

Move versus Non-Move: Minimalist Analysis of Long-Distance Reflexives and Logophoric Pronouns*

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This paper focuses on long-distance reflexives (LDRs) and logophoric pronouns (LOGs), which share the property of forcing de se interpretations, and argues that LDRs involve movement in Narrow Syntax while LOGs are mediated by unselective binding in the interpretive (Σ) component. Specifically, I show that sentences containing LDRs, unlike those with LOGs, exhibit certain gaps in their interpretive possibilities, and propose that this difference in interpretive possibilities between LDRs and LOGs results from an island effect (via defective intervention) caused by the overt movement involved in LDRs. The paper proposes analyzing LDRs as instances of resumption and claims that this analysis of LDRs as resumption derives Pica's (1987) generalization regarding the morphological simplicity of LDRs. Based on the Blocking Effect in Chinese and the indicative/subjunctive opposition in Icelandic and Italian, it is further argued that the movement involved in LDRs exhibits successive cyclicity and that the target of the movement is a relatively low position in the articulated structure of the left periphery. The analysis of LDRs and LOGs in this paper leads to the conclusion that the mechanism of subject control is not reduced either to that of LDRs or to that of LOGs, contra Chierchia (1989).

Keywords: long-distance reflexives, logophoric pronouns, de se interpretations, the Blocking Effect, left periphery

1. Introduction

It has been well known since 1980s that some languages exhibit cases where reflexive pronouns are apparently not bound in the sentence they are contained. Some examples of this phenomenon of long-distance reflexives (LDRs) are illustrated below:¹

(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/him_i.'

(Huang and Liu 2001: 142)

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¹ This paper does not deal with so-called 'mediun-distance reflexives', reflexives which are bound from outside an infinitival:

(i) Jón_i skipaði Pétri_j [að PRO_j raka sig_{i/j} á hverjum degi].

J. ordered P. to shave(infinitive) LDR every day

'John_i order Peter_j to shave him_i/himself_j every day.'

See Reinhart and Reuland (1991), Zushi (2001), McKeown (2007) and references cited therein.

- (3) Icelandic (Thráinsson 1990: 290)
 Jón_i segir [að Pétur_j raki sig_{i/j} á hverjum 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)

As has been pointed out since Chierchia (1989), the distinctive property of LDRs is that they force *de se* interpretations in the sense of Lewis (1979). *De se* belief is a belief where the attitude-holder is aware of his role as the object of that belief. This can be illustrated by the fact that (5a) is not contradictory, while (5b) is:

- (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)

Since regular pronouns can have both *de se* and *de re* (i.e. non-*de se*) interpretations, the continuation does not trigger contradictoriness in (5a), but LDRs force *de se* interpretations, hence the deviance of (5b).

This property of the obligatory *de se* construal is also observed in the study of logophoric pronouns (LOGs) attested in West-African languages (Adesola 2006, Anand 2006, and Safir 2005). LOGs are special pronouns used to refer to the individual whose speech, thoughts, or feelings are reported in a given linguistic context (cf. Clements 1975). In contrast with LDRs, LOGs cannot be used as local reflexives.

- (6) Ewe (Clements 1975: 142)
 Kofi_i be [yè_i-dzo].
 K. say LOG-leave
 ‘Kofi_i said that he_i left.’
- (7) Yoruba (Adesola 2006: 2069)
 Olú_i ti kéde [pé òun_i má a wá ní òl_a].
 O. ASP announced that LOG will come at tomorrow
 ‘Olu_i has announced that he_i will come tomorrow.’
- (8) Edo (Baker 2008: 135)
 Òzó_i miànmián [wẹ́ írèn_i kié èkhù].
 O. forgot that LOG opened door
 ‘Ozo_i forgot that he_i opened the door.’

In his recent survey of various *de se* expressions, Anand (2006) argues that LDRs and LOGs fall into ‘syntactic class’, where *de se* interpretations are established by operator binding.²

² Presumably, ‘logophors’ in the sense of Reinhart and Reuland (1991, 1993) fall into this class. This presumption is based on the fact that logophors allow both *de se* and non-*de se* interpretations:
scenario: Lucie, a broadcast manager, is looking for the perfect female voice for an ad, and requests to hear some samples of women in natural conversation. Unbeknown to her, the technician records her too, and adds it to the samples as number 17. Lucie does not recognize her recorded voice, and rules out 17 as too aggressive.

- (9) Anand's (2006) classification
- | CLASS | METHOD | MEMBERS |
|-----------|-------------------------|--|
| Default | <i>de re</i> ascription | pronouns |
| Semantic | context-overwriting | shifted indexicals, Mandarin ₁ <i>ziji</i> , Malayalam <i>taan</i> |
| Syntactic | binding by operator | Yoruba <i>oun</i> , English dream-selves, Icelandic <i>sig</i> ,
Japanese <i>zibun</i> , Mandarin ₂ <i>ziji</i> (Anand 2006: 11) |

The empirical ground for his classification is the fact that both LDRs and LOGs exhibit an intervention effect which he dubs 'the *De Re* Blocking Effect':

- (10) the *De Re* Blocking Effect
No syntactic *de se* anaphor can be c-commanded by a *de re* counterpart (Anand 2006: 10)
- (11) Yoruba
- a. Olú_i so, [pé ó_{*i/j} rí bàbá òun_i]
O. says that he see father LOG
'Olu_i said that he_{*i/j} saw his_i father.'
(Adesola 2006: 2070)
- b. Olú_i so, [pé bàbá rẹ̀_{i/j} tí rí iyá òun_i]
O. say hat father his ASP see mother LOG
'Olu_i said that his_{i/j} father has seen his_i mother.'
(Adesola 2006: 2090)
- (12) Chinese³
- 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 zij_{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)
- (13) Japanese⁴
- 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 is.genius C say-Past C think-Past
'John_i though 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 is.genius C say-Past C think-Past
'John_i though that Mary told his_{i/j} mother that he_i is a genius.'
(Zushi 2001: 300-301)
- (14) Icelandic
- a. Bill_i segir [John segDi honum_{*i/j} [aD Tu elskaDir 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'

(i) ^{OK} Lucie thought that Lili and herself sound much too aggressive, though she didn't realize that she herself was number 17. (Reinhart 1990: fn. 9)

³ Anand (2006) observes that Mandarin speakers systematically divide between those who are sensitive to the *De Re* Blocking Effect (Mandarin₂) and those who are not (Mandarin₁).

⁴ An anonymous reviewer points out that, unlike (13a), (i) seems to him to be grammatical:

(i) Taroo_i-ga [kare_i-ga zibun_i-no oya-o sibuya-de mikaketa to] itta.
T.-Nom he-Nom LDR-Gen parent Shibuya-at saw C said
'Taro_i said that he_i saw his_i parent at Shibuya.'

Notice that, in addition to a derivation where *zibun* is long-distance bound by the matrix subject *Taroo* (, which should be banned by the *De Re* Blocking Effect), there exists another derivation where *zibun* is locally bound by the clausemate *kare*. As locally-bound reflexives do not force *de se* interpretations (i.e., they are not *de se* anaphors), the *De Re* Blocking Effect does not rule out this derivation.

- b. Bill_i segir [John segDi moDim hans_{ij} [aD Tu elskaDir sig_i]].
 B. said J. told mother his that you loved LDR
 ‘Bill_i said that John told his_{ij} mother that you loved him_i’ (Anand 2006: 157)

Anand’s ‘*De Re* Blocking Effect’ shows convincingly, I believe, that a structure-based account is required for LDRs and LOGs (contra Sigurðsson 1990, Thráinsson 1990, Reinhart and Reuland 1991, Reuland and Sigurjónsdóttir 1997). The goal of this paper is to depart from his unitary treatment of LDRs and LOGs and argue that LDRs involve movement in Narrow Syntax while unselective binding in the interpretive component⁵ is at work for LOGs. Specifically, I focus on a fact first noted by Pan (1997) for Chinese LDRs that sentences containing LDRs, unlike those with LOGs, exhibit certain gaps in their interpretive possibilities, and claim that this difference in interpretive possibilities between LDRs and LOGs, results from an island effect (via defective intervention) caused by the overt movement involved in LDRs. The organization of this paper is as follows. In section 2, I first spell out some background assumptions on the syntax and semantics of the LDR and LOG constructions, and then the core fact concerning interpretive differences between LDRs and LOGs is presented. Given the fact that LDRs may occur in strong islands such as complex NP and adjunct, I propose to analyze LDRs as instances of resumption and it is argued that this analysis of LDRs as resumption derives Pica’s (1987) generalization, which states that only morphologically simplex reflexives allow long-distance binding. I further show that the movement involved in LDRs exhibits successive cyclicity, based on the Blocking Effect in Chinese and the indicative/subjunctive opposition in Icelandic and Italian. It is also argued that the apparent indicative/subjunctive optionality found in Italian suggests that the target of the movement involved in LDRs is a relatively low position in the articulated structure of the left periphery. Section 3 deals with the interaction of LDRs/LOGs and subject control; based on their distributional characteristics, I argue that the mechanism of subject control cannot be reduced either to that of LDRs or to that of LOGs, contra Chierchia (1989). In Section 4, some concluding remarks are presented.

2. Derivation of *De Se* Interpretations in the LDR and LOG Constructions

2.1 Syntax and Semantics of *De Se*

As argued in Lewis (1979), *de se* belief is a special case of *de re* belief which in turn contrasts with *de dicto* belief. In contrast to *de dicto* belief, which is purely conceptual, *de re* belief involves a strong epistemic relation (‘Acquaintance Relation’ in Lewis (1979)) of attitude holders to the objects of their beliefs (=res). Thus, in (15) if the Pavarotti’s belief (15a) is *de re* and (15b) is true, one could also report that belief as in (15c) (cf. Chierchia 1989).

- (15) a. Pavarotti believes that the one who can sing ‘Che gelida manina’ without mistakes is a musical genius.
 b. Domingo is the only singer that can sing that aria without making mistakes.
 c. Pavarotti believes that Domingo is a musical genius.

The necessity of postulating Acquaintance Relation comes to the fore when we consider Quine’s (1956) ‘double-vision scenario’:

⁵ Following Chomsky (2004), I postulate the Σ component, which maps D-NS, a derivation generated by narrow syntax, to SEM, which is accessed by the C-I system.

- (16) There is a certain man in a brown hat whom Ralph has glimpsed several times under questionable circumstances on which we need not enter here; suffice it to say that Ralph suspects he is a spy. Also there is a gray-haired man, vaguely known to Ralph as rather a pillar of the community, whom Ralph is not aware of having seen except once at the beach. Now Ralph does not know it, but the men are one and the same [, namely Bernard Ortcutt]. (Quine 1956: 179)

Under this scenario, both sentences in (17) are true:

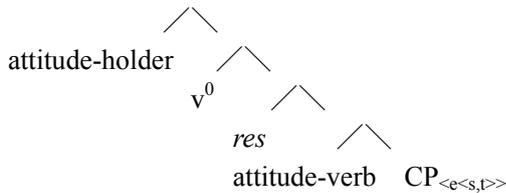
- (17) a. Ralph believes that Ortcutt is a spy.
b. Ralph believes that Ortcutt is not a spy.

So that Ralph does not have contradictory beliefs, it is standard to assume that Ralph's beliefs are differentiated by Acquaintance Relation:

- (18) for (17a): Acquaint (R) = $\lambda x. \lambda y. \lambda w. x$ sees y wearing a brown hat in w .
for(17b): Acquaint (R) = $\lambda x. \lambda y. \lambda w. x$ sees y with gray hair in w .

Building on Kaplan (1969), Heim (1994) develops a way of accommodating Acquaintance Relation to semantic composition; she treats an attitude verb as a three-place predicate taking (i) attitude holder (ii) *res* (iii) property-denoting $CP_{\langle e, \langle s, t \rangle \rangle}$ as its arguments and postulates a free concept variable D of type $\langle s, e \rangle$:

- (19) syntax and semantics of *de re* (cf. Heim 1994)



- $\llbracket \text{believe} \rrbracket^g = \lambda P_{\langle e, \langle s, t \rangle \rangle}. \lambda res_e. \lambda att_e. \lambda w: g(D_i)(w) = res$ and D_i is suitable. $\forall w' \text{Dox}_{att} w [P(D_i(w'))(w') = 1]$.
for (17a): $D_i = \lambda w''$. the man in a brown hat in w''
for (17b): $D_i = \lambda w''$. the man with gray hair in w''

In this approach to *de re* belief ascriptions, it is clear that *de se* belief is *de re* belief with 'identity' as the acquaintance relation (i.e. $D = \lambda w''$. the individual in w'' who the attitude holder identifies as himself), as Anand (2006), Lewis (1979), and Moulton (2005) point out. Recall that, unlike ordinary pronouns, LDRs and LOGs force *de se* interpretations. Moulton (2005) argues that attitude verbs in obligatorily *de se* constructions are intentional versions of inherently reflexive predicates (cf. Reinhart 1990: fn. 7 for a similar suggestion). He introduces a !SELF operator, the denotation of which is as below:

- (20) $\llbracket !\text{SELF} \rrbracket =_{\text{def}} \lambda P_{\langle e, \langle s, t \rangle \rangle}. \lambda x. \lambda s. P(x)(s) \wedge \forall y [\text{Agent}(y)(s) \rightarrow y = x]$
(21) $\llbracket \text{believe}_{de\ re} \rrbracket =_{\text{def}} \lambda P_{\langle e, \langle s, t \rangle \rangle}. \lambda x. \lambda s. \text{believe } P \text{ de re of } x \text{ in } s$
 $\llbracket !\text{SELF} \rrbracket (\llbracket \text{believe}_{de\ re} Q_{\langle e, \langle s, t \rangle \rangle} \rrbracket)$
 $= [\lambda P_{\langle e, \langle s, t \rangle \rangle}. \lambda x. \lambda s. P(x)(s) \wedge \forall y [\text{Holder}(y)(s) \rightarrow y = x]] (\lambda x. \lambda s. \text{believe}(Q)(x)(s))$
 $= \lambda x. \lambda s. \text{believe}(Q)(x)(s) \wedge \forall y [\text{Holder}(y)(s) \rightarrow y = x]$
 $\llbracket v (= \text{Voice}_{\text{HOLDER}}) \rrbracket (\llbracket !\text{SELF} \text{believe}_{de\ re} Q \rrbracket)$
 $= \lambda z. \lambda s. \text{Holder}(z)(s) \wedge \text{believe}(Q)(x)(s) \wedge \forall y [\text{Holder}(y)(s) \rightarrow y = x]$ (Moulton 2005: 43, adapted)

The idea is that the !SELF operator requires that in all possible worlds the attitude holder be identical to *res* and

- (25) *Core Fact*
LOGs in the same clause may take different antecedents, while LDRs in the same clause cannot be long-distance bound by different antecedents.
- (26) Edo (Baker 2008: 138)
Òzó_i tá [wẹ́ẹ̀ Àdésúwà_j ròró [wẹ́ẹ̀ írẹ̀n_i hoèmwẹ̀n írẹ̀n_j]].
O. say that A. think that LOG like LOG
'Ozo_i said that Adesuwa_j thinks that he_i likes her_j.'
- (27) Yoruba (Safir 2005: (41))
Olú_i rò [pé Ade_j so [pé òun rí iyá òun]].
O. think that A. say that LOG₁ see mother LOG₂
'Olu_i thinks that Ade_j said that...
a. he_i saw his_i mother.'
b. he_j saw his_j mother.'
c. he_i saw his_j mother.'
d. he_j saw his_i mother.'
- (28) Fɔ̀n (Kinyalolo 1993: 228)
Siká_i t̀n [d̀ Kòkú_j m̀ [d̀ émi blé t́ émi t̀n]].
S. know that K. deny that LOG₁ mislead father LOG₂ Gen
'Sika_i knows that Koku_j denied that...
a. she_i misled her_i father.'
b. he_j misled his_j father.'
c. she_i misled his_j father.'
d. he_j misled her_i father.'
- (29) Chinese⁹ (Huang and Liu 2001: 147)
Zhangsan_i renwei [Lisi_j zhidao [Wangwu_k ba ziji₁ de shu song-gei le ziji₂ 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...
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.'
- (30) Japanese
Taro_i-ga [CP Hanako_j-ga [CP mesitukai-ga zibun₁-no koibito-o ziubun₂-no heya-ni kakusita to]
T.-Nom H.-Nom the.maid-Nom LDR-Gen lover-Acc LDR-Gen room-in hid C
omotteiru to] kanzita toki...
think C felt when
'When Taro_i felt that Hanako_j thought...
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.
*d. the maid hid her_j lover in his_i room.¹⁰

⁹ 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.'

To capture this difference in interpretive possibilities between LDRs and LOGs, Anand (2006) argues for a parametrization of C that heads the complement clause:

- (31) Anand's (2006) Analysis
LOG Cases: $\llbracket \text{OP-LOG}_j \alpha \rrbracket^g = \lambda x. \llbracket \alpha \rrbracket^{g \times j}$
LDR Cases: $\text{OP-LOG}_j^u = \text{OP-LOG}_j + \text{No Free } [\text{log}]$:
 $[\text{OP-LOG}_j^u \dots [x_i \text{ log}]]$ is an ill-formed expression, unless there is an intervening OP-LOG_i^u .

He hypothesizes that in LOG cases, the complement clause is headed by OP-LOG, which binds elements bearing a [log] feature and thereby functions as an abstractor. He claims that in LDR cases, what heads the complement clause is OP-LOG^u bearing a semantic feature 'No Free [log]', which prohibits elements with a [log] feature from being unbound in its scope.¹¹ Though it can correctly capture the observed difference between LDRs and LOGs, this treatment is rather ad hoc and the status of the No Free [log] feature is dubious in that it is associated with a filter-like nature and demands a vast amount of search operation.

Motivated by these suspicions, I pursue a different approach. Note first that a parallel observation has been made in the realm of *wh*-questions:

- (32) Taroo-wa [_{CP} dare-ga nani-o katta ka] siritagatteiru no? (Japanese)
 T.-Top who-Nom what-Acc bought Q want.to.know Q
 a. Does Taro want to know [for which x, y] x bought y
 b. ??[For which x, y] Taro wants to know whether x bought y
 c. ?? [For which x] Taro wants to know [for which y] x bought y
 d. * [For which y] Taro wants to know [for which x] x bought y
- (33) Zhangsan xiang-zhidao [_{CP} shei mai-le shenme] ne? (Chinese)
 Z. want-know who buy-Prf. what Q
 a. *Does Zhangsan want to know [for which x, y] x bought y
 b. *[For which x, y] Zhangsan wants to know whether x bought y
 c. [For which x] Zhangsan wants to know [for which y] x bought y
 d. [For which y] Zhangsan wants to know [for which x] x bought y (Takita et al. 2007: 103, 106)

Based on the presence/absence of *wh*-island effect, it has been widely assumed that *wh*-questions in Japanese depends on movement in Narrow Syntax while unselective binding in the interpretive component is at work in *wh*-questions in Chinese (cf. Watanabe 2001, Tsai 1994, 1999 among others).

I claim that the parallelism is real. In the case of *wh*-questions, the common analysis of the interpretive difference illustrated above is that the movement of one of the *wh*-phrases to the Spec of the lower CP causes an intervention effect which bars the movement of the other *wh*-phrase to the Spec of the higher CP ('defective

¹⁰ 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):

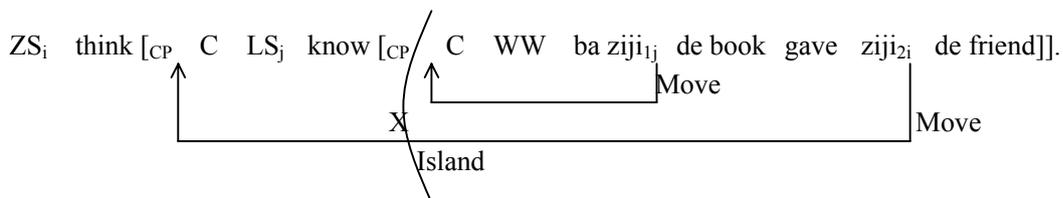
- (i) Taroo-wa [Hanako-ga zibun-no heya-de zibun-no sigoto-o sitei-ta to] itta.
 T.-Top H.-Nom LDR-Gen room-in LDR-Gen work-Acc be.doing-Past C said
 a. Taro said that Hanako was doing his work in his room.
 b. Taro said that Hanako was doing her work in her room.
 c. *Taro said that Hanako was doing his work in her room.
 d. *Taro said that Hanako was doing her work in his room.' (Howard and Niyekawa-Howard 1976: 230)

¹¹ To be precise, Anand refers to No Free [log] as 'a diacritic' (Anand 2006: 136). I take it to mean a kind of semantic feature.

intervention' in the terminology of Chomsky (2000), cf. Boeckx and Lasnik (2006)). Now, I propose, adopting a reductive strategy, that while unselective binding is at work in LOG constructions, LDRs involve movement in Narrow Syntax. Accordingly, the difference in interpretive possibilities between LDRs and LOGs is ascribed to an intervention effect parallel to the *wh*-island effect:¹²

(34) *defective intervention effect caused by overt movement*

ZS_i renwei [LS_j zhidao [WW ba ziji_{1j} de shu song-gei le ziji_{2i} de pengyou]]. (= (24))



The analysis correctly captures the interpretive difference at issue, but two problems immediately arise: first, what moves from where to where in the proposed movement in LDRs; the second problem concerns the locality exhibited by LDRs. I address these problems in the next subsection.

One important caveat before proceeding: an astute reader might have noticed that LOG examples (26)-(28) and LDR examples (29)-(30), which were adduced as an empirical motivation for the overt movement analysis of LDRs, do not constitute minimal pairs in a strict sense. In fact, there exist apparent counterexamples to the generalization (25). Zushi (2001) observes that (a) readings but not (b) readings are allowed in the following sentences:

- (35) Guojing_i zhidao [Huangrong_j yiwei [ziji-de gage hen xihuan piping ziji]].
 G. know H. think LDR-DE brother very like criticize LDR
 ‘Guojing_i knows that Huangrong_j thinks that...
 a. his_j brother likes to criticize him_i.’
 *b. his_i brother likes to criticize him_j.’

- (36) Zhangsan_i shuo [Mali_j renwei [ziji-de pengyou xihuan ziji]].
 Z. say M. think LDR-DE friend like LDR
 ‘Zhangsan_i says that Mali_j thinks that...
 a. her_j friend likes him_i.’
 *b. his_i friend likes him_j.’

(Zushi 2001: 305)

- (37) John_i-wa [Mary_j-ga [zibun-no otouto-ga zibun-o hihansita to] itta to] omotteiru.
 J.-Top M.-Nom LDR-Gen brother-Nom LDR-Acc criticized C said C think
 ‘John_i thinks that Mary_j said that...
 a. her_j brother criticized him_i.’
 *b. his_i brother criticized her_j.’

¹² Notice that the intervention effect with LDRs (exhibited in (29)-(30)) is stronger than the *wh*-island effect (shown in (32)). As widely discussed (See Heycock 1995 and Rizzi 2001 among others), D-linked *wh* DPs (unlike other constituents) are relatively extractable from *wh*-islands:

- (i) a. ? Quale dei libri che ti servono non sai [dove trovare *t*]?
 ‘Which one of the books that you need don’t you know where to find?’
 b. * Che diavolo non sai [dove trovare *t*]?
 ‘What the hell don’t you know where to find?’ (Rizzi 2001: 153)
- (ii) a. ? Which problem do you wonder [how to solve *t*]?
 b. * How do you wonder [which problem to solve *t*]? (Rizzi 2001: 147)
- (iii) a. ?? How many people do you wonder [whether I consider *t* intelligent]?
 b. * How intelligent do you wonder [whether I consider John *t*]? (Rizzi 2001: 149)

As mentioned in section 2.1, I postulate !SELF as an inherent reflexivizer, which cannot be a specific DP given its semantics. Therefore, the strong intervention effect is predicted.

- (38) John_i-wa [Mary_j-ga [zibun-ga Bill-ni zibun-o shoukaisita to] itta to] omotta.
 J.-Top M.-Nom LDR-Nom B.-Dat LDR-Acc introduced C said C thought
 ‘John_i thought that Mary_j said that...
 ?a. she_j introduced him_i to Bill.’
 *b. he_i introduced her_j to Bill.’ (Zushi 2001: 306)

Notice that the readings at issue all involve LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause. I suggest that these LDRs (but not the lower ones in embedded object position) are instances of the logophor in the sense of Reinhart and Reuland (1991, 1993) and receive their values via some semantico-pragmatic mechanism (note that I take the logophor to be a different item from LOGs). That is, they are not mediated by movement in Narrow Syntax and do not trigger the sort of defective intervention effect mentioned above.

There are sufficient empirical evidence that LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause are different from other instances of LDRs. First, they allow non-*de se* readings, unlike other instances of LDRs, which force *de se* readings:

- (39) a. Zhangsan_i yiwei [ziji_i de erzi zui congming].
 Z. think LDR DE son most clever
 ‘Zhangsan_i thought that his_i (*de se*/non-*de se*) son was the cleverest.’
 b. Zhangsan_i yiwei [Lisi zui xihuan ziji_i de erzi].
 Z. think L. most like LDR DE son
 ‘Zhangsan_i thought that Lisi liked his_i (*de se*) son most.’
 (40) a. Zhangsan_i shuo [ziji_i kanjian-le Lisi].
 Z. say LDR see-Perf L.
 ‘Zhangsan_i said that he_i (*de se*/non-*de se*) saw Lisi.’
 b. Zhangsan_i shuo [Lisi kanjian-le ziji_i].
 Z. say L. see-Perf LDR
 ‘Zhangsan_i said that Lisi saw him_i (*de se*).’ (Huang and Liu 2001: 168)

Recall from footnote 2 that logophors allow non-*de se* readings:

- (41) scenario: Lucie, a broadcast manager, is looking for the perfect female voice for an ad, and requests to hear some samples of women in natural conversation. Unbeknown to her, the technician records her too, and adds it to the samples as number 17. Lucie does not recognize her recorded voice, and rules out 17 as too aggressive.
^{OK} Lucie thought that Lili and herself sound much too aggressive, though she didn’t realize that she herself was number 17. (Reinhart 1990: fn. 9)

Thus, the fact that LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause allow both *de se* and non-*de se* readings suggests that they are logophors in the sense of Reinhart and Reuland (1991, 1993).

The second piece of evidence that distinguishes LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause from other instances of LDRs is that they do not exhibit the so-called Blocking Effect (See Section 2.4.1 for the analysis of the Blocking Effect):

- (42) a. Zhangsan_i gaosu wo [ziji_i de erzi zui congming].
 Z. tell me LDR DE son most clever
 ‘Zhangsan_i told me that his_i son was the cleverest.’
 b. ??Zhangsan_i gaosu wo [Lisi zui xihuan ziji_i de erzi].
 Z. tell me L. most like LDR DE son
 ‘Zhangsan_i told me that Lisi liked his_i son most.’
 (43) a. Zhangsan_i dui wo shuo [ziji_i piping-le Lisi].
 Z. to me say LDR criticize-Perf L.
 ‘Zhangsan_i said to me that he_i criticized Lisi.’
 b. ??Zhangsan_i dui wo shuo [Lisi piping-le ziji_i].
 Z. to me say L. criticize-Perf LDR
 ‘Zhangsan_i said to me that Lisi criticized him_i.’ (Huang and Liu 2001: 169)

Thus, we can conclude that the logophor option for LDRs is restricted to cases where LDRs are located in embedded subject position and refer to the subject of the immediately superordinate clause. Notice that this is exactly the locality condition imposed on logophors (See Pollard and Sag 1992 for the discussion on various conditions on the use of logophors); as mentioned in footnote 8, logophors can refer to the subject of the immediately higher clause, but not beyond:

- (44) Bill_i thinks [that John_j said [that there were some pictures of himself_{*i/j} inside]]. (Zushi 2001: 292)
- (45) a. John and Mary_i thought [that each other_i's pictures were on sale]. (Giorgi 1984: 325)
 b. *John and Mary_i thought [that Bill announced [that each other_i's pictures were on sale]]. (Giorgi 1984: 326)

In contrast, logophors located in embedded object position cannot refer to the subject of the immediately higher clause:

- (46) a. *John and Mary_i think [that you will sell each other_i's pictures]. (Giorgi 1984: 327)
 b. *John and Mary_i think [that Bill will sell each other_i's pictures]. (Giorgi 1984: 343)
- (47) a. John_i thought [that the picture of himself_i on the front page of the *Times* had been widely circulated]. (Pollard and Sag 1992: 267)
 b. Bill_i remembered [that Tom_j saw a picture of himself_{*i/j} in the post office]. (Pollard and Sag 1992: 271)

Thus, this distributional similarity supports the claim that LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause can be logophors. With regard to sentences (42a) and (43a), note that logophors in embedded subject position can refer to the subject of the immediately higher clause despite the presence of the more local indirect object:

- (48) John_i told Bill_j [that pictures of himself_{i/?j} were on sale]. (Zushi 2001: fn. 35)

The final piece of evidence that LDRs in embedded subject position and referring to the subject of the immediately superordinate clause can be logophors is that a complex reflexive *taziji*, which does not allow long-distance binding, can refer to the subject of the immediately higher clause (but not beyond) when it is located in embedded subject position:

- (49) Zhangsan_i renwei [Lisi_j hen ziji_{i/j} / taziji_{*i/j}].
 Z. think L. hate LDR / complex.refl
 'Zhangsan_i thinks that Lisi_j hates himself_j/him_i. (Huang and Liu 2001: 142)
- (50) Zhangsan_i zhidao [Lisi_j renwei [taziji_{*i/j} zui congming]].
 Z. know L. think complex.refl most clever
 'Zhangsan_i knows that Lisi_j thinks that he_{*i/j} is the smartest.' (Huang et al. 2009: 331)

This is explained if both the LDR *ziji* and the complex reflexive *taziji* are allowed to be used as logophors.

All the same holds for Japanese; first, Oshima (2004) observes that the LDR *zibun* allows non-*de se* reading when located in embedded subject position and referring to the subject of the immediately higher clause:

- (51) scenario: Amnesiac David, unknowingly reading his biography, becomes fond of a female character, Mary. In a scene of the book, the hero of the book (David) saves her from death.
 David_i-wa [zibun_i-ga Mary-o sukutte-kureta to] omotteiru.
 D.-Top LDR-Nom M.-Acc saved C believe
 'David_i believes that he_i saved Mary.'
 (Oshima 2004: 182)

Second, Aikawa (1994) points out that the complex reflexive *zibunzisin* can refer to the subject of the immediately superordinate clause if it is located in embedded subject position:

- (52) a. John_i-wa [zibunzisin_i-ga Mary-o semeta to] itta.
 J.-Top complex.refl-Nom M.-Acc blamed C said
 ‘John_i said that he_i blamed Mary.’ (Aikawa 1994: 7)
- b. John_i-wa [Mary_j-ga zibunzisin_{*i/j}-o hihansita to] itta.
 J.-Top M.-Nom comlex.refl-Acc criticized C said
 ‘John_i said that Mary_j criticized herself_j/him_{*i}.’ (Aikawa 1994: 1)

It seems to me that the complex reflexive *zibunzisin* in (52a) allows non-*de se* reading under an appropriate scenario.

To recapitulate the points, I have adduced an array of empirical evidence that LDRs located in embedded subject position and referring to the subject of the immediately higher clause can be logophors. Returning to the apparent counterexamples to the generalization (25) (repeated here for the sake of convenience), we notice that all the relevant readings involve LDRs located in embedded subject position and referring to the subject of the immediately superordinate clause:

- (35) Guojing_i zhidao [Huangrong_j yiwei [ziji-de gage hen xihuan piping ziji]].
 G. know H. think LDR-DE brother very like criticize LDR
 ‘Guojing_i knows that Huangrong_j thinks that...
 a. his_j brother likes to criticize him_i.’
 *b. his_i brother likes to criticize him_j.’
- (36) Zhangsan_i shuo [Mali_j renwei [ziji-de pengyou xihuan ziji]].
 Z. say M. think LDR-DE friend like LDR
 ‘Zhangsan_i says that Mali_j thinks that...
 a. her_j friend likes him_i.’
 *b. his_i friend likes him_j.’ (Zushi 2001: 305)
- (37) John_i-wa [Mary_j-ga [zibun-no otouto-ga zibun-o hihansita to] itta to] omotteiru.
 J.-Top M.-Nom LDR-Gen brother-Nom LDR-Acc criticized C said C think
 ‘John_i thinks that Mary_j said that...
 a. her_j brother criticized him_i.’
 *b. his_i brother criticized her_j.’
- (38) John_i-wa [Mary_j-ga [zibun-ga Bill-ni zibun-o shoukaisita to] itta to] omotta.
 J.-Top M.-Nom LDR-Nom B.-Dat LDR-Acc introduced C said C thought
 ‘John_i thought that Mary_j said that...
 ?a. she_j introduced him_i to Bill.’
 *b. he_i introduced her_j to Bill.’ (Zushi 2001: 306)

Thus, I argue that the (a) readings at issue result from treating the LDRs in embedded subject position as logophors so that only the lower LDRs in embedded object position depend on the movement derivation. Notice that this logophor option is not available for the (b) readings above and (29)-(30). I assume that logophors are associated with their antecedents by some sort of semantico-pragmatic mechanism and do not involve the syntactic binding (cf. Reinhart and Reuland 1991, 1993 and Pollard and Sag 1992).¹³ Accordingly, the generalization (25)

¹³ Pollard and Sag (1992) observes that intervening quantifiers do not interrupt the referential dependency between logophors and the higher subject:

(i) Bill_i remembered [that Tom_j saw a picture of himself_{*i/j} in the post office]. (Pollard and Sag 1992: 271)

(ii) Bill_i thought [that nothing could make a picture of himself_i in *the Times* acceptable to Sandy].

(Pollard and Sag 1992: 272)

Given (i) that intervening quantifiers do not interrupt the referential dependency between logophors and the higher subject and (ii) that quantifiers, due to their non-referential nature, cannot antecede logophors, we predict the exactly opposite pattern to Zushi’s (2001) examples. This prediction seems to be born out:

(iii) John_i-wa [daremo_j-ga [zibun-no musuko-ga zibun-no kodomo-o izimeta to] omotteiru to] kanzita.

J.-Top everyone-Nom LDR₁-Gen son-Nom LDR₂-Gen child-Acc bullied C think C felt

‘John_i felt that everyone_j thought that...’

?*a. his_j son had bullied his_i child.’

b. his_i son had bullied his_j child.’

In the (b) reading, the LDR₁ is a logophor and refers to *John* via semantico-pragmatic mechanism while the LDR₂ is long-distance bound by *everyone* via syntactic mechanism. On the other hand, in the (a) reading, the logophor option is not available, and both LDRs must resort to the syntactic mechanism.

remains valid, and we can conclude that the syntactic mechanism that mediates long-distance binding is a one such that it cannot assign different antecedents to LDRs located in the same clause.

2.3 LDRs and Locality

It has been observed that LDRs may occur in strong islands (e.g. complex NP and adjunct), which at face value is incompatible with the overt movement analysis delineated above.¹⁴

(53) Chinese

Zhangsan_i shuo [[zhiyao Lisi bu zai piping ziji_i], jiu rang ta canjia]. Adjunct
 Z. say if L. not again criticize LDR then let him join
 ‘Zhangsan_i said that if Lisi will stop criticizing him_i, he will let him participate.’

(Huang and Liu 2001: 145)

(54) Italian

- a. Pavarotti_i crede [che [il fatto che i propri_i dischi abbiano tanto successo] sia un miracolo].
 P. believe that the fact that the LDR records have much success is a miracle
 ‘Pavarotti_i believes that the fact that his_i records are so successful is a miracle.’ (Chierchia 1989: 25)
Complex NP
- b. Gianni_i pensa [che sia bene non venire [a meno che non inviti la propria_i moglie]]. Adjunct
 G. think that is good not come unless invite the LDR wife
 ‘Gianni_i thinks that it would be good not to come unless I invite his_i wife.’ (Chierchia 1989: 26)

(55) Icelandic

Helgi_i segir [að Jón verði alltaf froskur [nema ég trúi að konungsdóttir hafi kyssti sig]]. Adjunct
 H. says that J. will be always a frog unless I believe that a princess has kissed LDR
 ‘Helgi_i says that John will always be a frog unless I believe that a princess has kissed him_i.’

(Malign 1984: 226)

I would like to link the movement analysis of LDRs with Salzmann’s (2006) analysis of the resumptive prolepsis construction in Dutch and German. In this construction, a DP preceded by a preposition ‘on’ undergoes an A’-movement and the position where the moved phrase receives its thematic (θ-theoretic) interpretation in the complement clause is occupied by a pronoun. He observes that the resumptive prolepsis construction forces *de re* interpretations and further that it exhibits reconstruction effects such as variable binding and Condition A:

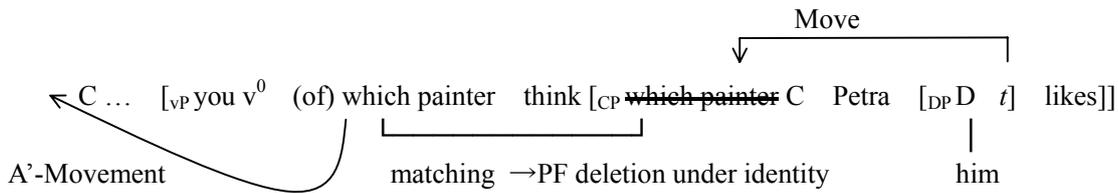
- (56) a. Von welchem Foto von sich_i denkst du, [dass Peter₁ es am besten findet]?
 of which picture of self think you that P. it the best finds
 ‘Which picture of himself_i do you think Peter_i likes best?’ (Salzmann 2006: 167)
- b. Von welcher Periode seines₁ Lebens denkst du, [dass keiner₁ gerne dran denkt]?
 of which period his.Gen life.Gen think you that no.one likes.to there.at think
 ‘Which period of his_i life do you think no one_i likes to remember?’ (Salzmann 2006: 163)

To capture these observations, he argues for a derivation as in (57), developing on Citko’s (2001) analysis of ‘matching relatives’.¹⁵

¹⁴ For this reason, the literature abounds with LF movement analyses: See Battistella (1989) and Cole et al. (1990) for LF head-movement analysis, Katada (1991), Huang and Liu (2001), and Zushi (2001) for LF operator movement analysis, and also Abe (1992), who argues for direct adjunction of LDRs to their antecedent at LF. In contrast, Motomura (2001) contains an overt A-movement analysis, and analogously Kimura (1994) argues for LF A-movement analysis.

¹⁵ The gist of Citko’s (2001) analysis is as follows:
 (i) the picture which he likes

- (57) Von welchem Maler glaubst du, [dass Petra **ihn** mag]? (Salzmann 2006: 167)
 of which painter think you that P. him likes
 ‘Which painter do you think Petra likes?’



The proleptic object is base-generated at the matrix VP; also there is an internal head in the complement clause; it moves to [Spec, CP] of the complement clause and matches with the base-generated proleptic object, as a result of which the CP is turned into property-denoting; the internal head is PF-deleted under identity with the base-generated proleptic object.

Crucially, Salzmann observes that the resumptive pronoun may occur in strong islands and in this environment too the construction exhibits reconstruction effects:

- (58) a. Das Buch von sich_i, von dem ich glaube, [dass Hans <die Art, wie Peter_i **es** vermarktet>, the book of himself of which I think that H. the way how P. it promote widerlich findet]... disgusting finds
 ‘the book about himself_i that I think Hans finds <the way Peter_i promotes it> disgusting’
 (Salzmann 2006: 281)
- b. Die Periode seines_i Lebens, von der ich denke, [dass man ganz froh ist, <wenn beim the period his.Gen life.Gen of which I think that one quite glad is if at.the Stammtisch keiner_i **darüber** redet>] ist die Pubertät. piss-up no.one there.about talks is the puberty
 ‘The period of his_i life that I think one is quite relieved <if no one_i talks about it at a piss-up> is puberty.’
 (Salzmann 2006: 280)

Given this observation, he adopts Boeckx’s (2003) analysis of resumption as stranding, which holds that the movement under resumption may occur from islands.^{16,17}

Following his insight, I propose that LDRs are instances of resumption and by virtue of this the movement

The derivation of (i) involves base-generation of the head *the picture* in a CP external position, and movement of the *wh*-phrase *which picture* from the relative clause internal position to [Spec, CP]; subsequently, the nominal *picture* is PF-deleted under identity with the external head.

(ii) [DP the picture [CP [DP which picture]_i [TP he likes t_i]]]

At LF, the restriction of *wh*-phrase undergoes reconstruction:

(iii) [DP the picture [CP which picture [TP he likes picture]]]

Furthermore, unlike Sauerland (2002) and Husley and Sauerland (2006), she assumes that either external head or internal head can delete, since its content is recoverable from the remaining copy:

(iv) a. [DP the picture [CP which picture [TP he likes picture]]]

b. [DP the picture [CP which picture [TP he likes picture]]]

¹⁶ To be precise, Boeckx (2003) argues that movement under resumption may occur from islands only when the movement does not involve Agree.

¹⁷ Salzmann also points out that the movement at issue exhibits successive cyclicity, based on reconstruction into intermediate positions:

(i) das Bild von sich_i, von dem ich glaube [,dass Peter_i denkt [, dass jeder begeistert **davon** sein muss]].

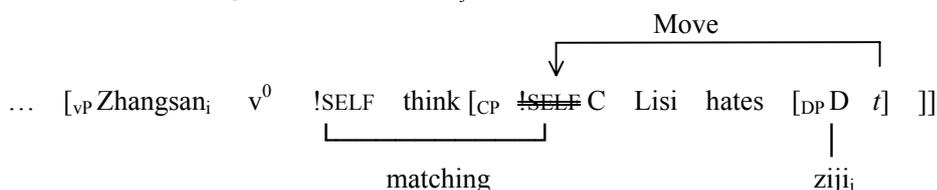
the picture of self_i of which I believe that P. believes that everyone excited there.of be must

‘the picture of himself_i that I believe Peter_i thinks that everyone must be excited about’

(Salzmann 2006: 281)

involved in LDRs may occur from strong islands.¹⁸

- (59) Zhangsan_i renwei [Lisi_j hen ziji_i]. (= (2))
 ‘Zhangsan_i thinks that Lisi_j hates him_i.’



Now, the apparent problem to the overt movement analysis we faced at the beginning of this subsection is resolved. Furthermore, this analysis of LDRs as resumption derives Pica’s (1987) generalization as its consequence. Pica’s (1987) generalization states that only morphologically simplex reflexives allow long-distance binding.

- (60) Chinese
 Zhangsan_i renwei [Lisi_j hen ziji_{i/j} / taziji_{*i/j}].
 Z. think L. hate LDR / complex.refl.
 ‘Zhangsan_i thinks that Lisi_j hates himself/him_i.’ (Huang and Liu 2001: 142)

- (61) Icelandic
 Jón_i segir [að Pétur_j tali við sig_{i/j} / sjálfan sig_{*i/j}].
 J. says that P. talks to LDR / complex.refl.
 ‘John_i says that Peter_j talks to himself/him_i.’ (Progovac 1992: 677)

- (62) Japanese
 John_i-wa [Bill_j-ga Mike-ni zibun_{i/j} / zibun-zisin_{*i/j} -no koto-o hanasita to] itta.
 J.-Top B.-Nom M.-Dat LDR / complex.refl. Gen. matter told C said
 ‘John_i said that Bill_j told Mike about himself/him_i.’ (Katada 1991: 289)

Given that complex reflexives contain more constituents than simplex ones,¹⁹ the movement-based analysis advocated in this paper predicts the morphological simplicity of LDRs since LDRs are morphological realization of a stranded D head in this analysis.

2.4 LDRs and Successive Cyclicity

To empirically support the overt movement analysis advocated above, in this section I demonstrate that the movement involved in LDRs exhibits successive cyclicity. The arguments come from the Blocking Effect in Chinese and the indicative/subjunctive opposition in Icelandic.

¹⁸ Percus and Sauerland (2003: 281) mention the possibility that dream-self pronouns, another syntactic *de se* anaphor in Anand’s (2006) classification, are resumptive pronouns left by overt movement.

¹⁹ Reinhart and Reuland (1991, 1993) and Reuland and Reinhart (1995) hypothesize that simplex reflexives (SE anaphors; e.g. Dutch *zich*, Norwegian *seg*, etc.) occupy determiner position and that in complex reflexives (SE-SELF anaphors; e.g. Dutch *zichzelf*, Norwegian *seg selv*, etc.) SELF is an N and combines with SE located in D.

(i) SE anaphor: [DP SE [NP *e*]]

(ii) SE-SELF anaphor: [DP SE [NP SELF]]

See Anagnostopoulou and Everaert (1999) and Safir (2004) for relevant discussion concerning internal structure of anaphoric expressions.

2.4.1 Chinese: the Blocking Effect

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

- (63) a. Zhangsan_i zhidao [Lisi_j chang zai bieren mianqian piping ziji_{i/j}].
 Z. know L. often at others face criticize LDR
 ‘Zhangsan_i knows that Lisi_j often criticizes himself_j/him_i in the presence of others.’
 (Huang et al. 2009: 331)
- b. Zhangsan_i zhidao [wo/ni_j chang zai bieren mianqian piping ziji_{*i/j}].
 Z. know I/you often at others face criticize LDR
 ‘Zhangsan knows that I/you often criticizes myself_j/yourself_j/*him_i in the presence of others.’
 (Huang et al. 2009: 331)
- c. Ni_i zhidao [wo_j chang zai bieren mianqian piping ziji_{*i/j}].
 you know I often at others face criticize LDR
 ‘You know that I often criticizes myself_j/*you_i in the presence of others.’ (Huang et al. 2009: 332)
- (64) a. Zhangsan_i danxin [wo/ni_j hui piping ziji_{*i/j}].
 Z. worry I/you will criticize LDR
 ‘Zhangsan_i is worried that I/you will criticize myself_j/yourself_j/*him_i.’
- b. Wo_i danxin [Zhangsan_j 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 line with Baker (2008), Sigurðsson (2004), and Bianchi (2006), I assume (65).

- (65) Hypothesis about the Licensing of First/Second Person Pronouns
 strong phase heads (C, ν) are responsible for the licensing of first/second person pronouns in their domain²⁰

The Blocking Effect illustrated in (63)-(64) is accounted for, by hypothesizing (66)²¹:

²⁰ 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.

²¹ Relevant to this is a cross-linguistic generalization that ‘blocking effect’ is found only in languages that lack verbal person agreement (Cole, Hermon, and Huang 2001). For instance, Reuland (2005) points out that Faeroese (,where number contrasts but no person contrasts are found in the verbal morphology) but not Icelandic exhibits ‘blocking effect’.

To capture this cross-linguistic variation, let us reformulate (66) as (i).

- (i) strong phase head (C, ν) with first/second-person-licensing ability bars a movement of !SELF to its Spec

Following Miyagawa’s (2010) extension of feature-inheritance mechanism (Chomsky 2005, 2008) to other formal features, and Sigurðsson’s (2004) postulation of formal features involved in first/second-person licensing at CP level, let us further assume (ii).

- (ii) along with ϕ -feature inheritance, first/second-person-licensing ability of strong phase head is inherited to a lower category

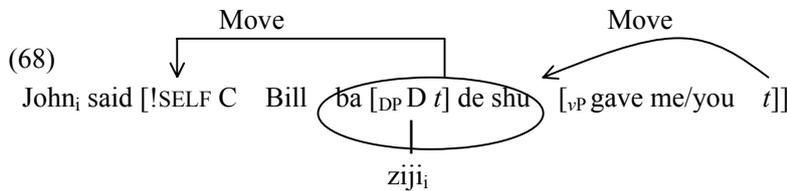
With (i) combined with (ii), it follows that in languages with verbal person agreement, strong phase head with a first/second-licensing ability allows a movement of !SELF to its Spec, but in languages with no verbal person agreement it does not (on the assumption that ϕ -feature inheritance does not occur in these languages). The cross-linguistic variation ensues.

- (66) strong phase heads (C, v) involved in a movement of !SELF cannot license first/second person pronouns in their domain

The relevance of v in (65)-(66) is evidenced by the contrast in (67):

- (67) 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)

The *ba* construction in Chinese is commonly analyzed as movement into a position higher than vP (cf. Huang et al. 2009: Chapter 5). Accordingly, it follows that v of the embedded clause is involved in the movement of !SELF in (67a) but not in (67b). Combined with (66), the first/second pronoun in (67b) but not in (67a) is licensed by the v .



Note that linear order is irrelevant to the phenomena:

- (69) 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)

Now, observe that in (70), v in the CP₁ cannot license the first/second pronoun in its domain, when the LDR is long-distance bound by the matrix subject *John*:

- (70) 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)

Given (66), this means that v in the CP₁ is involved in the movement of !SELF to Spec, CP₁, thus lending support for the successive cyclicity of the movement of !SELF.²²

²² Note that blocking effects may also be triggered by first/second person pronouns occurring in the vP domain of the attitude verb:

(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)

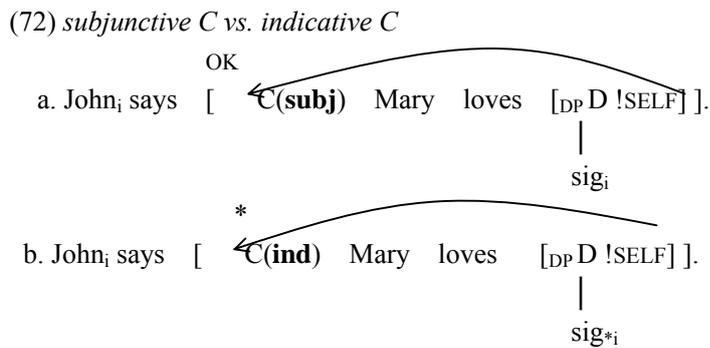
As mentioned in section 2.1, I hold the assumption that attitude verbs in the LDR construction are intentional versions of inherently reflexive predicates. Thus, I assume that this specification causes v of the attitude verbs to fail to license first/second person pronouns.

2.4.2 Icelandic: the Indicative/Subjunctive Opposition

Another phenomenon I claim to be a manifestation of the successive-cyclic movement involved in LDRs comes from Icelandic. It has been observed that *sig* in Icelandic can be long-distance bound only when the clause that contains it is subjunctive:

- (71) a. Jón_i segir [að María elski sig_i].
 J. says that M. loves (**subj**) LDR
 ‘John_i says that Mary loves him_i.’
 b. *Jón_i veit [að María elskar sig_i].
 J. knows that M. loves (**ind**) LDR
 ‘John_i knows that Mary loves him_i.’ (Thránsson 1990: 290)

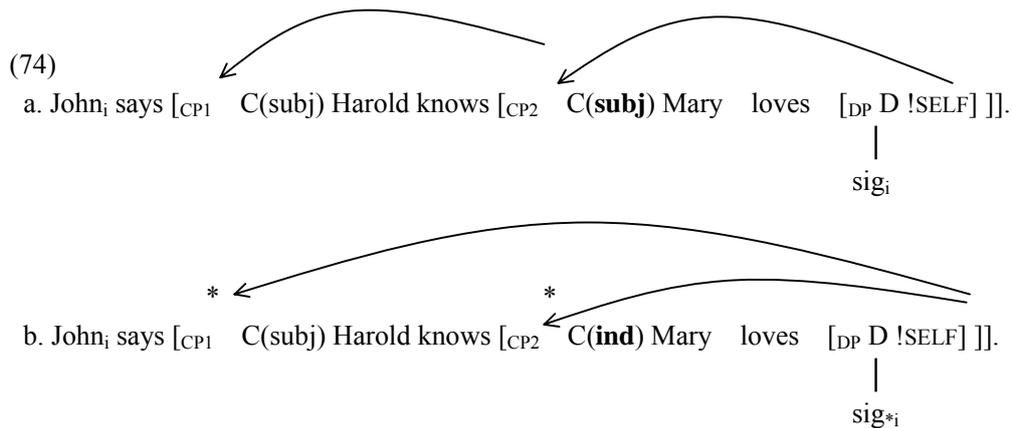
segja ‘say’ selects a subjunctive clause, while *vita* ‘know’ is a factive predicate selecting an indicative; accordingly, the contrast in (71) ensues. Under our current analysis, this contrast receives a reasonable account, if we hypothesize that subjunctive C provides a landing site for the movement of !SELF while indicative C bars the movement of !SELF to its Spec:



Now, let us turn to the so-called ‘Domino Effect’ as illustrated in (73):

- (73) a. Jón_i segir [CP₁ að Haraldur viti [CP₂ að María elski sig_i]].
 J. says that H. knows (subj) that M. loves (**subj**) LDR (Thránsson 1990: 296)
 b. *Jón_i segir [CP₁ að Haraldur viti [CP₂ að María elskar sig_i]].
 J. says that H. knows (subj) that M. loves (**ind**) LDR (Thránsson 1990: 298)
 ‘John_i says that Harold knows that Mary loves him_i.’

When embedded by a non-factive predicate, *vita* can optionally select a subjunctive clause. What is relevant is the fact that only when *vita* selects a subjunctive, *sig* in its complement clause can be long-distance bound ((73a) vs. (73b)). Clearly, the phenomenon follows from the current analysis; indicative C at CP₂ bars the movement of !SELF to its Spec, and consequently the required successive cyclic movement to [Spec, CP₁] is blocked (, which also suggests that one-fell-swoop movement of !SELF to its target is illicit):



Thus, the Domino Effect in Icelandic offers a piece of empirical evidence that LDRs involve successive-cyclic movement in Narrow Syntax.

Note that the Domino Effect is also found in strong islands:

Adjunct

- (75) a. Jón_i kemur [fyrst María elskar (**ind**) hann_i].
 b. Jón_i kemur [fyrst María *elski (**subj**) *sig_i].
 ‘John_i comes since Mary loves (ind/*subj) him_i.’
- (76) a. Jón_i segir [að hann komi [fyrst María elski sig_i]].
 J. says that he comes(subj) since M. loves(**subj**) LDR
- b. *Jón_i segir [að hann komi [fyrst María elskar sig_i]].
 J. says that he comes(subj) since M. loves(**ind**) LDR
 ‘John_i says that he comes since Mary loves him_i.’ (Thráinsson 1990: 300)

Complex NP

- (77) a. Jón_i segir [að þetta sé [stúlkan sem elski sig_i]].
 J. says that this is(subj) the.girl that loves(**subj**) LDR (Thráinsson 1990: 296)
- b. *Jón_i segir [að þetta sé [stúlkan sem elskar sig_i]].
 J. says that this is(subj) the.girl that loves(**ind**) LDR (Thráinsson 1990: 300)
 ‘John_i says that this is the girl that loves him_i.’

Fyrst ‘since’ introduces an indicative clause, and not a subjunctive clause; accordingly, the LDR is not allowed as in (75). However, when embedded by a non-factive predicate, it can optionally introduce a subjunctive clause and, crucially to our current discussion, only when a subjunctive clause is introduced, *sig* contained in it can be long-distance bound ((76a) vs. (76b)). The same contrast obtains in the case of Complex NP ((77)). This supports the claim in the last subsection that the movement involved in LDRs may occur from strong islands.

2.5 The Position of the Target of the Movement

Let us next look at Italian, which also exhibits the indicative/subjunctive opposition and offers suggestive data concerning the landing site of the movement of !SELF. Just as in Icelandic, the Domino Effect exists in Italian. Note, first of all, that the LDR *proprio* can be long-distance bound only when the clause that contains it is subjunctive:

- (78) a. Gianni_i suppone [che tu sia innamorato della propria_i moglie].
 G. supposes that you are(**subj**) in.love of.the LDR wife
 ‘Gianni_i supposes that you are in love with his_i wife.’
 b. ?*Gianni_i mi ha detto [che tu sei innamorato della propria_i moglie].
 G. me has told that you are(**ind**) in.love of.the LDR wife
 ?*‘Gianni_i told me that you are in love with his_i wife.’ (Giorgi 1984: 333)

Next observe that verbs that normally select an indicative complement optionally take a subjunctive complement, when embedded by epistemic verbs that select a subjunctive CP as its complement:

- (79) a. Mario afferma [che Gianni è/*sia intelligente].
 M. affirms that G. is(**ind**)/is(**subj**) intelligent
 ‘Mario affirms that Gianni is intelligent.’
 b. Credo [che Mario affermi [che Gianni è/sia intelligente]].
 I.believe that M. affirms(**subj**) that G. is(**ind**)/is(**subj**) intelligent
 ‘I believe that Mario affirms that Gianni is intelligent.’ (Giorgi 1984: 334)

As predicted, only when a subjunctive clause is selected, LDRs contained in it allow long-distance binding:

- (80) a. ?* Credo [che Mario_i sostenga [che tu sei innamorato della propria_i moglie]].
 I.believe that M. claims(**subj**) that you are(**ind**) in.love of.the LDR wife
 b. Credo [che Mario_i sostenga [che tu sia innamorato della propria_i moglie]].
 I.believe that M. claims(**subj**) that you are(**subj**) in.love with LDR wife
 ‘I believe that Mario_i claims that you are in love with his_i wife.’ (Giorgi 1984: 334)

Thus, we can conclude that in Italian, just as in Icelandic, subjunctive C provides a landing site for the movement of !SELF while indicative C bars the movement of !SELF to its Spec:

- (81) *subjunctive C vs. indicative C*
- a. I believe [that Mario_i claims [^{OK} C(**subj**) you are in love with [[_{DP} D !SELF] wife]]].
 |
 propria_i
- b. I believe [that Mario_i claims [^{*} C(**ind**) you are in love with [[_{DP} D !SELF] wife]]].
 |
 propria?_{*i}

LDRs in Italian also show the sign of successive cyclicity:

- (82) a. Gianni_i suppone [che tu creda [che io sia innamorato della propria_i moglie]].
 G. supposes that you believe(**subj**) that I am(**subj**) in.love of.the LDR wife
 ‘Gianni_i supposes that you believe that I am in love with his_i wife.’
 b. ?*Gianni_i suppone [che tu abbia detto in giro [che io sono innamorato della propria_i moglie]].
 G. supposes that you have(**subj**) said in circulation that I am(**ind**) in.love of.the LDR wife
 ‘Gianni_i believes that you started the rumor that I am in love with his_i wife.’ (Giorgi 1984: 333)

Given this, let us look at a notable observation from Italian:

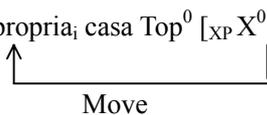
- (83) a. Gianni_i suppone [_{CP1} che tu creda [_{CP2} che la propria_i casa sia la più bella del paese]]
 G. supposes that you believe(**subj**) that the LDR house is(**subj**) the nicest of the village
 ‘Gianni_i supposes that you believe that his_i house is the nicest in the village.’
 b. Gianni_i suppone [_{CP1} che tu abbia detto in giro [_{CP2} che la propria_i casa è la più bella del paese]].
 G. supposes that you have(**subj**) said in circulation that the LDR house is(**ind**) the nicest of the village
 ‘Gianni_i supposes that you started the rumor that his_i house is the nicest in the village.’
 (Giorgi 1984: 336)

The sentences in (83) show that, when the LDR is embedded in subject DP, the clause containing it can be either subjunctive or indicative.

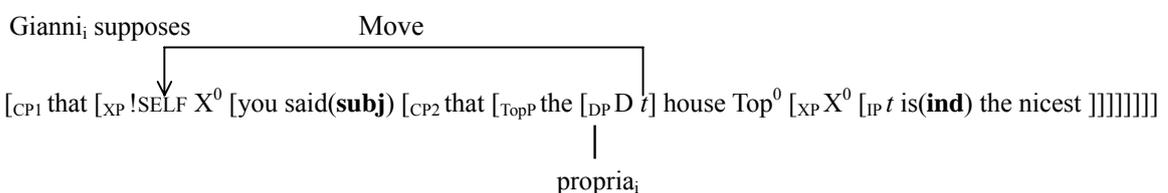
This optionality suggests that the target (landing site) of the movement of !SELF is relatively low in the articulated structure of the left periphery (cf. Rizzi 1997). That is, I argue that LDRs embedded in subject DP can skip the most initial landing site by a string-vacuous Topic-movement of the subject DP that contains them. Note, first of all, that in Italian the left-dislocation of subjects (unlike objects, where resumptive pronouns are obligatory) does not require the presence of a resumptive pronoun:

- (84) a. Gianni/*Egli la nostra causa non l’ha appoggiata.
 G. / he(weak pronoun) the our cause not it.has supported
 b. Gianni/*Egli LA NOSTRA CAUSA ha appoggiato, non la loro.
 G. / he(weak pronoun) the our cause has supported not the theirs
 (Cardinaletti 2004: 141)

Thus, if the landing site of the movement of !SELF (represented here as X⁰) is lower than TopP, the LDR contained in the subject DP can skip the most initial XP by the string-vacuous movement of the subject DP to Spec, TopP:

- (85) Gianni_i supposes [_{CP1} that you said [_{CP2} that [_{TopP} la propria_i casa Top⁰ [_{XP} X⁰ [_{IP} t is(ind) the nicest]]]]


Then, !SELF moves from Spec, TopP to its final landing site (viz. Spec, XP of CP₁)²³:

- (86) Gianni_i supposes

 [_{CP1} that [_{XP} !SELF X⁰ [you said(**subj**) [_{CP2} that [_{TopP} the [_{DP} D t] house Top⁰ [_{XP} X⁰ [_{IP} t is(**ind**) the nicest]]]]]]]]]
 propria_i

It now follows that the clause containing the LDR embedded in subject DP (CP₂) can be indicative as the movement of !SELF to its target is not mediated by the Spec, XP of CP₂.²⁴

²³ Note that the clause hosting the final landing site of !SELF must be subjunctive:

(i) Gianni_i mi ha detto [che Mario è convinto [che la propria_i*_i casa sia andata in fiamme]].

G. me have said that M. is(**ind**) convinced that the LDR house is(**subj**) gone in fire

‘Gianni_i told me that Mario is convinced that his_i house went up in flames.’

(Giorgi 1984: 332)

²⁴ One might wonder whether this derivation might be acyclic as Top⁰ enters the structure after X⁰, which is lower than

Note that this option of skipping the initial Spec, XP cannot be the source for the apparently parallel cases such as (87):

- (87) a. Gianni_i suppone [_{CP1} che la propria_i casa sia la più bella del paese].
 G. supposes that the LDR house is(**subj**) the most beautiful of the village
 ‘Gianni_i supposes that his_i house is the nicest in the village.’
 b. Gianni_i dice [_{CP1} che la propria_i casa è la più bella del paese].
 G. says that the LDR house is(**ind**) the most beautiful of the village
 ‘Gianni_i says that his_i house is the nicest in the village.’ (Giorgi 1984: 335)

In (87), just as in the case above, the clause that contains the LDR embedded in subject DP (i.e., CP₁) can be either subjunctive or indicative. Notice, however, that in this case, the LDR takes the matrix subject as its antecedent and hence the Spec, XP of CP₁ should be the final landing site of the movement of !SELF. Therefore, to skip the initial XP is not a viable option.

Given this, I claim that the LDR in (87b) is a logophor. Recall that I have argued in the end of the Section 2.2 that LDRs located in embedded subject position and referring to the subject of the immediately higher clause can be logophors. The empirical motivation for this claim comes from the fact that the indicative option exemplified by (87b) is subject to a peculiar locality condition parallel to that imposed on logophors:

- (88) a. *? Gianni_i ha detto [_{CP1} che [la **mia** oppione che la propria_i moglie sia una terrorista] è infondata].
 G. said that the my opinion that the LDR wife is(subj) a terrorist is(**ind**) baseless
 b. Gianni_i ha detto [_{CP1} che [il fatto che la propria_i moglie sia una terrorista] è ormai di pubblico dominio].
 G. said that the fact that the LDR wife is(subj) a terrorist is(**ind**) by.now public
 (Giorgi 1984: 337)

In (89a), *mia* ‘my’ intervenes between the LDR and *Gianni*. Accordingly, the LDR cannot take *Gianni* as its antecedent. Recall that logophors can only refer to a local antecedent:

- (89) Bill_i thinks [that John_j said [that there were some pictures of himself_{*i/j} inside]]. (= (44))
 (Zushi 2001: 292)
 (90) Bill_i remembered [that Tom_j saw a picture of himself_{*i/j} in the post office]]. (= (47b))
 (Pollard and Sag 1992: 271)

Thus, we can conclude that the logophor option available in (88b) becomes impossible in (88a) due to the presence of the more local antecedent *mia* ‘my’.²⁵

Top⁰. This suggests that the movement of !SELF is not initiated until its target is introduced into the tree. Recall that the final landing site of !SELF in (90) is Spec, XP of CP₁ and the movement to Spec, XP of CP₂ is an intermediate step. Accordingly, !SELF starts to move after the subject DP that contains it has moved to Spec, TopP. Notice that this conception of successive cyclicity follows Takahashi (1994) and Boeckx (2003) and contra Chomsky (2000, 2001).

²⁵ The logophor option is also at work in (ia):

- (i) a. Gianni_i sostiene [che è un vero peccato [che i propri_i figli non abbiano frequentato l’università]].
 G. claims that is(ind) a real pity that the LDR children not have(subj) attended the university
 ‘Gianni_i claims that it is quite a pity that his_i children did not attend the university.’
 b. ?* Gianni_i sostiene [che tu vuoi [che i propri_i figli frequentino l’università]].
 G. claims that you want(ind) that the LDR children attend(subj) the university
 ‘Gianni_i claims that you want his_i children to attend the university.’ (Giorgi 1984: 340-341)

Notice that the contrast in (i) parallels the following one:

- (ii) a. John and Mary_i think [that it is a pity [that each other_i’s pictures are on sale]].
 b. *John and Mary_i thought [that Bill announced [that each other_i’s pictures were on sale]]. (Giorgi 1984: 340)

skipping option implies that the target of the movement of !SELF resides in a relatively low position in the articulated structure of the left periphery.

2.6 Expanding the Database: Non-Clausemate LDRs

So far, I have limited my discussion of LDRs to cases where more than one LDRs occur in a single clause. This section deals with non-clausemate LDRs and demonstrates that the movement-based analysis of LDRs advocated so far correctly predicts the interpretive possibilities also in these cases.

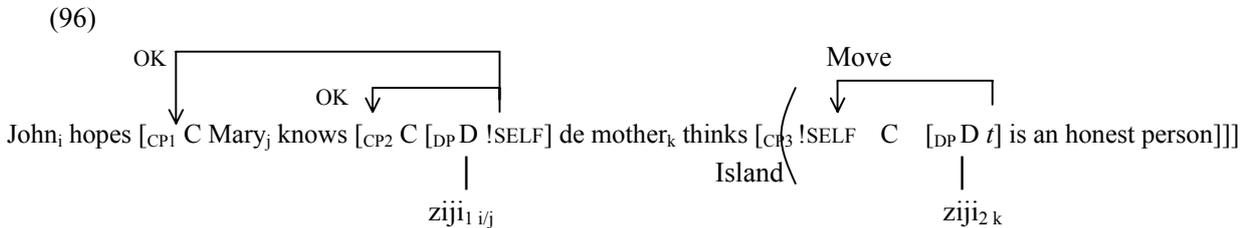
The first piece of data comes from Chinese:

- (95) John_i xiwang [_{CP1} Mary_j zhidao [_{CP2} ziji₁ de mama_k renwei [_{CP3} ziji₂ shi yi-ge chengshi de ren]]]
 J. hope M. know LDR DE mother think LDR COP one-CL 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)

The generalization that emerges is:

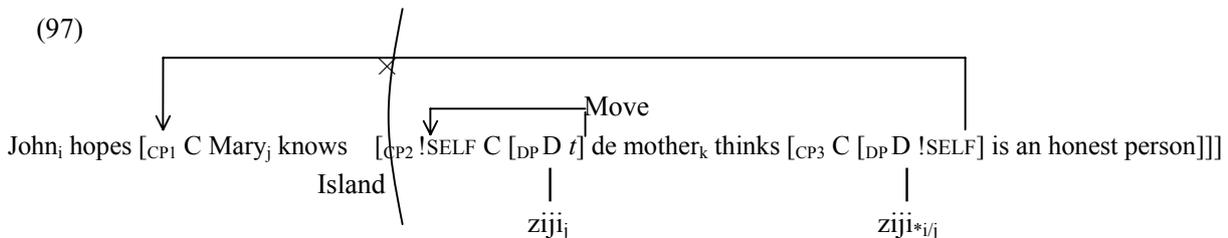
- (i) if $ziji_2$ takes $ziji_1$ de mama as its antecedent, $ziji_1$ can take either *John* or *Mary* as its antecedent ((95a))
 (ii) if either $ziji_1$ or $ziji_2$ takes *Mary* as its antecedent, the other $ziji$ cannot take *John* as its antecedent ((95b-c))

This generalization directly follows from the current theory of !SELF movement and islands created by it. Let us first consider the generalization (i):

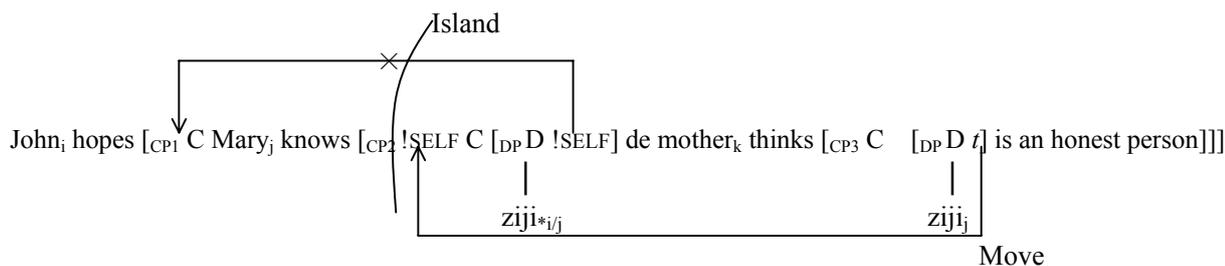


As the island created by the movement of !SELF to Spec, CP₃ is lower than the base position of $ziji_1$, it does not block the movement of the higher !SELF. Thus, depending on whether the higher !SELF moves to Spec, CP₁ or Spec, CP₂, $ziji_1$ can be long-distance bound either by *John* or *Mary*.

Let us next consider the generalization (ii).



(98)

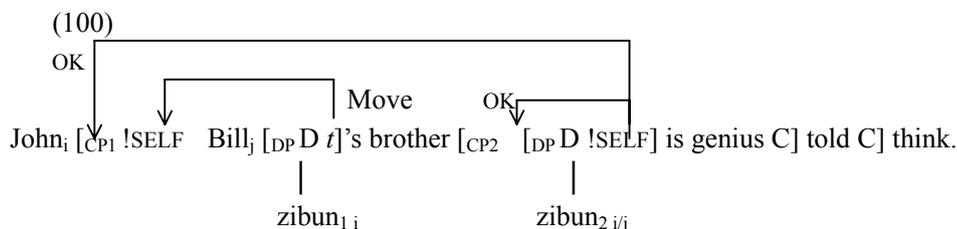


As illustrated above, if either !SELF related to $ziji_1$ or $ziji_2$ moves to Spec, CP₂, it creates an island there, which bars the movement of the other !SELF to Spec, CP₁. Accordingly, it follows that if either $ziji_1$ or $ziji_2$ takes *Mary* as its antecedent, the other $ziji$ cannot take *John* as its antecedent. Thus, the interpretive possibilities in (95) follow from the movement-based analysis of LDRs.²⁷

Let us proceed to consider another piece of data, this time from Japanese:

- (99) John_i-wa [CP₁ Bill_j-ga zibun₁-no otouto-ni [CP₂ zibun₂-ga tensai-da to] it-ta to] omotteiru.
 J.-Top B.-Nom LDR-Gen brother-Dat LDR-Nom be.genius C said C] think
 ‘John_i thinks that...’
 a. Bill_j told his_i brother that he_i is genius.’
 b. Bill_j told his_i brother that he_j is genius.’
 c. Bill_j told his_j brother that he_i is genius.’
 d. Bill_j told his_j brother that he_j is genius.’ (Zushi 2001: fn. 46)

Focusing on the cases where $zibun_1$ is long-distance bound by *John* (i.e. (a-b)), we find that $zibun_2$ can be long-distance bound either by *John* or *Bill*. This ambiguity is immediately predicted from the current analysis.



Since the !SELF related to $zibun_1$ moves from a position higher than CP₂ to Spec, CP₁, this movement is not barred whether the !SELF related to $zibun_2$ moves to Spec, CP₁ or Spec, CP₂.

3. LDRs/LOGs and Subject Control

Since Chierchia (1989), it has been widely acknowledged that obligatory subject control forces *de se* interpretations (see Hornstein 1999, 2001 and Landau 2000 among others). This section deals with the interaction of LDRs/LOGs and subject control and examine whether the mechanism of subject control is reduced either to that of LDRs or to that of LOGs. As will become clear in the end of this section, the answer is negative.

3.1 LOGs and Subject Control

²⁷ Note that, if the logophor option validated in Section 2.2 is available for the higher LDR, the reading where the higher LDR refers to *Mary* and the lower LDR is long-distance bound by *John* should be possible. I leave this problem for future research.

The following generalization holds with regard to the distribution of LOGs and subject control:

(101) LOGs in subject-controlled clauses cannot refer to the controller.

Culy (1994) originally points out that control predicates and LOGs seem to be mutually exclusive. He illustrates this by data from Donno So:

- (102) a. Oumar_i [Anta inyemēñ_i waa be] gi. (Donno So)
 O. A. LOG-Acc seen Aux said
 ‘Oumar_i said that Anta had seen him_i.’
 b. Oumar_i [Anta woñ*_{i/k} waa be] gi.
 O. A. 3sg.Acc seen Aux said
 ‘Oumar_i said that Anta had seen him*_{i/k}.’ (Culy 1994: 1080)

- (103) indε_i [ya-gɔbu wo_i mōñ dyani] nami yo...
 person common-law wife 3sg Poss-Obj marry want if
 ‘If a person_i wants to marry his_i common-law wife...’ (Kervran 1982 cited in Culy 1994: 1082)

The contrast in (109) shows that, in logophoric contexts (i.e. CP where LOGs may occur), regular pronouns cannot refer to the logophoric antecedent (i.e. the antecedent which LOGs obligatorily refer to). The fact that, in (110), the regular pronoun can refer to the logophoric antecedent means that the control clause complement of *want* does not constitute a logophoric context.

A parallel observation is made concerning Edo:

- (104) a. Òzó_i miànmíán [wẹ́ẹ́ írèn_i kié èkhù]. (Edo)
 O. forgot that LOG opened door
 ‘Ozo forgot that he (Ozo) opened the door.’
 b. Òzó_i miànmíán [wẹ́ẹ́ ó*_{i/j} kié èkhù].
 O. forgot that he opened door
 ‘Ozo forgot that he (someone else) opened the door.’
 c. Òzó_i miànmíán [ya tié èbé éré/*írèn_i].
 O. forgot to read book his/LOG
 ‘Ozo_i forgot to read his_i book.’ (Baker 2008: 135)

Note that an occurrence of the LOG in subject control clauses does not itself result in ungrammaticality:

- (105) Siká_i ḍ̣̣ [Kòkú jló [ná dà émi_i]]. (Fɔn)
 S. say K. want irrealis marry LOG
 ‘Sika_i said that Koku wants to marry her_i.’ (Kinyalolo 1993: 227)

The generalization (101) immediately follows if subject-control verbs do not select as their complement those CP which are headed by the C which unselectively binds LOGs. This leads us to conclude that the mechanism of subject control is clearly different from that of LOGs.

3.2 LDRs and Subject Control

Chierchia (1989) argued for the unification of the syntax of LDRs and subject-controlled PRO. His proposal is based on the fact that, just like LDRs, subject-controlled PRO is obligatorily interpreted *de se*:

- (106) # Pavarotti crede [di PRO avere i pantaloni in fiamme]. Ma non si e' accorto che i pantaloni sono i propri.
 'Pavarotti believes [PRO to have burning pants]. But he hasn't realized that the pants are his own.'
 (Chierchia 1989: 25)

In (106), the continuation triggers contradictoriness, just as we saw for a LDR case (see (5)).²⁸ Specifically, Chierchia (1989) proposes that both LDRs and subject-controlled PRO must be bound by an operator (property abstractor) adjoined to the complement CP:

- (107) a. Pavarotti crede O_i [che i propri_i pantaloni sono in fiamme].
 b. Pavarotti crede O_i [di PRO_i avere i pantaloni in fiamme].

However, this unification of LDRs and subject-controlled PRO faces an empirical problem, as Anand (2006: 153) correctly points out.

- (108) John_i renwei [Bill_j xiang [PRO_j gei ziji_{i/j} guahuzi]].
 J. think B. want give LDR shave
 'John_i thinks Bill_j wants to shave him_i/himself_j.'
 (Anand 2006: 134)
- (109) a. Bill_i-wa [Taro_j-ga [PRO_j zibun_{i/j}-o hagemas-oo to] kokoromiteiru to] omotta.
 B.-Top T.-Nom LDR-Acc encourage-YOO C is.trying C thought
 'Bill_i thought that Taro_j was trying to encourage himself_j/him_i.'
 b. Taro_j-wa [Hanako_j-ga [PRO_j zibun_{i/j}-o sukininar-oo to] ketuisita to] sinziteiru.
 T.-Top H.-Nom LDR-Acc like-YOO C decided C believe
 'Taro_j believes that Hanako_j decided to like herself_j/him_i.'

Notice that LDRs in subject-controlled clauses can take an antecedent other than the controller. As I have emphasized in this paper, LDRs in the same clause cannot be long-distance bound by different antecedents. Therefore, subject-controlled PRO cannot be LDRs. Thus, we can conclude that subject control depends on a different mechanism from that of LDRs, contra Chierchia (1989).

4. Concluding Remarks

Based on the difference in interpretive possibilities between LDRs and LOGs, this paper has argued that unlike LOGs, which are mediated by unselective binding in the interpretive (Σ) component, LDRs involve movement in Narrow Syntax. In this regard, the analysis shares with Hornstein (2001, 2007) and Kayne (2002) the aim of reanalyzing construal in terms of movement. Specifically, I have argued that LDRs display an island effect just as the typical A'-movement (e.g. *Wh*-Question, Relativization, Topicalization) does. Following Salzmann's (2006) analysis of the resumptive prolepsis construction in Dutch and German, I have proposed analyzing LDRs as instances of resumption and argued that this analysis of LDRs as resumption derives Pica's (1987) generalization regarding the morphological simplicity of LDRs. I have demonstrated that the movement involved in LDRs exhibits successive cyclicity, based on the Blocking Effect in Chinese and the indicative/subjunctive opposition in Icelandic and Italian, and argued that the apparent indicative/subjunctive optionality found in Italian suggests that the target of the movement involved in long-distance binding of LDRs is a relatively low position in the articulated structure of the left periphery. The analysis of LDRs and LOGs in this

²⁸ Another property shared by LDRs and subject-controlled PRO is the unavailability of the 'statue reading' in the sense of Jackendoff (1992). See Giorgi (2007) on this point.

paper has led to the conclusion that the mechanism of subject control is not reduced either to that of LDRs or to that of LOGs.

Before closing the discussion, I would like to make two caveats. The first caveat concerns the compatibility of the movement-based analysis of LDRs in this paper and Anand's (2006) analysis of the *De Re* Blocking Effect. Anand ascribes the *De Re* Blocking Effect to Rule H of Fox (1998, 2000: Chapter 4), by hypothesizing that Rule H is insensitive to the *de se* component of meaning.

(110) Rule H (Fox 1998, 2000: Chapter 4)

A pronoun α can be bound by an antecedent β , only if there is no closer antecedent γ such that it is possible to bind α by γ and get the same semantic interpretation. (Fox 2000: 115)

Rule H was devised by Fox (1998, 2000: Chapter 4) to address the notorious 'Dahl's (1974) puzzle':

(111) Max said he saw his mother; Oscar did too.

- a. Oscar said Max saw Max's mother. <strict, strict>
- b. Oscar said Oscar saw Oscar's mother. <sloppy, sloppy>
- c. Oscar said Oscar saw Max's mother. <sloppy, strict>
- d. *Oscar said Max saw Oscar's mother. <strict, sloppy>

(112) Max said his mother saw him; Oscar did too.

- a. Oscar said Max's mother saw Max. <strict, strict>
- b. Oscar said Oscar's mother saw Oscar. <sloppy, sloppy>
- c. Oscar said Oscar's mother saw Max. <sloppy, strict>
- d. Oscar said Max's mother saw Oscar. <strict, sloppy>

Rule H forces local binding under truth-conditional equivalence. Hence, in the first conjunct of (111), the nonlocal binding configuration (113b) is barred in favor of the local binding configuration (113a).

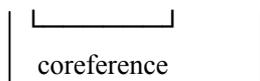
(113)

a. Max said that he saw his mother. (local binding)



binding/coreference binding

b. Max said that he saw his mother. (nonlocal binding)



coreference

binding

As a result, in the second conjunct of (111), the <strict, sloppy> reading, which arises from the nonlocal binding configuration (113b), is not permitted.

Returning to Anand's analysis of the *De Re* Blocking Effect, the empirical motivation for his ascription of the *De Re* Blocking Effect to Rule H comes from the fact that the Oneiric Reference Constraint (ORC) discussed in Percus and Sauerland (2003), which he takes to be a sub-instance of the *De Re* Blocking Effect can be obviated in the same condition as Dahl's puzzle.

- (114) John dreamed that he was marrying his grand-daughter.
- In John's dream, the dream-self marries the dream-self's grand-daughter.
 - In John's dream, John marries John's grand-daughter.
 - In John's dream, the dream-self marries John's grand-daughter.
 - *In John's dream, John marries the dream-self's grand-daughter.
- (115) John dreamed that his grand-daughter was marrying him.
- In John's dream, the dream-self's grand-daughter marries the dream-self.
 - In John's dream, John's grand-daughter marries John.
 - In John's dream, the dream-self's grand-daughter marries John.
 - In John's dream, John's grand-daughter marries the dream-self. (Percus and Sauerland 2003: 268)

In a dream-sentence of the form *X dreams that ... pronoun....*, the pronoun may refer either to X as a third person or to the dream-self. The ORC is a generalization that, in cases where more than one pronoun occur in the complement clause of *dream*, a pronoun cannot refer to the dream-self if a c-commanding pronoun refers to the subject of the dream as a third person ((114d)). Now, look at (115), where Rule H is obviated.

- (116) a. *John believes that he likes his mother. Bill does, too <believe that John likes Bill's mother>.
 b. John believes that only he likes his mother. Bill does, too. <believe that only John likes Bill's mother>. (Fox 2000: 130)

As discussed by Fox (1998, 2000: Chapter 4), this obviation effect is caused by the semantic distinctness between the cases of local and nonlocal binding yielded by the logical operator *only*. Crucially, the ORC exhibits the same obviation:

- (117) John dreamed that only he guessed his favorite color.
^{OK} In John's dream, only John guessed the dream-self's favorite color. (Anand 2006: 48)

Based on this, Anand argues that the *De Re* Blocking Effect stems from (i) Rule H and (ii) a requirement that a syntactic *de se* anaphor must be bound by a designated binder (OP-LOG in his analysis). To illustrate, in a configuration (118), where a pronoun c-commands a *de se* anaphor, Rule H dictates that the anaphor be bound by the more local pronoun, and not by the nonlocal OP-LOG. At the same time, however, the syntactic *de se* anaphor is required to be bound by OP-LOG by the [log] feature it bears.

- (118) DP V [_{CP} OP-LOG pronoun ... *de se* anaphor [log]]

Given these conflicting demands, the configuration (124) ends up being ruled out.

Though Anand (2006) does not provide the *De Re* Blocking Effect obviation data for LDRs or LOGs, the same obviation effect obtains in Japanese:

- (119) (= (13))
- 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 is.genius C say-Past C think-Past
 'John_i though that Mary told him*_{i/j} that he_i is a genius.'
 - 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 is.genius C say-Past C think-Past
 'John_i though that Mary told his_{i/j} mother that he_i is a genius.'

- (120) John_i-wa [Mary-ga kare_{i/j}-dake-ni [zibun_i-ga tensai-da to] it-ta to] omot-ta.
 J.-Top M.-Nom he-only-Dat LDR-Nom is.genius C say-Past C think-Past
 ‘John_i though that Mary told only him_{i/j} that he_i is a genius.’

Thus, I agree with Anand that the *De Re* Blocking Effect is ascribable to Rule H.

The Rule-H based account of the *De Re* Blocking Effect, however, might seem to be incompatible with the movement-based analysis of LDRs at first sight. Given (i) that variable binding is insensitive to syntactic locality conditions and (ii) that Rule H takes semantic equivalence into account, Rule H arguably applies at the post-syntactic interpretive component. Then, if the interpretation of LDRs is mediated via movement in Narrow Syntax, one might wonder whether Rule H can successfully rule out illicit configurations. I would like to suggest that this architectural problem does not arise if we follow Fox (1999, 2002) and hypothesize that movement in Narrow Syntax must be followed up with an operation (Trace Conversion) to convert a chain into a compositionally interpretable object. Assuming that this operation applies at the interpretive component, Rule H can successfully rule out configurations with nonlocal binding. Thus, in terms of the movement-based analysis of LDRs advocated in this paper, the *De Re* Blocking Effect constitutes empirical evidence in support of a post-syntactic mechanism like Trace Conversion.

The second caveat concerns economy principles governing the division of labor between components of the language system. This paper has argued for an overt movement analysis of LDRs and restricted the logophor option only to a few cases where the locality conditions imposed on logophors are satisfied (typically, those located in embedded subject position and referring to the subject of the immediately superordinate clause). In this regard, this paper differs from authors such as Reinhart and Reuland (1991), Reuland (2001a, b), and Reuland and Sigurjónsdóttir 1997, who treat all instances of the LDR as logophors. Apparently problematic to this paper and supportive of the above-mentioned authors is that data on the distribution of sloppy/strict readings in sentences containing LDRs suggest that the logophor option is more pervasive than the analysis of this paper predicts. Let us go into details.

Huang and Liu (2001) observe that LDRs allow only sloppy readings:

- (121) Zhangsan_i juede [Lisi chang qipian ziji_i], Wangwu ye shi.
 Z. feel L. often cheat LDR W. also be
 ‘Zhangsan_i feels that Lisi often cheated him_i, and so does Wangwu.’
 a. Wangwu feels that Lisi often cheated Wangwu. (sloppy)
 b. *Wangwu feels that Lisi often cheated Zhansan. (strict) (Huang and Liu 2001: 178)

The same observation is made concerning Italian:

- (122) Solo Ringo_i teme [che la pioggia danneggi il proprio_i viso].
 only R. fears that the rain may.damage the LDR face
 ‘Only Ringo_i fears that the rain may damage his_i face.’
 a. ...no one else_i fears that the rain may damage his_i face. (sloppy)
 b. *...no one else fears that the rain may damage Ringo’s face. (strict) (Giorgi 2007: fn. 30)

So far, so good. The movement analysis in this paper entails that LDRs are bound in syntax, and therefore predicts that LDRs yield only sloppy readings.

However, there also exist observations that LDRs allow strict readings:

- (123) Jón_i sagði [að þú hefðir svikið sig_i] og Pétur gerði það líka. (Icelandic)
 J. said that you had betrayed LDR and P. did so too
 ‘John_i said that you had betrayed him_i and Peter did so too.’
 a. Peter_j said that you had betrayed him_j. (sloppy)
 b. Peter said that you had betrayed John. (strict) (Thráinsson 1991: 60)
- (124) Jón_i telur [að prófessorinn muni fella sig_i á prófinu] og Ari telur það líka. (Icelandic)
 J. believes that the professor will fail LDR on the test and A. believes it too
 ‘John_i believes that the professor will fail him_i on the test and Ari believes so too.’
 a. Ari believes that the professor will fail Ari on the test. (sloppy)
 b. Ari believes that the professor will fail John on the test. (strict)
 (Reuland and Everaert 2001: 652)
- (125) Aðeins Jón_i telur [að María elski sig_i]. (Icelandic)
 only J. believes that M. loves LDR
 ‘Only John_i believes that Mary loves him_i.’
 a. ...no one else_j believes that Mary loves him_j. (sloppy)
 b. ...no one else believes that Mary loves John. (strict)²⁹ (Thráinsson 1991: fn. 12)
- (126) Gianni_i crede [che i propri pantaloni siano in fiamme], e anche Mario. (Italian)
 G. believes that the LDR pants are on fire and as well M.
 ‘Gianni_i believes that his_i pants are on fire, and Mario does too.’
 a. Mario believes that Mario’s pants are on fire. (sloppy)
 b. Mario believes that Gianni’s pants are on fire. (strict)³⁰ (Giorgi 2007: 338)
- (127) John-dake_i-ga [Mary-ga zibun_i-o hihansita to] itta. (Japanese)
 J.-only-Nom M.-Nom LDR-Acc criticized C said
 ‘Only John_i said that Mary criticized him_i.’
 a. ...no one else_j said that Mary criticized him_j. (sloppy)
 b. ...no one else said that Mary criticized John. (strict)
 (Richards 1997: 183, credited to Takako Aikawa, personal communication)

The contrast in Italian between (126) and (122) is predicted from the analysis of this paper. Notice that the LDR is located in embedded subject position in the former and object position in the latter. Accordingly, the logophor option is allowed only in the former; the observed contrast ensues. However, other examples contain LDRs in embedded object position, and hence the logophor option should be unavailable. Thus, the analysis of this paper predicts that strict readings be absent, contrary to fact.

I would like to suggest that this problem can be resolved by taking into consideration the recent discussion on the economy principles governing the division of labor between the components of the language system (Reinhart 2006: Chapter 4, and Reuland 2010). It has been argued that the economy principles allow coreference option when the equivalent binding is possible. In our cases, it follows that a logophor option is available when the overt movement derivation yields the equivalent reading. Thus, the existence of strict readings in sentences containing LDRs can be captured. Let me explain this in detail.

The discussion started in Reinhart (1983a, b) and Grodzinsky and Reinhart (1993) by hypothesizing the competition between variable binding and coreference.

- (128) *Oscar_i admires him_i.

The bound reading in (128) is prohibited by Condition B. However, it is not sufficient; to rule out (128), we need

²⁹ Thráinsson (1991) observes that the sloppy reading is much more prominent than the strict one. Sells (1987: 467) and Thráinsson (1990: 303) claims that the strict reading is impossible.

³⁰ Giorgi (2007: fn. 29) observes that the sloppy reading is by far the favored one.

to bar the option of *him* in (128) corefering with Oscar. This consideration has led Reinhart (1983a, b) and Grodzinsky and Reinhart (1993) to postulate Rule I:

(129) Rule I (Reinhart 1983a, b and Grodzinsky and Reinhart 1993)

NP A cannot corefer with NP B if replacing A with C, C a variable bound by B, yields an indistinguishable interpretation.

The intuition behind Rule I is that variable binding is more economical than coreference because it closes an open expression as soon as possible and does not require such a semantic operation as variable assignment. Rule I correctly bars the coreference option in (128), and thus succeeds in ruling out (128). However, as Reinhart (2006: Chapter 4) discusses, Rule I faces an empirical problem:

(130) Max_i likes his_i mother and Felix does too.

- a. Felix loves Felix's mother. (sloppy)
- b. Felix loves Max's mother. (strict)

This type of sentence allows either sloppy or strict readings. Crucially, Rule I as formulated in (129) wrongly rules out the strict reading because it bars the coreference option in favor of binding. Because of this, Reinhart (2006: Chapter) advocates an alternative view, which is the very opposite of the original Rule I:

(131) Rule I (Reinhart 2006: Chapter 4)

NP A cannot corefer with NP B, if

- a. A is in a configuration to be bound by B
- b. A cannot be bound by B
- c. The coreferential interpretation is indistinguishable from the bound variable interpretation

The modified Rule I holds that coreference is barred whenever an equivalent binding is impossible. Reuland's (2010) 'Absolute Economy' shares the same intuition:

(132) Absolute Economy (Reuland 2010)

If the derivation of a particular interpretation of a certain expression is blocked in a given component of the language system, this derivation is cancelled (hence access to subsequent component in the hierarchy to derive precisely the same interpretation for the given expression is rendered impossible).

Reuland (2010) also postulates 'Relative Economy' to capture a tendency suggested by processing experiments that variable binding is preferred by coreference.

(133) Relative Economy

As soon as a component becomes applicable, economy favors its processes to complete their operation.

Though not mentioned by Reinhart (2006: Chapter 4) or Reuland (2010), postulation of these economy principles governing the division of labor between the components of the language system immediately account for the peculiar findings by Lidz (2001). Lidz (2001) observes (cf. Sells, Zaenen, and Zec 1986) that local complex (SE-SELF) anaphors allow strict as well as sloppy readings in comparative deletion constructions:

- (134) Zij_i verdedigde zichzelf_i beter dan Peter.
 she defended SE-SELF better than P.
 a. ‘She_i defended herself_i better than Peter_j defended himself_j.’ (sloppy)
 b. ‘She_i defended herself_i better than Peter defended her_i.’ (strict) (Lidz 2001: 129)

What is peculiar to this observation is that *zichzelf* allows only sloppy readings in coordinate constructions:

- (135) Jan_i wast zichzelf_i en Piet ook.
 J. wash SE-SELF and P. too
 a. ‘Jan_i washes himself_i and Peter_j washes himself_j too.’ (sloppy)
 b. *‘Jan_i washes himself_i and Peter washes him_i too.’ (strict) (Lidz 2001: fn. 7)

This apparent inconsistency immediately receives an account in terms of the economy principles noted above. Since variable binding is possible in these cases, coreference option is in principle available, given ‘Absolute Economy’ or Reinhart’s (2006) modified Rule I. The apparent absence of coreferential reading in (142) stems from ‘Relative Economy’. Indeed, Lidz (2001) observes that in some cases strict readings are possible in coordinate VP-ellipsis contexts:

- (136) John_i defended himself_i and his wife did too.
 a. ‘John_i defended himself_i and his wife_j defended herself_j too’. (sloppy)
 b. ‘John_i defended himself_i and his wife defended him_i too.’ (strict) (Lidz 2001: fn. 20)

Equipped with this array of economy principles, we can now deal with the existence of strict readings in sentences containing LDRs, an apparent problem to the analysis of this paper. Recall that the problem was whether LDRs allow strict readings and that sloppy readings are always attested ((128)-(134)). This situation receives a straightforward account in terms of the economy principles mentioned above; since binding via movement in Narrow Syntax is possible, the coreference option is in principle available. The murky status of the coreference option stems from ‘Relative Economy’, which prefers the binding option (recall from footnotes 29 and 30 that strict readings are disfavored even if possible).

In this connection, note that the sentences in (137) allow only strict readings:

- (137) a. Skoðun Jóns_i er [að þú hafir svikið sig_i] og það er skoðun Péturs líka.
 opinion John’s is that you have betrayed LDR and that is opinion Peter’s too
 ‘Jonh_i’s opinion is that you have betrayed him_i and that is Peter’s opinion too.’
 a. *Peter’s opinion is that you have betrayed Peter. (sloppy)
 b. Peter’s opinion is that you have betrayed John. (strict) (Thráinsson 1991: 60)
 b. Skoðun Jóns_i er [að sig_i vanti hæfileika] og það er skoðun Péturs líka.
 opinion John’s is that LDR lacks talents and that is opinion Peter’s too
 ‘Jonh_i’s opinion is that he_i lacks talents and that is Peter’s opinion too.’
 a. *Peter’s opinion is that Peter lacks talents. (sloppy)
 b. Peter’s opinion is that John lacks talents. (strict) (Reuland and Everaert 2001: 652)

Notice that these sentences do not have an attitude verb and also that the antecedent does not c-command the LDR. Hence, the binding option via overt movement does not exist, and accordingly only the coreference option is available. As a result, only the strict reading is allowed.

The claim that the LDR in (137) is an instance of the logophor is corroborated by the ungrammaticality of (138):

- (138) *Skoðun sumra Íslendinga_i er [að sig_i vanti hæfileika]
 opinion some Icelanders' is that LDR lack talents
 'Some Icelanders_i' opinion is that they_i lack talents.' (Rögnvaldsson 1986: 93)

The existentially-quantified nominal 'some Icelanders' is not a referential expression; hence, the logophor *sig* cannot take it as its antecedent. Note that *sig* can take plural antecedents:

- (139) Jón og María_i sögðu [að þú hefðir svikið sig_i]
 J. and M. said that you had betrayed LDR
 'John and Mary each_i said that you had betrayed them_i.' (Thráinsson 1991: 61)

To summarize, I have argued in this caveat that the apparent pervasiveness of the logophor option results from the economy principle which permits coreference when an equivalent binding is possible and hence it does not undermine the movement-based analysis of LDRs advocated in this paper.

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