus" is true by virtue of John having a belief with an enriched proposition $[h'_1/v = h'_1/v]$, "John believes that Hesperus is Phosphorus" is false because $[h'_1/v = h'_1/v]$ is not coordinate with $[h'/v = p'/v]$ (particularly, h'_1 is not "Phosphorus"-appropriate).

Given the role of the S-appropriateness condition involved in attitude ascriptions, I propose that LDRs impose a peculiar appropriateness condition; I hypothesize that LDRs impose an appropriateness condition to the effect that an LDR-appropriate primary intension is only i' or u', where i' and u' are the special primary intensions associated with all utterances of first and second person pronouns, respectively.   This appropriateness condition works as follows:

(36)   Jón$_i$ telur   [að María elski   sig$_i$].   (Icelandic)
       J.   believes that M.   loves   LDR
'   John$_i$ believes that Mary loves him$_i$.'

Move

John believes [that OP Mary loves [[sig] t]].
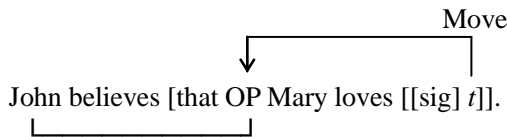
binding
(For $x =$ John) x believes that (for $y = x$) Mary loves y.

Though both i' and u' are LDR-appropriate primary intensions, recall that the referent of the LDR has already been determined by the moved null operator as John.   Hence, the LDR-appropriate primary intension in this case cannot be u' but i'.   Thus, the belief that John is claimed to have is interpreted as first-personal (roughly, "Mary

loves **me**").[13]

The hypothesis that LDRs impose a distinctive appropriateness condition has an independent motivation. As Falz-Pica's generalization (Falz 1977, Pica 1987) states, long-distance binding is only allowed by morphologically simplex reflexive pronouns, and crucially it is well known that morphologically simplex reflexive pronouns form a natural class with first/second person (singular) pronouns in morphological terms (see Kayne 2000 among others):

(37) Quel dittatore$_i$ pensava [che I libri di storia avrebbero parlato a lungo di **sé**$_i$
     that dictator thought that the books of history would talk for.a.long.time of LDR
     e delle sue gesta]. (Italian)
     and of his deeds
     'That dictator$_i$ thought that the books of history would talk for a long time about him$_i$ and his deeds.'
                                                        (Giorgi 1984: 329)

(38) On$_i$ souhaite toujours [que les gens ne dissent pas du mal de **soi**$_i$]. (French)
     One wishes always that people says Neg bad of LDR
     'One$_i$ always wishes that people do not slander him$_i$.'   (Pica 1991: 126)

(39) *Italian*:   1sg   2sg   LDR   *French*:   1sg   2sg   LDR
             me   te   sé   moi   toi   soi

(40) Jón$_i$ telur [að María elski **sig**$_i$]. (Icelandic)
     J. believes that M. loves LDR
     'John$_i$ believes that Mary loves him$_i$.'   (Thráinsson 1990: 303)

(41) Gunnvør$_i$ visti, [at tey hildu lítið um **seg**$_i$]. (Faroese)
     G. knew that they thought little of LDR
     'Gunnvør$_i$ knew that they had a poor opinion of her$_i$.'   (Anderson 1986: 78)

(42) *Icelandic*:   1sg 2sg LDR   *Faroese*:   1sg 2sg LDR
         Gen mín Þín sín   Gen mín tín sín
         Dat mér Þér sér   Dat mær tær sær
         Acc mig Þig sig   Acc meg teg seg
         (Taraldsen 1996: fn.17   (Barnes 1994: 200)

(43) Raamu$_i$ [Shyaamu **tann-annu**$_i$ priitis-utt-aane anta] namb-utt-aane. (Kannada)
     R.-Nom S-Nom LDR-Acc love-NPST-3sg.m. that believe-NPST-3sg.m.
     'Raam$_i$ believes that Shyam loves him$_i$.   (Lidz 2001: 227)

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[13] It is worth noting here that by invoking the Russellian content associated with a belief, Chalmers' semantics of attitude ascriptions eschews the wide content problem that plagues Lewis-Anand's account: the wide content of a belief ascribed is simply the Russellian proposition expressed by the complement clause. In the Heimson/Hume example, Heimson's belief [i'/he = hu'$_1$/hu] and Hume's belief [i'/hu = hu'$_2$/hu] are associated with distinct Russellian contents, which are false simpliciter and true simpliciter, respectively, even though they have almost the same structured primary intension, which reflects the striking similarity between Heimson and Hume with respect to the internal cognitive state. (Note that the Russellian content associated with a belief ascribed is determined by its associated structured primary intension by applying to it the scenario where that belief is actually situated rather than the scenario the attitude ascribee considers as actual.) As Chalmers (2002b: 627-8) points out, Lewis in effect advocates a one-dimensional view of content. I.e., "Lewis holds that what one believes is determined by what is in one's head, and not in addition by who one is" (Higginbotham 1991: 367). Accordingly, the problems his account faces, which typically concern the alethic modality, can be accommodated without ado by the two-dimensional view of content.

(44) Murukeecan$_i$ [**taan$_i$** vareen-ɳɳu] connaaru. (Tamil)
M. LDR come.Pres.1sg.-C say.Past.3sg.Honorific
'Murugesan$_i$ said he$_i$ himself was coming.' (Asher 1985: 2)

(45) *Kannada*: 1sg 2sg LDR
Nom na:nu ni:nu ta:nu
Acc nannannu ninnannu tannannu
Dat nanage ninage tanage
Gen nanna ninna tanna (Sridhar 1990: 209)

Tamil: 1sg 2sg LDR
Nom naan nii taan
Acc enne onne tanne
Dat enakku onakku tanakku (Ahser 1985: 147-148)

Notably, the idea that LDRs impose a condition that the attitude ascribee has an "I" or "you" thought has one welcome consequence. As discussed in Huang (1999) and Huang and Liu (2001), LDRs induce distributivity on plural antecedents.

(46) Pavarotti e Domingo hanno ditto [che i propri pantaloni sono in fiamme].
P. and D. have said that the LDR pants are on fire
'Pavarotti and Domingo each$_i$ said that their$_i$ pants are on fire.' (Huang 1999: 41)

The sentence only means that both Pavarotti and Domingo said, "My pants are on fire." and does not have the meaning according to which Pavarotti and Domingo said, either separately or as a group, "Our pants are on fire." This point can also be illustrated by the fact that in Chinese, where the distributive reading requires an overt marking by *dou* 'all' or *ge* 'each,' a plural NP cannot serve as a long-distance antecedent of an LDR, unless it is overtly marked to be distributive:

(47) a. Tamen$_i$ shuo [Zhangsan$_j$ piping-le ziji$_{*i/j}$].
they say Z. criticize-Perf LDR
'They$_i$ said that Zhangsan$_j$ criticized *them$_i$/himself$_j$.'
    b. Tamen$_i$ dou shuo [Zhangsan$_j$ piping-le ziji$_{i/j}$].
they all say Z. criticize-Perf LDR
'Every one$_i$ of them said that Zhangsan$_j$ criticized him$_i$/himself$_j$.'

(48) a. Tamen$_i$ shuo [tamen$_j$ chang piping-le ziji$_{*i/j}$]. (i ≠ j)
they say they often criticize-Perf LDR
'They$_i$ said that they$_j$ often criticize *them$_i$/themselves$_j$.'
    b. Tamen$_i$ dou shuo [tamen$_j$ chang piping-le ziji$_{i/j}$]. (i ≠ j)
they all say they often criticize-Perf LDR
'Each$_i$ of them said that they$_j$ often criticize him$_i$/themselves$_j$.' (Huang 1999: 29-30)

The current account predicts this distributivity effect; recall that the referent of an LDR is supposed to be determined by the binding relation between the moved OP and the local subject. As the appropriateness condition imposed by an LDR forces the attitude ascribee to use "I" or "you" to refer to that referent, the referent must be singular. Therefore, a plural subject must be distributed so that it would provide a singular value for the moved OP.

4. More on the Blocking Effect in Chinese

In assigning LDRs the role of forcing first/second-personal interpretation, the current account might look similar to Schlenker's (1999, 2003) analysis where LDRs are treated as first-person pronouns that take a non-actual context variable. However, there exists a phenomenon from Chinese pointed out in Anand (2006) that suggests Schlenker's analysis is empirically rather too restrictive.

In Chinese, LDRs *ziji* can refer to the author of the actual utterance:

(49) Bill_i gei wo-de mama ziji-de shu.
      B.   give I-DE mother LDR-DE book
      'Bill_i gave my mother his_i/**my** book.'   (Anand 2006: 137)

Furthermore, *ziji* can also refer to the addressee of the actual utterance, especially in questions:

(50) John_i weishenme gei ni-de mama ziji-de shu ne?
      J.   why   give you-DE mother LDR-DE book Q
      'Why did John_i give your mother his_i/**your** book?'   (Anand 2006: 138)

Since Schlenker regards LDRs as first-person pronouns that take a non-actual context variable, these discourse-anaphoric uses of *ziji* is outside the scope of his analysis. However, Anand (2006) presents two pieces of evidence that motivate a unified treatment of this discourse-anaphoric use of *ziji* and its use as a long-distance anaphor. First, note that the discourse-anaphoric use is also available when *ziji* is in an embedded clause:

(51) John shuo [Bill chang piping ziji].
      J.   say B. often criticize LDR
      'John said that Bill criticized **me**.'   (Anand 2006: 124)

The point is that the pattern of gaps in interpretive possibilities we have seen in multiple occurences of long-distance *ziji* (repeated here) also appears in cases where one *ziji* is used as a discourse anaphor and the other as a long-distance anaphor:

(52) Zhangsan_i renwei [Lisi_j zhidao [Wangwu_k ba ziji de shu song-gei le ziji de pengyou]].
      ZS   think LS know WW   BA LDR DE book gave-to Perf LDR DE friend
      'Zhangsan_i thinks that Lisi_j knows that…   (Chinese)
      a.   Wangwu gave his_i books to his_i friends.'
      b.   Wangwu gave his_j books to his_j friends.'
   *c.   Wangwu gave his_i books to his_j friends.'
   *d.   Wangwu gave his_j books to his_i friends.'   (Huang and Liu 2001: 147)

(53) [Lisi_i zhidao [Wangwu_j ba ziji de shu song-gei le ziji de pengyou]].
      LS   know WW   BA LDR DE book gave-to Perf LDR DE friend
      'Lisi_i knows that…
      a.   Wangwu gave my books to my friends.'
      b.   Wangwu gave his_i books to his_i friends.'
   *c.   Wangwu gave my books to his_i friends.'
   *d.   Wangwu gave his_i books to my friends.'   (Anand 2006: 125)

Likewise, the discourse-anaphoric use of *ziji* patterns in interpretive possibilities with its use a long-distance
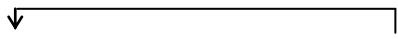
anaphor when two occurrences of *ziji* appear in different clauses:

(54) John$_i$ xiwang [$_{CP1}$ Mary$_j$ zhidao [$_{CP2}$ ziji de mama$_k$ renwei [$_{CP3}$ ziji shi yi-ge
     J.   hope   M.   know   LDR DE mother think   LDR COP one-CL
     chengshi de ren]]].   (Chinese)
     honest   DE person
     'John$_i$ hopes that Mary$_j$ knows that…
     a.   his$_i$/her$_j$ mother$_k$ thinks that she$_k$ is an honest person.'
     b.   his$_i$ mother thinks that he$_i$/*she$_j$ is an honest person.'
     c.   her$_j$ mother thinks that *he$_i$/she$_j$ is an honest person.'
     d.   my mother$_k$ thinks that she$_k$ is an honest person.'
     e.   my mother thinks that I am/ *{he$_i$/she$_j$} is an honest person.'
     f.   my/*his$_i$/*her$_j$ mother thinks that I am an honest person.'   (Anand 2006: 126)

The second piece of evidence that argues for the unity of the discourse-anaphoric and the long-distance-anaphoric uses of *ziji* is that, just like its use as a long-distance anaphor (repeated here), the discourse-anaphoric use is subject to the *De Re* Blocking Effect:

(7)   a.   John$_i$ renwei [Bill$_j$ gei ta$_i$ ziji$_{*i/j}$-de shu].
           J.   think   B.   give him LDR-DE book
           'John$_i$ thinks that Bill$_j$ gave him$_i$ his$_{*i/j}$ book.'
    b.   John$_i$ renwei [Bill$_j$ gei ta$_i$-de mama ziji$_{i/j}$-de shu].
           J.   think   B.   give he-DE mother LDR-DE book
           'John$_i$ thinks that Bill$_j$ gave his$_i$ mother his$_{i/j}$ book.'   (Anand 2006: 135)

(55)   a.   Bill$_i$ gei wo ziji-de shu.
           B.   give I   LDR-DE book
           'Bill$_i$ gave me his$_i$/*my book.'
    b.   Bill$_i$ gei wo-de mama ziji-de shu.   (= (49))
           B.   give I-DE   mother LDR-DE book
           'Bill$_i$ gave my mother his$_i$/my book.'   (Anand 2006: 137)

(56)   a.   John$_i$ weishenme gei ni ziji-de shu ne?
           J.   why   give you LDR-DE book Q
           'Why did John$_i$ give you his$_i$/*your book?'
    b.   John$_i$ weishenme gei ni-de mama ziji-de shu ne?   (= (50))
           J.   why   give you-DE mother LDR-DE book Q
           'Why did John$_i$ give your mother his$_i$/your book?'   (Anand 2006: 138)

These two empirical facts are immediately explained by extending the null operator movement analysis of LDRs to the discourse-anaphoric use: just like in the long-distance-anaphoric use, a null operator that is adjoined to an LDR moves to the left periphery and creates a lambda-abstract with an individual variable:

(57)   OP Bill gave my mother [[LDR] *t*]'s book.
        λ*x*. Bill gave my mother *x*'s book.

The only difference from the long-distance-anaphoric use is that, while in the long-distance-anaphoric use the null

operator provides a value for the variable by being bound by a local subject, in the discourse-anaphoric use the null operator determines a value of the variable by picking out an individual from the discourse. The semantic contribution of LDRs remains the same. Since an utterance expresses the utterer's thought, generalizing the semantics of attitude ascriptions allows an utterance to be interpreted as the utterer having a thought that is coordinate with the proposition denoted by that utterance. Thus, when the null operator picks out the author of the utterance as the value of the variable, the utterance is interpreted as the utterer having an "I"-thought, and when the null operator picks out the addressee of the utterance the utterance is interpreted as the utterer having a "you"-thought.[14] It also follows that the null operator must pick out the author or the addressee of the utterance since otherwise the utterer cannot have an "I" or "you"-thought.

At this juncture, it must be pointed out that this difference between the long-distance-anaphoric and the discourse-anaphoric uses of *ziji* (viz. whether a null operator provides a value intrasententially or from the discourse) offers a clue to the etiology of the Blocking Effect we have discussed in section 2.2. Notice that whereas the long-distance-anaphoric use of *ziji* is blocked by intervening first/second person pronouns:

(28) a. John$_i$ shuo [Bill$_j$ songgei-le wo/ni yiben ziji$_{*i/j}$ de shu].
      J. say B. give-Perf me/you one-CL LDR DE book
      'John$_i$ said that Bill$_j$ gave me/you one of his$_{*i/j}$ books.'   (Pan 2001: 300)

the discourse-anaphoric use is not blocked:[15]

(49) Bill$_i$ gei wo-de mama ziji-de shu.
      B. give I-DE mother LDR-DE book
      'Bill$_i$ gave my mother his$_i$/my book.'   (Anand 2006: 137)

(50) John$_i$ weishenme gei ni-de mama ziji-de shu ne?
      J. why   give you-DE mother LDR-DE book Q
      'Why did John$_i$ give your mother his$_i$/your book?'   (Anand 2006: 138)

This contrast is amenable to the difference between the two uses in the way the null operator obtains a value. Recall that while in the long-distance-anaphoric use the null operator obtains a value by being bound by a local subject, in the discourse-anaphoric use the null operator does so by picking out an individual from a discourse. Since the licensing of first/second person pronouns necessitates making reference to the actual discourse (context), it is natural that when the null operator picks out an individual from a discourse, first/second person pronouns are successfully licensed. This, in turn, suggests that, when the null operator is referentially dependent intrasententially on a local subject, making reference to the actual context is impossible (Giorgi 2010 reaches a similar conclusion). Thus, we now have a rationale for conditions (25)-(26) postulated in section 2.2. to account for the Blocking Effect.

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[14] Note that, since at the root first/second person pronouns are unambiguously interpreted *de se/de te*, "I/you"-appropriate primary intensions are only i'/u'. Embedded contexts are exceptional owing to the sameness-of-Russellian-content requirement for the coordination relation.

[15] Note that presence/absence of a c-commanding relation between a first/second person pronoun and an LDR is irrelevant to the blocking effect in general:

 (i) a. Baoyü$_i$ yiwei [wo/ni de xuesheng$_j$ bu xihuan ziji$_{*i/j}$].
     B.   think I/you DE student   not like   LDR
    'Baoyü$_i$ thinks that my/your student$_j$ does not like *him$_i$/himself$_j$.'
   b. Baoyü$_i$ yiwei [Lisi de xuesheng$_j$ bu xihuan ziji$_{i/j}$].
     B.   think L. DE student   not like   LDR
    'Baoyü$_i$ thinks that Lisi's student$_j$ does not like him$_i$/himself$_j$.'   (Pan 2001: 285)

(25) *Licensing requirement for first/second person pronouns*
Strong phase heads (C, *v*) are responsible for the licensing of first/second person pronouns in their domain.

(26) Strong phase heads (C, *v*) involved in a movement of OP cannot license first/second person pronouns in their domain.

Situated in the phase-based derivational model of Chomsky (2000 et seq.), condition (25) materializes a view that the syntax-discourse interface is governed by the dynamics of cyclic spell-out, and condition (26) says that a phase head involved in LDR-related operator movement is "defective" in the sense that discourse information is unavailable in this cycle.   Though there remain speculative and approximate features on this account (cf. fn.7), the account at least clarifies the lay of the land.   An elaborate theory will be obtained through investigation of broader empirical data.

5. Conclusion

Building on Ito's (2010a,b) null operator movement analysis, I have discussed how the structure created by the null operator movement yields LDRs' property of obligatory *de se* construal.   I have argued that the property of obligatory *de se* construal falls out naturally from the interaction of a null operator movement and a semantic condition imposed by LDRs.   Specifically, I have claimed (i) that the null operator movement creates a lambda-abstract with an individual variable and provides a value for that variable by the null operator being bound by a local subject and (ii) that LDRs impose a condition that the relevant attitude holder has an "I" or "you" thought.   I have also addressed some consequences of the proposed account for the Blocking Effect in Chinese, with speculative suggestions on the phase-based dynamic derivational model and the syntax-discourse interface.

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