

Covert Syntax for Anaphoric Interpretation*
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(September 1995, Revised May 1997, February 2000)

Abstract

In this paper, I will propose and argue for the view that non-deictic proforms are introduced into syntactic representations as "referentially underspecified" entities, and that they must undergo a covert computational operation "Affect" at LF, as required by the Principle of Full Interpretation. While the proposed approach is developed under the leading ideas of the minimalist program, we will take significant departure from the current Chomskian view and suggest that good portion of anaphoric interpretation should still be dealt with in covert syntax with the assumption that the driving force of "Affect" is not limited to the need for the checking of "formal features". In the process of arguing for such an approach, we will also point out that it is not necessary to postulate a special class of entities called expletives in UG.

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1. Introduction

We all know that a pronoun can be used "deictically" (or "referentially"), that is, to directly select an entity in the physical or mental context, with either physical or mental ostensity as in (1).¹

(1) a. [Pointing at John, someone says:]

The executives are satisfied with **his** performance.

b. [Reading a newspaper article on Ted Kaczynski, someone says to himself:]

He is insane.

The pronoun here is more or less on a par with a name in (2a-b) below in that its referential content is identified without any recourse to its relation to some other linguistic expression (Lasnik (1976)).

(2) a. The executives are satisfied with **John's** performance.

b. Ted Kaczynski is insane.

Deictic pronouns as well as names, in other words, show up in syntactic representations fully specified in the sense that the identification of their referential content does not require any syntactic computation. Let us describe this state of linguistic expressions as "referentially saturated" — the notion we will define more precisely in Section 2 below.

We also know that a pronoun can be used non-deictically and be interpreted by way of an "anaphoric" relation with a linguistic antecedent. In (3a-b) below, for example, we can

identify the referential content of his without need for imagining any particular speech context.

- (3) a. **John** is satisfied with **his** (own) performance.
b. [The executives who hired **John**] are satisfied with **his** performance (and raised his salary).

If we continue not to associate these sentences with any specific speech context, and in addition, somehow fail to identify the "linguistic antecedent" of the pronouns, as indicated by xxx in (4a-b) below, the referential content of *his* remains unidentified, and the full interpretation of these pronouns must await the unveiling of xxx. Imagine, for instance, a situation in which you overheard someone utter one of these sentences when you passed in front of his or her office and some noise precluded you from catching the name for xxx:

- (4) a. **xxx** is satisfied with **his** (own) performance.
b. [The executives who hired **xxx**] are satisfied with **his** performance (and raised his salary).

This indicates that the pronoun in each of (3a-b) as well as (4a-b) can be introduced into the syntactic representation in a 'referentially **unsaturated**' state, and its referential content comes to be identified only after it establishes an anaphoric relation with some other linguistic item in the course of the derivation. Without such a derivational process, the referential content of each pronoun in these sentences (with no specific speech context associated) would remain unspecified, and the interpretation of each sentence would remain incomplete.

One of the main goals of this paper is to reevaluate and reanalyze these simple observations on anaphoric interpretation, making an appeal to some of the leading ideas, though not necessarily their execution, of the minimalist program (Chomsky (1993)). In

particular, I will propose and attempt to defend the following view of anaphoric interpretation:

- (5) a. All non-deictic proforms are introduced into syntactic representations underspecified with respect to their referential contents — the state we will refer to as "referentially unsaturated".
- b. Proforms are legitimate at LF only if they are "referentially saturated".
- c. The Principle of Full Interpretation as in (6) below requires all proforms to become legitimate objects at LF.
- d. Each underspecified proform may undergo covert computation to establish an anaphoric relation with some other linguistic item in order to become referentially saturated and satisfy the Principle of Full Interpretation (henceforth FI).²

(6) The Principle of Full Interpretation (**FI**):

A representation at interface must consist entirely of legitimate objects.

If tenable, covert syntax applying in this fashion makes the syntax-semantics mapping for anaphoric interpretation highly transparent. Underlying this approach is the essence of the following view of language sketched out in Chomsky (1995). First, language acquisition basically amounts to the acquisition of the lexicon and parameter setting. Second, the function of each interface component is to sort out and organize the information introduced from the lexicon in such a way that each final interface representation contains the information both minimally and maximally necessary for the proper interpretation of sounds and meanings, respectively. Third, and quite importantly to us, whenever potential ungrammaticality arises in the interface components, grammar can make an appeal to the operation Affect. The application of this computational process, however, must be carried out in an optimal way. For instance, the Last Resort Principle as in (7) below prohibits its over-application.

(7) The Last Resort Principle: (Chomsky (1993))

A step in derivation is legitimate only if it is necessary for convergence — had the step not been taken, the derivation would not have converged.

Affect, in other words, applies if and only if such a derivational step is necessary for the derivation to yield a well-formed interface representation — the state referred to as "convergence" of derivation in (7). Once it turns out that an appeal to Affect is inevitable, it must also apply in a most economical fashion, minimizing its computational search space, and perhaps avoiding redundancy like "undoing" the effect of the previously applied Affect. Thus, the general picture underlying the proposed approach is quite simple. Proforms in a referentially underspecified state will give rise to ungrammaticality at LF, but in so far as there is a derivation in which a covert operation applies and such proforms manage to have their referential contents specified, the sentence can be grammatical. If there is no such derivation, on the other hand, ungrammaticality results.

While we will pursue this "Affect" approach to anaphora, which is minimalist in spirit, we will take our departure from the current Chomskian "minimalist program" in several important respects. For instance, we will argue that driving force of covert syntax is not confined to the checking of formal features but may be an essentially semantic factor like referential saturation necessary for anaphoric interpretation, and that it may affect not only formal features but also semantic features. We will propose, in other words, to bring some aspects of anaphora back into syntax. We will also entertain an "interarboreal" covert operation across sentence and utterance boundaries for establishing some type of anaphoric relation (cf. Epstein, et al. (1998)). For this and other reasons to be mentioned below, our approach is "minimalist" only in the most general sense of this term, but is **not** faithful pursuit of Chomsky's proposals.

Section 2 below presents the proposed approach, and Section 3 provides its empirical and theoretical motivations. In particular, I will attempt to motivate, among others, the

following LF mappings achieved by the application of covert Affect. First, the "referentially **unsaturated**" locative proform there in (8a) below undergoes "Attract" as in (8b) for "referential saturation".

(8) Attract:

a. LF_i: **There** arrived a spy [**in this city**].

b. LF_j: [**in this city**] arrived a spy **t**.
 ↑ _____ |

This analysis eventually leads us to the conclusion that it is not necessary to postulate a special class of entities called expletives.

The "referentially **unsaturated**" empty proform ([_{NP} e]) in the discourse in Japanese in (9a) below, on the other hand, undergoes another option of Affect "Copy" as in (9b) to be "referentially saturated".

(9) Copy (and Identify):

a. LF_i: John-wa [_{NP} **zibun-no** **ansyoobangoo-o**] wasuretesimatta.
 -TOP self's PIN number-ACC forgot

Demo Okusan-wa [_{NP} e] oboeteita.
 but wife-TOP remembered

'John forgot his own PIN number. But his wife remembered **her own** (or his) PIN number.'

b. LF_j: John-wa [_{NP} zibun-no ansyoobangoo-o] wasuretesimatta
 | _____ |

Okusan-wa [_{NP} **zibun-no** **ansyoobangoo-o**] oboeteita
 | _____ |

The resulting LF can yield sloppy identity of another proform zibun 'self' (contained in the copied NP) when it undergoes "Identify", still another option of Affect , as indicated by | _____ | in each clause.

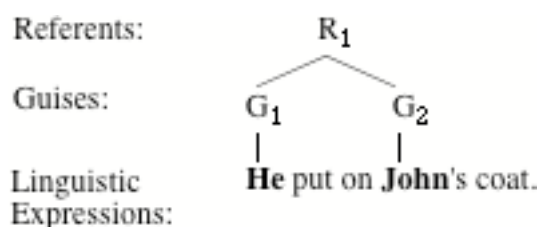
2. Proposals

Before we spell out our proposals, let us illustrate the notion "guises" with the example in (10) below. We will make a crucial appeal below to this notion in defining "referential saturation". The example is from Higginbotham (1985, 570).³

- (10) A: Who was that?
B: Well, **he** put on **John's** coat.

In (10B), when the speaker intends to imply that the person in question is John, the condition C (and/or D) of the binding theory apparently is not violated despite the fact that the pronoun he c-commands what appears to be its antecedent John.⁴ Heim (1982) and Heim (1992, pp. 14-17) ascribe the obviation of the condition C/D (henceforth BT (C/D)) observed here to the possibility of "multiple guises" associated with this discourse, as graphically represented in (11).

(11) Multiple Guises:



The core hypothesis here is that an utterance context supplies referring expressions not with referents but with "guises" which are in turn associated with actual referents. In (10B), for instance, the utterance context permits two distinct guises for two referring expressions— $guise_1$ (= G_1 in (11)) as a visual impression of a male person who put on John's coat, and $guise_2$ (= G_2 in (11)) as an entry labelled as John in the memory of the speaker. The sentence "He put on John's coat" in (10B) therefore is interpreted roughly as "Whoever caused the visual impression in question put on the coat that belongs to the memory entry labelled as

John". He and John in (11) then can be interpreted as coreferential because the speaker implies that G_1 and G_2 happen to be the guises of a single referent R_1 , which permits their association. Crucially, however, there is no direct anaphoric relation holding between he and John, and the absence of such a syntactic relation accounts for the absence of BT (C/D) violation. The apparent obviation of BT (C/D) here crucially relies on the availability of multiple guises and their association with a single referent. Since this state of affairs is made possible by the combination of utterance contexts and the speaker's implication, the sentence "He put on John's coat" uttered out of context fails to escape the problem. The notion guise thus proves to be a quite useful tool to capture otherwise puzzling obviation of BT (C/D).⁵

In this work, we will adopt the notion guise and hypothesize that guises and their association with linguistic expressions constitute part of formal syntactic representations. Let us first introduce the term G-link to refer to the association between a guise and a linguistic expression, and R-link to refer to that between a guise and a referent. We then hypothesize that G-link has the properties in (12a-b) and R-link has the property in (12c).

- (12) a. Each R(eferential)-expression is introduced into a syntactic representation with a G-link.
 b. Each R-expression is linked to one and only one guise, and each guise is linked to one and only one R-expression in a given discourse.
 c. Each guise must be linked to one and only one referent but not vice versa in a discourse.

We assume here that G-link is already indicated on each referring expression when it is introduced to syntax.⁶ "R-expression" mentioned in (12a) refers to not only names but also deictic proforms. Those proforms introduced to syntax with a G-link, in other words, are deictic proforms while those introduced without a G-link are non-deictic proforms. In short, (12a-b) define an R-expression in terms of its biunique association with a guise.⁷ Unlike G-linking, however, we hypothesize that R-linking is established post-syntactically **after** LF.

The uniqueness condition on R-link asymmetrically imposed on guises as in (12c) permits more than one guise to be linked to a single referent as in (11) above while prohibiting more than one referent from being linked to a single guise.

With the notion guise, we now are ready to define "referential saturation" as in (13).

(13) A linguistic expression β is referentially **saturated** at LF iff:

- a. β is **G-linked**,
- b. β is referentially **dependent** upon a G-linked item,
- or
- c. β is a **copy** of a G-linked item.

Satisfaction of the condition stated in (13a) yields what we may characterize as "base-generated" referential saturation when referring expressions such as names and deictic proforms are introduced to syntax with a G-link, as illustrated in (14).

(14) "Base-generated" Referential Saturation:

Guises:	G_1
Linguistic Expressions:	
	The executives are satisfied with { his / John's } performance.

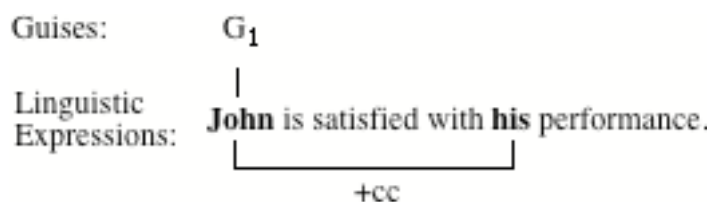
Satisfaction of the condition stated in (13b), on the other hand, permits what is base-generated as a referentially **unsaturated** item to become saturated by virtue of being dependent upon some other item that is G-linked, where the notion "referential dependency" is defined as in (15).⁸

(15) β is referentially **dependent** upon α iff:

- (i) β is referentially identified with α , **and**
- (ii) β is c-commanded by α .

"Referential identification" refers to the state that arises from the application of a covert computational process "Affect" indicated by the line connecting John and his in (16).

(16) Referential Saturation by Referential Dependency:



(16) illustrates referential saturation of a non-deictic pronoun via its referential dependency upon a name, which satisfies the condition in (13b).

As part of the definition of referential dependency, we adopt Reinhart's (1983, 18) definition of c-command as in (17a).

(17) C-command:

a. Node α c-commands β iff the branching node immediately dominating α also dominates β , where $\alpha \neq \beta$.

b.



Note that the definition (17a) permits α to c-command β even when the former dominates the latter. Therefore, in (17b) for example, α c-commands not only β_1 but also β_2 . The condition "where $\alpha \neq \beta$ " in (17a), on the other hand, guarantees that α does not c-command α itself.

We will see the important consequences of the definition in (17a) in 3.3 below.

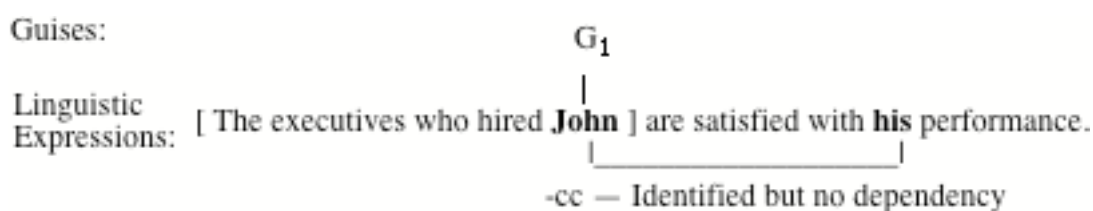
A case that remains to be accounted for is (3b), the relevant part of which is repeated here as (18).

(18) [The executives who hired **John**] are satisfied with **his** performance.

The grammaticality of this sentence suggests that the pronoun his is "saturated". (From now on, we will customarily use the terms "identified/identification", "dependent/dependency" and "saturated/saturation" to refer to "referentially identified/referential identification",

"referentially dependent/referential dependency" and "referentially saturated/referential saturation", respectively, for ease of reference.) This saturation, however, cannot be attained in terms of either of (13a-b). As illustrated in (19) below, his is neither G-linked nor is dependent upon a G-linked item John, lacking a required c-command relation.

(19) Saturation without Dependency:



At this point, I would like to propose and spell out the entire picture of what I will refer to as the Affect Approach to anaphoric interpretation, which entertains a hypothesis as in (20) below and postulates (21a-c) as options of Affect.⁹

(20) Unsaturated anaphoric items undergo a covert computational process Affect in order to become referentially saturated and satisfy FI at LF.

(21) Options of Affect for Anaphoric Interpretation:

- a. Identify
- b. Copy
- c. Attract

In (18), the pronoun his introduced from the lexicon without any G-link is unsaturated. It therefore would fail to satisfy FI if it remains to be unsaturated. The first and necessary step toward convergence it takes is to undergo "Identify" ((21a)), which anaphorically associates two and only two linguistic expressions that agree in relevant grammatical features.

"Identify" as a computational process is essentially identical to Higginbotham's (1983)

"Linking" except that it applies in covert rather than overt syntax and that it crucially lacks directionality. It is also similar in its function to Heim's (1992) "(co)linking" defined in terms of "outer" and "inner" indices. Just as Higginbotham's original Linking, "Identify" as a

syntactic operation is intended to replace "coindexation" often used in the generative literature. We do, in other words, eliminate referential indices from syntactic representations. As will be discussed in Section 3.2 below, the referential identification established by the application of Identify does not necessarily coincide with that established by coindexation. Let me also emphasize here that "referential identification" refers strictly to a syntactic state rather than a semantic state. Both in (22) and (23) below, for example, Identify has applied and identification has been established between the two highlighted items. Such syntactic states, however, do not necessarily lead to a semantic state in which the two items "identified" at LF actually refer to a single individual.

(22) LF_i: **John** saw **him**.
 |_____|

(23) LF_i: **He** saw **John**.
 |_____|

Since Identify as an option of Affect is triggered solely for referential saturation, the Last Resort Principle prohibits G-linked items like names from invoking this computational process. Therefore, if two names as in the example (24) below ever come to be interpreted as coreferential, that must be made possible due to multiple guises rather than the application of Identify.

(24) **John** thinks that **John** is the best student in this school.

This is the interpretation of BT (C) under the Affect Approach.

When an anaphoric item undergoes Identify and is identified with a c-commanding G-linked item, dependency is established and saturation is achieved, as exemplified by (16) above. In the case of (19), on the contrary, saturation of his is yet to be attained due to the lack of dependency, although identity has been established between his and John. It is this

context in which another computational process "Copy" ((21b)) applies for saturation. Copy operates on the two co-identified items and duplicates the semantic content of the more contentful item and superimposes it onto the less contentful item in a non-overlapping fashion.¹⁰ Thus, in (19), whatever semantic contents of John that his does not contain are duplicated from the former and superimposed onto the latter. In effect, his "turns into" the copy of John, as illustrated in (25).

(25) Copy for Saturation:

Guises:	G_1
Linguistic Expressions:	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 10px; margin: 0 5px;">The executives who hired John</div> </div> <p style="margin: 0;">are satisfied with John's performance.</p>

It is this LF-representation in which the non-deictic pronoun his comes to be saturated as the copy of a G-linked item John, satisfying the definition (13c). One crucial assumption underlying this mode of saturation is that Copy allows the "duplicate" to inherit the legitimacy (or referentially saturated status) from its "original". The "duplicate" therefore behaves on a par with the "original".¹¹ In a sense, our analysis with covert Copy here achieves at LF the reverse effect of the Pronominalization transformation in the Standard Theory.

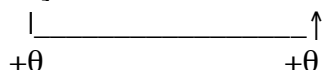
In Section 3.1 below, we will extend the Affect Approach to the analysis of expletives and argue that they undergo covert "Attract" ((21c)). Attract, unlike Copy, transfers (rather than duplicates) the entire content, including structure and G-link, of a more contentful item onto the less contentful co-identified item, as illustrated by the derivation in (26).

(26) a. Identify:

LF: **It** is unlikely [_{CP1} that he will win].

||

(29) LF_j: *[The executives who hired t] are satisfied with John₁'s performance.



Thus, the choice of the correct option of Affect at the right occasion follows from the general aspects of grammar. Note also that each of the proposed options of covert "Affect" for referential saturation establishes what is independently verified as a basic syntactic relation — Attract establishes a chain, Identify together with dependency results in binding, and Copy mimics the LF-reconstruction required for ellipsis. The proposed options of Affect, in other words, are nothing peculiar but are general in their nature.¹⁴

To sum up the Affect Approach to anaphoric interpretation presented above, we hypothesized that linguistic expressions can be base-generated either G-linked or not G-linked. If the former, they are straightforwardly "referentially saturated" and satisfy FI at LF. In the latter case, the non-G-linked linguistic expressions may undergo covert Affect and become saturated by being directly or indirectly associated with G-links. First, they may undergo Identify and become dependent upon a c-commanding G-linked item. Second, if dependency cannot be achieved even after they undergo Identify, they may further undergo Copy and become saturated by turning into the copy of a G-linked item. Finally, if a non-G-linked item is located in a non-thematic position and c-commands a co-identified G-linked item, it may undergo Attract, and become saturated by virtue of turning into a directly G-linked item. Roughly speaking, we have defined an aspect of FI-satisfaction in terms of the notion "referential saturation," which in turn is syntactically defined in terms of G-link. We have also identified the application of one or more options of Affect for anaphoric interpretation as the quest for a direct or indirect G-link.¹⁵

3. Motivation

I now start presenting motivation for the Affect Approach to anaphoric interpretation. In each following subsection, I will attempt to provide empirical and/or theoretical advantages this approach gains when each of Identify, Copy and Attract is adopted as a possible option of covert Affect for saturation. Among the three options, I will first attempt to motivate Attract, since, if successful, that will clarify and justify our theoretical stance, which departs from the current "Chomskian" view of computational processes as in (30) (Chomsky (1995, pp. 262-265)).

- (30) a. Affect, overt or covert, applies only for the checking of formal features.
b. Covert Affect affects only formal features.

More specifically, I would like to defend the view that covert Affect be characterized as in

(31).

- (31) a. Covert Affect can be triggered by semantic factors.¹⁶
b. Not only formal features but also semantic features can be operated upon by covert Affect.

These properties of covert Affect certainly must be true if each of its options applies for the fulfillment of saturation in the way we argue for below. More generally, I would like to uphold the hypothesis that computational processes at each interface can be enacted by anything relevant to the interpretation at that interface.

3.1 Attract

3.1.1 The Background

Let us start our discussion of Attract for saturation with a brief (and certainly non-comprehensive) historical survey of the analysis of expletives as exemplified by (32a-b).

- (32) a. **There** arises a storm in the South.
 b. **It** is likely that he will win.

There are two observations that have determined the direction of the syntactic analysis of expletives in the generative grammar, especially that of there. First, at least in English, expletives in typical cases are subjects, as demonstrated by the applicability of Subject-Aux Inversion as in (33).¹⁷

- (33) a. **Did there** arise a storm in the South?
 b. **Is it** likely that he will win?

Second, as a subject, at least there seems to agree in number with a verb (via a functional category), providing us with the impression that it inherits formal features from the "associate DP" located post-verbally:

- (34) a. There_i seems [t_i to be **a book** on the table].
 |.....|
 b. There_i seem-∅ [t_i to be **some books** on the table].
 |.....|

Reflecting these observations, Chomsky (1986, pp. 131 ff., 143, 179) proposed an early minimalist analysis in which there is replaced by its associate DP at LF, as illustrated by the derivation in (35).

- (35) a. S-structure: **There** arises **a storm** in the South.
 b. LF: **A storm** arises in the South.

More recently, however, Chomsky (1995, pp. 265-276) decided to draw back from the idea that the associate DP actually replaces there at LF. Instead, he proposed a more complicated minimalist analysis summarized in (36).

- (36) a. Base-generated there can check categorial feature D(eterminer) of T(ense) and satisfy the Extended Projection Principle (EPP).
 b. It, however, cannot check Case- and Φ-features of T.
 c. The formal features of the associate DP (henceforth FF (associate)) therefore are LF-adjoined to the (complex) T to fulfill the checking of Case- and Φ-features.

d. Agreement thus takes place directly between the adjoined FF (associate) and T without the mediation by there.

Underlying this analysis is the hypothesis in (37).

(37) Overt movement moves the entire expression, while covert movement moves only formal features.

One observation that motivates the hypothesis in (37) is that a quantified associate DP as in

(38) below cannot take scope over negation, as noted by Williams (1984).

(38) There aren't [**many pictures**] on the wall.

Thus, this sentence can be interpreted as in (39a) but not as in (39b).

(39) a. It is not the case that many pictures are on the wall. (NEG > MANY)
 b. Many pictures are such that they are not on the wall. (*MANY > NEG)

The lack of the scope interpretation as in (39b), however, can be accounted for if only the formal features of the associate raise, leaving its semantic features behind within the VP as in (40) below. Semantic features of the associate many pictures are represented here as SF (many pictures):¹⁸

(40) LF: There [_T **FF (many pictures)**-[_T are₁]] **not** [_{VP} t₁ **SF (many pictures)** on the wall]
 ↑ _____ |

Lasnik (1995) also argues that the contrast between (41a) and (41b) below supports the hypothesis in (37).

(41) a. **They** seemed to **each other** [**t** to have been angry]
 ↑ _____ |
 b. **There** seem (to ***each other**) [**t** to have been **many linguists** given good job offers]
 ↑ _____ | ↑ _____ Covert _____ |

When the antecedent of an anaphor is **overtly** raised and placed in a position from which it can c-command the anaphor as in (41a), the condition A of the Binding Theory (henceforth BT (A)) can be satisfied. When similar overt movement involves there as in (41b), on the

other hand, BT (A) cannot be satisfied, which suggests that the binding capacity of the associate DP is not inherited by there (via a chain) when the trace of there is associated with many linguists at LF within the subordinate clause. Again, if the movement of FF (associate) (henceforth Move FF (associate)) leaves behind the semantic content of the associate DP including its binding capacity, the contrast in (41) follows.

Chomsky (1995, pp. 272-276) considers that the contrast in (41) justifies his assumption (36c) rather than (37), insisting that adjunction of FF (associate) to there would deprive us of a means to distinguish the LF representations for (41a) and (41b). However, since overtly raised there exhibits agreement based upon the number available in the subordinate clause as exemplified by (34a-b) above, it must be assumed at any rate in this approach that FF (associate) is inherited by there. Thus, the contrast in (41) does not motivate the assumption in (36c), though it appears to motivate the assumption in (37).¹⁹

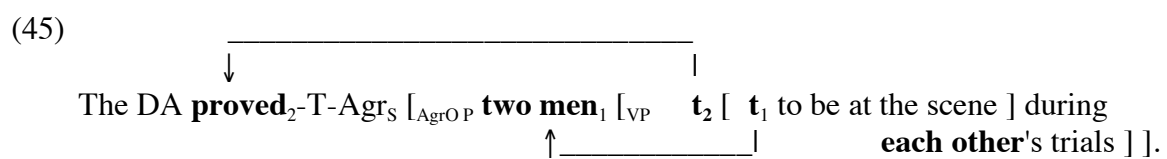
As Lasnik (1995) further points out, however, (37) leads us to some contradiction when it is combined with Chomsky's (1993) covert raising of an accusative object to Spec-Agr_O for Case checking (henceforth ACC-raising). It has been argued in the literature that ACC-raising is motivated by the account it can provide for the facts as in (42).

- (42) a. The DA proved [_{IP} **two men** to have been at the scene] during **each other's** trials.
 (Lasnik and Saito (1991))
 b. John [_{VP} expected [_{DP} **no one that I did** [_{VP} e]] to be electable].
 (Hornstein (1994))

In (42a), the exceptionally Case-marked (henceforth ECM) subordinate subject two men can unexpectedly bind the anaphor each other located in the matrix clause (Postal (1974)). In (42b), the antecedent contained deletion of VP located within the ECM subordinate subject can be properly interpreted, again despite the expected difficulty, apparently without causing any infinite regress.²⁰ It is argued that these puzzling facts can be accounted for if the ECM

content and structure of the moved item in one case, while it must be assumed to affect only FFs in another case.

In order to escape this serious theory-internal contradiction, Lasnik (1995) adopts Koizumi's (1993) proposal that ACC-raising to Spec-Agr_O applies overtly, being accompanied by overt verb raising (which allows him to maintain the correct surface word order), as illustrated in (45).



With this assumption, the dilemma is solved and (37) can be maintained. First, ACC-raising now regarded as **overt** movement moves the entire content of the ECM subordinate subject, which explains the well-formed interpretations in (42a-b). The associate-DP movement in the there construction, on the other hand, is a covert movement, and therefore moves only the associates' FFs, which explains the persistence of the interpretive problems in (44a-b).

To sum up Lasnik's arguments, Chomsky's hypothesis (37) is maintained with the assumption, first, that the there construction involves a covert computation Move FF (DP-associate), and that ACC-raising is an overt computational process which affects the whole item.

3.1.2 Attract Locative

I now would like to propose an analysis of expletive there as summarized in (46), which I will call the "Attract Locative" Analysis:²¹

The first piece of motivation for the Attract Locative Analysis arises when we examine the locality of anaphor dependency. To begin with, anaphor binding is known to exhibit certain locality restriction as illustrated in (48).

(48) *They think [that **the stolen picture** is hanging [in each other's rooms]]

Here, the intervening subject the stolen picture prohibits each other to be bound by they. Strangely, on the other hand, an anaphor can be non-locally bound when the intervening subject is there. In (49) below, for example, each other can be non-locally bound by they.

(49) They think [that **there** is a stolen picture (hanging) [in each other's rooms]]

One crucial observation here is that each other is located in the locative expression appearing in the there construction. Anaphor binding suddenly ceases to exhibit the locality restriction, in other words, when the anaphor shows up in the locative associate of there.²³ This otherwise puzzling fact follows quite naturally under the Attract Locative Analysis of there. After the locative associate of there is attracted at LF, the sentence in (49) is represented as in (50).

(50) After Attract:
 LF: They think [that [**in each other's rooms**] is a stolen picture (hanging) **t**]

In this representation, the locality constraint on anaphor binding is in fact satisfied, since each other is locally bound by its antecedent they. This supports the analysis in which a locative rather than a DP is regarded as the associate of there, and the entire content of a locative (including the contained anaphor) is attracted to there. (From now on, we let the label "Attract Locative Analysis" entail these views.)

There is one thing that we must clarify in relation to the above discussion. In a sentence like (51) below, anaphor binding is successful even when an anaphor is contained in the DP associate of there, which strikes us as a piece of data neutralizing our argument for the proposed Attract Locatives Analysis.

(51) **They** think that there are [stolen pictures of **each other**] (hanging) in the next room.

It is well-known, however, that anaphors in the complement position of NPs can often be long-distance bound in English, in violation of BT (A). Such an exceptional behavior of anaphors, often referred to as "logophoric", is exemplified in (52a-b) below. The examples have been cited from Reinhart and Reuland (1993, 670, 682)).

(52) a. It angered **him** that *she* ... tried to attract [a man like **himself**].
(Quoted from Zribi-Hertz (1989))

b. [The pictures of **himself**] that **John** saw in the post office was ugly.

How exactly this exceptional anaphor binding should be treated is controversial. Some researchers postulate PRO subjects within NPs along the line of Chomsky (1986), and others theorize lexical saturation of the thematic role of the subject of NPs along the line of Williams (1985). Whether one adopts one of these or some other approaches, in other words, some non-core treatment seems to be required in dealing with anaphors in the complement position within NPs. We should therefore refrain from employing the construction as in (51) and (52) in examining the locality effect of anaphor binding. On the contrary, the locality effect on anaphor binding with genitive-marked anaphors as in (53) below has been confirmed, and it can provide a reliable testing ground for the locality of anaphor binding.

(53) **We**₁ believe that *they*₂ thought that **each other**_{2/*1}'s pictures were on sale.

Thus, long-distance anaphor binding as in (51) does not necessarily impair our argument.

Given the locality effect observed in (53), on the other hand, the contrast between (48) and

(49), especially the absence of the locality restriction in (49) demands explanation, and the Attract Locative Analysis fulfills this task.

The second argument for the Attract Locative Analysis arises when we examine the contrast between (54) and (55a-c) below concerning the possibility of interpreting a pronoun as a bound variable.²⁴

(54) **There** seem to [**its** residents] [_{VP} **t** to be many serious problems **in every major city**]
 ↑ _____ | ↑ _____ Covert _____ |

- (55) a. **There** seems to [**his** friends] [**t** to be **someone** quite suitable for that position].
 b. **There** seem to [**their** advisors] [**t** to be **many new graduates** quite suitable for that position].
 c. **There** seems to [**its** residents] [**t** to be [a book about **every city**] in the Library of Congress].

In (54), the pronoun its can be interpreted as a variable bound by the quantified DP every city, yielding a distributive reading. So the sentence may indicate, for example, that, in each of New York, Tokyo, London, and so on, the residents there have the impression that many serious problems exist in the city they live in. In (55a-c), on the other hand, the pronouns his, their and its cannot be interpreted as a variable bound by the quantified DP someone, many new graduates and every city, respectively. The sentence in (55a) therefore cannot mean that there is at least one person such that this person's friends have the impression that he or she is quite suitable for that position, and (55b) cannot mean that many new graduates are such that their own advisors have the impression that they (= those graduates) are quite suitable for that position. (55c) likewise cannot mean that every city is such that its residents have the impression that a book about their own city exists in the Library of Congress. (55a-c) also contrast with (56) below, which may provide these interpretations without any problem.²⁵

- (56) a. **Someone** seems to **his** friends [**t** to be quite suitable for that position].
 b. **Many new graduates** seem to [**their** advisors] [**t** to be quite suitable for that position].

The contrast here indicates that the quantificational element c-commands the pronoun at LF in (54) as well as in (56), but not in (55a-b). The crucial difference, especially that between (54) and (55a-c), is that the quantificational element is (part of) a locative expression in (54) but it is a post-verbal DP in (55a-c). This contrast then can be captured if we can let there inherit the quantificational property of the locative (via the intermediate trace) but not that of the post-verbal DP, that is, if we adopt the Attract Locative Analysis characterized above.

There are, however, a few loose ends in the above argument that we must tighten in order to ensure its validity. First, as pointed out to me by Steven Franks, the quantificational locative expression might c-command the pronoun its in (54) from the outset, having been introduced as an IP-adjunct in the matrix clause. In fact, as has been pointed out by one of the anonymous readers, (54) can be also interpreted on a par with (57).

(57) **In every major city**, there seem to its residents to be many serious problems.

Since we can observe co-occurrence of two locative expressions as in (58) below, we should perhaps allow a locative as an IP-adjunct in addition to a locative associate of the expletive there.

(58) **In European countries**, there seem to its residents to be serious problems **in every major city**.

This means that the analyses as in (59a) below, and hence (59b) as well, should be also possible under the Attract Locative Approach.

(59) a. [_{IP} **In every major city**, there seem to **its** residents [_{IP} to be many serious problems [_{Loc} **e**]]]

b. [_{IP} There seem to **its** residents [_{IP} to be many serious problems [_{Loc} **e**]] **in every major city**]

We can, however, ensure the subordinate status of the locative associate of there in a sentence like (60).

(60) There seem to its residents [_{IP} to be [_{NP} many serious problems t_1] in every city
 |
 [_{CP₁} **that have no obvious solution**]].
 —↑

In this sentence, the application of Extraposition from NP placed the relative clause CP₁ to the right of the locative. This movement, however, should not go beyond the IP-boundary due to the Right Roof Constraint (Ross (1967)). It therefore is ensured that the locative in (60) is located within the subordinate clause in overt syntax. Now, the sentence is somewhat difficult to compute due to its extreme length. All of about a dozen speakers I checked with agreed, however, that the bound variable interpretation of the pronoun is still possible.

Compare, furthermore, (61) below with (60).

(61) In European countries, [₁ many serious problems] seem to **its** residents [t_1 to exist **in every major city** (that have no obvious solution)].

It seems to some speakers to be the case that the pronoun its in this sentence is interpretable as the variable bound by European countries despite the absence of agreement in number.

The same pronoun, however, is not interpretable as the variable bound by the quantificational locative expression in every major city. It is, in other words, not the case that every quantificational locative expression in the subordinate clause comes to bind a pronoun in a higher clause. Rather, such a phenomenon takes place only when a quantificational locative expression shows up as the locative associate of there, which supports the proposed Attract Locative Analysis.

In order to make our argument involving (54) even tighter, however, we must also exercise caution and eliminate the focus interpretation of the quantified locative, which seems to permit the bound variable interpretation in question even in sentences like (55c) and (61) (repeated in (62a-b) below) at least for some speakers. Compare the interpretation by clearly

focusing a quantifier and then intentionally defocusing it. The speakers I have checked with all agree that the bound variable interpretation in question is never available at least with the defocused quantifiers.

- (62) a. **There** seems to **its**₁ residents to be [a book about { **ÉVERY city**₁ / **every city**_{*1} }] in the Library of Congress.
- b. In European countries, many serious problems seem to **its**₁ residents to exist [{ **in ÉVERY major city**₁ / **in every major city**_{*1} }] (that have no obvious solution).

Finally, the analysis of (54) presupposes that the quantified DP can bind out of the locative PP, and such transparent nature of PPs as well must be independently verified. While how it becomes possible is not clear, this mode of binding, in fact, is known to have to be postulated to account for various facts.²⁶ For example, BT (C/D) is violated in (63a) below, involving binding out of a PP:

- (63) a. *It seems [_{PP} to **him**₁] that **John**₁ is a failure. (Chomsky (1986, p. 183))
 b. It seems [_{PP} to [_{DP} **his**₁ friends]] that **John**₁ is a failure.

Note that the problem in (63a) disappears in (63b) when the pronoun is further embedded into a DP. This demonstrates that the problem in (63a) was that of binding, and binding out of a PP is indeed permitted in this sentence. Likewise, anaphor binding out of a PP is possible in (64).²⁷

- (64) Aeron talked [_{PP} with **Rachel**₁] about **herself**₁.

We thus regard the availability of a bound variable interpretation of a pronoun in (54) as a legitimate motivation for the Attract Locative Analysis.

The third argument for the Attract Locative Analysis arises when we examine the scope interaction of a quantified element and negation in the there construction. Recall first,

that when the post-verbal DP in this construction is quantificational as in (65) below, it cannot take scope over negation.²⁸

(65) There are_I-**n't** [_{VP} t_I **many pictures** on the wall] (*MANY > NEG)

When a quantified element is located within the locative associate of there within the VP as in (66) below, on the contrary, it can take scope over negation.²⁹

(66) In Nagano, **there** are_I-**n't** [_{VP} t_I linguistics students [in { **many / all** } private colleges]]
(^{ok}{MANY/∀} > NEG)

Thus, the sentence in (66) can mean that many (or all) private colleges in Nagano are such that there are no linguistics students there. Similarly, when there is overtly raised from the subordinate clause to the matrix as in (67) below, the quantified DP within the locative expression in the subordinate clause can take scope over the negation in the matrix.

(67) [A statement made by a spokesman of TOYS "R" US:]

There do **not** seem [t to remain Power Ranger dolls [in { **many / all** } of our stores]].
↑ _____ | (^{ok}{MANY/∀} > NEG)

The sentence, thus, can mean "Many (or all) of our stores are such that it does not seem to be the case that Power Ranger dolls remain there". Once again, we can ensure the subordinate location of the locative in overt syntax by applying Extraposition from NP as in (68) below, and still maintain the same scope relation as in (67).

(68) There do not seem [_{IP} to remain [_{NP} Power Ranger dolls t_I] in { many / all } of our stores
[_{CP1} **that we can sell to Christmas shoppers**]]. (^{ok}{MANY/∀} > NEG)

That a quantified element can establish its domain out of a PP can be also demonstrated in

(69) independently of the there construction.

(69) [_{PP} In **every college**], the tenure system does **not** seem to torture the professors who do great research. (^{ok}∀ > NEG)

In this sentence, the locative PP is located in the top-most position of the matrix clause, and the quantified element in the locative PP can take scope over the negation in the matrix clause. This demonstrates that a quantified element can establish its domain out of a PP.

When the post-verbal DP is quantificational as in (70) below, on the other hand, the overt raising of there does not permit the quantified DP to take scope over the negation in the matrix.

(70) **There** do **not** seem [**t** to remain { **many** / **all** } **Power Ranger dolls** [in our stores]].
(*{MANY/∀} > NEG)

The sentence in (70) therefore cannot mean "Many (or all) Power Ranger dolls are such that it does not seem to be the case that they remain in our stores". Here, again, we should carefully avoid the focusing of the quantifiers as in (71), which may permit the wide scope of these quantifiers for some speakers.

(71) There do not seem to remain { **MÁNY** / **ÁLL** } Power Ranger dolls in our stores.

Observe also that when a quantificational element shows up as part of temporal or manner expressions as in (72) and (73) below, similar contrasts obtain between focused and unfocused cases.

(72) Temporal Expression:

- a. There did not seem to arise a problem { **ÉVERY time** / **every time** } [that required serious care].
- b. There did not seem to arise a problem { **MÁNY times** / **many times** } [that required serious care].

(73) Manner Expression:

- a. There does not seem to arise divergence in { **ÉVERY way** / **every way** } [that requires us to revise our theory].
- b. There does not seem to arise divergence in { **MÁNY ways** / **many ways** } [that requires us to revise our theory].

In (72a), for example, the interpretation 'A problem that required serious care never seemed to arise' is possible only when every is focused. Without such focusing, however, the only available interpretation seems to be something like 'It does not seem to be the case that a problem that required serious care arose every time.'

Finally, similar contrasts involving focusing can be observed when a quantificational element shows up in a locative expression that either is not a DP associate of there as in (74), or is a DP associate but there is located in a position lower than negation at surface, as in (75).

- (74) a. On the East Coast, Power Ranger dolls do **not** seem to remain in { **ÁLL** / **all** } of our stores (that we can sell to Christmas shoppers).
 b. On the East Coast, Power Ranger dolls do **not** seem to remain in { **MÁNY** / **many** } of our stores (that we can sell to Christmas shoppers).
 c. The tenure system does **not** seem to torture the professors in { **ÉVERY** / **every** } **college** who do great research.
- (75) a. It does **not** seem that **there** remain Power Ranger dolls in { **ÁLL** / **all** } of our stores that we can sell to Christmas shoppers.
 b. It does **not** seem that **there** remain Power Ranger dolls in { **MÁNY** / **many** } of our stores that we can sell to Christmas shoppers.

For the sake of completeness and fairness of the argument, the reader is urged to reexamine (68) and confirm the possibility of the wide scope of the quantified elements even when they are intentionally defocused.

Hatakeyama (1999, 8) independently argues for the Attract Clause Analysis and offers another type of scope argument, citing Kuno's (1971, 365) observation concerning the example (76).

- (76) There are [_{DP} **many** girls] [_{PP} in **every** class].

Here, the quantified locative expression can take scope higher than that of the post-verbal DP. Since both quantified elements appear within a single sentence in (76), however, this scope

phenomenon does not necessarily support the Attract Locative Analysis for those who find a scope ambiguity in a sentence like (77).

(77) [_{DP} **Many** students] attended [_{DP} **every** lecture].

We can, however, provide a more reliable scope argument involving modality. First, we construct two distinct discourses in which a structurally identical there-construction is involved:

- (78) a. In state universities, there **must** be a female professor in *every* department.
 Otherwise, the university could get sued.
 — MUST > \forall
- b. In this university, there **must** be a female professor in *every* department.
 Otherwise, the department will disqualify from receiving a fund from the state.
 — \forall > MUST

The felicitousness of both discourses here suggests that the quantified locative expression can take scope either lower or higher than that of the modal must. Then, we construct similar discourses, this time involving the raising of there:

- (79) a. In state universities, **there**₁ seems [_{IP} t₁ to **have** [_{IP} t₁ to be [a female professor t₂] in *every* department [_{CP}₂ that teaches full-time]]. Otherwise, the university could get sued.
 — MUST > \forall
- b. In this university, **there**₁ seems t₁ to **have** [_{IP} t₁ to be [a female professor t₂] in *every* department [_{CP}₂ that teaches full-time]]. Otherwise, the department could disqualify from receiving a fund from the state.
 — \forall > MUST

Here as well, both discourses are felicitous, which suggests the possibility of a scope ambiguity similar to that observed in (78). Note especially that (79b) permits the higher scope of the locative expression, which can be ascribed to the presence of there in the matrix clause under the Attract Locative Analysis but remains mysterious otherwise. The extraposition of CP₂ out of the post-verbal DP ensures the subordinate status of the locative

expression in (79b). The readers are again urged to confirm that the discourse in (79b) is felicitous even when we exercise by now familiar caution to avoid focusing of the quantified element in the locative expression.

In short, all of the scope facts presented above follow straightforwardly if a locative expression rather than a DP is the referential associate of there, and if there inherits the quantificational property of the locative expression with the application of covert Attract (via a chain in cases like (67) and (68)). That is, if we adopt the Attract Locative Analysis.³⁰

The fourth argument arises when we examine antecedent contained deletion (henceforth ACD) involving a there construction. The examination, however, requires some careful untangling of the data since, as pointed out by Lasnik (1999, Chapters 3.6), more than one computational processes seems to be responsible for ACD resolution. Let us here briefly overview Lasnik's approach, which we will use as a stepping stone.

First, as in his earlier work, Lasnik extends Hornstein's (1994) proposal and regards ACC-raising as one major operation which resolves ACD. He presents the contrast in (80) below to verify the relevance of the Accusative Case-checking in ACD resolution.

- (80) a. ?Dulles **talked about** [_{DP} Philby, who Angleton did not [_{VP} e]].
b. *Mary **stood near** [_{DP} Susan, who Emily did not [_{VP} e]].

It is pointed out that ACD can be resolved in (80a) but not in (80b) because reanalysis of the verb-preposition sequence is permitted only in the former, which is evidenced by pseudopassivization in (81).

- (81) a. Philby₁ was [_V **talked about**] t₁ (by Dulles).
b. *Susan₁ was **stood near** t₁ (by Mary).

ACC-raising of the object DP, in other words, is possible in (80a) but not in (80b).

We then predict that the infinite regress will be resolved in this construction since the elided VP contained in the locative associate of there in (85) comes to be located outside its antecedent VP at LF, as illustrated in (86).³²

(86) b. LF: $[\text{Loc1} \dots [\text{VP}_i \text{e}]] [\text{VP}_i \text{V} [\text{t}'_1 \text{ to be} \dots \text{t}_1]]$
 $\uparrow \quad \quad \quad \parallel \quad \quad \quad |$

In constructing relevant examples to verify this prediction, however, we must exercise caution to avoid the possibility of involving other "ACD-resolving" processes discussed above. For this purpose, if we introduce an elided VP in a relative clause as we often do, we would like to make sure that this relative clause is appositive rather than restrictive, and that it does not modify an Accusative-marked or quantified nominal. First, let us examine the ACD in (87a)-(89a).

- (87) a. *Watson $[\text{VP}_i$ believed there to have been a ring given to Susan, who Holmes didn't $[\text{VP}_i \text{e}]$].
 b. Watson believed there to have been a ring given to Susan, who Holmes didn't $[\text{VP}$ believe there to have been a ring given to] .
- (88) a. *Watson $[\text{VP}_i$ expected there to be a dance next Sunday, when Holmes didn't $[\text{VP}_i \text{e}]$].
 b. Watson expected there to be a dance next Sunday, when Holmes didn't $[\text{VP}$ expect there to be a dance] .
- (89) a. *NBC $[\text{VP}_i$ put a TV camera directly under the Golden Gate Bridge, where ABC didn't $[\text{VP}_i \text{e}]$].
 b. NBC put a TV camera directly under the Golden Gate Bridge, where ABC didn't $[\text{VP}$ put a TV camera] .

In (87a) and (88a), all the conditions we imposed upon us above are satisfied but crucially the DP containing the elided VP is located in something other than a locative associate of there. In (89a), the elided VP appear within a locative expression but there is no there for it to be associated with. Under these circumstances, the sentences cannot be interpreted on a par

with the non-elliptical sentences in (87b)-(89b), respectively. That is, ACD is not resolved in (87a)-(89a).

On the contrary, when we introduce the elided VP within the locative associate of there, satisfying all the other conditions, as in (90a) and (91a) below, it is noticeably easier to interpret these sentences on a par with those without ellipsis, as in (90b) and (91b).

- (90) a. ?Watson [_{VPi} expected **there**_j to be something hidden [_{Locj} in Big Ben, where Holmes didn't [_{VPi} e]]].
- b. Watson expected there to be something hidden in Big Ben, where Holmes didn't [_{VP} expect there to be something hidden].
- (91) a. ?Watson [_{VPi} expected **there**_j to be a riot [_{Locj} in Paris, where Holmes did [_{VPi} e]]] as well.
- b. Watson expected there to be a riot in Paris, where Holmes did [_{VP} expect there to be a dance] as well.

ACD in (90a) and (91a), in other words, can be resolved, as predicted in the Attract Locative Approach. The examples in (90a) and (91a) also contrast with those in (92a) and (93a) below, which cannot be interpreted on a par with the non-elliptical sentences in (92b) and (93b).

- (92) a. *Watson [_{VPi} expected that there_j **would** be something hidden [_{Locj} in Big Ben, where Holmes didn't [_{VPi} e]]].
- b. Watson expected that there would be something hidden in Big Ben, where Holmes didn't [_{VP} expect that there would be something hidden].
- (93) a. *Watson [_{VPi} expected that there_j **would** be a riot [_{Locj} in Paris, where Holmes did [_{VPi} e]]] as well.
- b. Watson expected that there would be a riot in Paris, where Holmes [_{VP} expected that there would be a riot] as well.

In (92a) and (93a), there shows up as the subject of a finite clause, and hence is not expected to be covertly raised out of the matrix VP. The contrast here, in other words, is also predicated under the proposed analysis.

Steven Franks (p.c.) pointed out to me, however, that infinite regress can be resolved even when the elided VP is located in a temporal adjunct, as in (94a), or a causal adjunct, as in (94b), in the there construction.

- (94) a. Watson always [_{VP} expects **there** to be something hidden] [_{CP} **whenever Holmes does** [_{VP} e]] .
 b. Watson always [_{VP} expects **there** to be something hidden] [_{CP} **because Holmes does** [_{VP} e]] .

These facts open up the possibility that the successful resolution of infinite regress in (90a) and (91a), after all, might not be caused by covert movement of the locative expression but by some unknown factor common to all of (90a), (91a) and (94a-b). There is, however, evidence which reveals that (94a-b) are structurally distinct from (90a) and (91a), and this structural distinction can be translated into two distinct ways the resolution of infinite regress can be achieved. VP-fronting provides us with a crucial test for the structural distinction in question. First, as illustrated in (95) and (96) below, VP-fronting is optional for both temporal and causal expressions — note that they may or may not be fronted as part of a VP.

(95) VP-Fronting with **Temporal** Expressions:

- I thought he might expect there to be a problem whenever the offer was attractive, and
- a. [_{VP1} expect there to be a problem **whenever the offer was attractive**], he really did e₁!
 b. [_{VP1} expect there to be a problem], he really did e₁ **whenever the offer was attractive!**

(96) VP-Fronting with **Causal** Expressions:

- I thought he might expect there to be a problem because he doesn't trust us, and
- a. [_{VP1} expect there to be a problem **because he doesn't trust us**], he really did e₁!
 b. [_{VP1} expect there to be a problem], he really did e₁ **because, as I said, he doesn't trust us!**

Crucially, then, the possibility of VP-fronting as in (95b) and (96b) suggests that temporal and causal phrases can be analyzed as items located outside the relevant VP. From this, it

follows that the elided VP located in a temporal or a causal expression as in (94a-b) does not cause any infinite regress to begin with.

In sharp contrast to temporal and causal expressions, however, the locative associate of there undergoing VP-fronting has no choice but to be fronted as part of a VP, as illustrated by the ill-formedness of (97b).

(97) VP-Fronting with **Locative** Associate of there:

I thought he might expect there to be some problem in our plan, and

- a. [_{VP1} expect there to be a problem **in our plan**], he really did **e₁**!
- b. *_{VP1} expect there to be a problem], he really did **e₁ in our plan**!

This demonstrates that the locative associate of there must be located within the VP. We have systematically shown, in other words, that (94a-b) are inherently immune to the problem of infinite regress while (90a) and (91a) can not escape the problem in the same way. This way, we can restore the validity of our argument for the Attract Locative Analysis above, which would account for the otherwise puzzling resolution of infinite regress in (90a) and (91a).³³

Recall finally Lasnik's (1995) claim that the ill-formedness of (98) below arises because there attracts only the formal features of its DP associate.

(98) *John [_{VP} expected [_{IP} **there** to be [_{DP} **no one that I did** [_{VP} **e**]] electable]].

This approach fails to explain why (90a) and (91a) can ever escape the same problem since "Attract FF (associate DP)" completely disregards the content of the locative expression. The Attract Locative Analysis, on the other hand, can account for the well-formedness of (90a) and (91a) while staying perfectly consistent with the ill-formedness of (98) at the same time since this analysis does not entail attraction of any content of the post-verbal DP. (We will

briefly discuss how agreement should be handled in the Attract Locative Analysis shortly below.)

To sum up so far, we have observed that the phenomena of locality of anaphor binding, bound variable interpretation of pronouns, scope interaction and antecedent contained deletion all support the Attract Locative Analysis of there, which incorporates the claims in (99).

- (99) a. A locative expression rather than a post-verbal DP is the referential associate of there.
b. There inherits the entire content of the locative expression, not just its formal features.

There is, however, one empirical phenomenon that remains somewhat recalcitrant in the Attract Locative Analysis. Observe first the successful licensing of a negative polarity item any in (100a-b).

- (100) a. Overt Raising (to Subject):

No good linguistic theories seem to **any** philosophers [to **t** have been formulated]
↑ _____ ↓

- b. Covert Raising under ECM:

The DA proved **no one** [_{IP} **t** to be at the scene] during **any** of the trials.
↑ _____ ↓

According to Lasnik (1995), the negative subordinate subject in both of these sentences undergo overt and hence total raising, and come to c-command the polarity item any located in the matrix. Similar negative polarity is not licensed, however, in (101a-b) below, in which there c-commands any after overt movement raises it to the matrix, but its associate DP as a negative item is located in the subordinate clause.

(101) a. Overt Raising (to Subject):

***There** seem to **any** philosophers [**t** to have been **no good linguistic theories**
↑_____ | ↑_____ Covert_____ | formulated]

b. Covert Raising under ECM:

*The DA proved **there** [_{IP} **t** to be **no one** at the scene] during **any** of the trials.
↑_____ |

The ungrammaticality of (101a-b) thus seems to demonstrate that the negative content of the associate DPs is not attracted to there. This is one of the facts that urged Lasnik to support Move FF (DP-associate).

Note that all these facts are also compatible with the Attract Locative Analysis, which does not affect the post-verbal DPs. We predict in the Attract Locative Analysis, however, that, if a negative item shows up as the locative associate of there, its content should be attracted to there and license any in a similar construction. Contrary to our prediction, however, virtually all speakers still find negative polarity in (102) problematic.

(102) ?*~*There_i seem to **anyone** [**t**_i to be problems **nowhere in the city**]
↑_____ | ↑_____ Covert_____ |

Mamoru Saito (p.c.) pointed out that this might in fact be a predicted result under the Attract Locative Analysis since the combination of Attract Locative and a possible covert adjunction of any to the negative item involved in its licensing might create an ill-formed chain in (102). There, however, are speakers who report that the source of awkwardness involved in this sentence perhaps is not the failure of negative polarity, which would have caused even severer offense as in (101) above and (103) below.

(103) a. ***Anyone** did **not** come to the party.
b. ***Anyone** came to the party.

It can be shown, in fact, that there is a factor which yields awkwardness in (102) irrespectively of its covert computation. The contrast observed in (104) and (105) below suggests that a negative item must precede a polarity item in its surface order to become fully acceptable.

- (104) a. **Never** in my life, have I felt **anyone's** affection.
 b. ?*I have [_v felt **anyone's** affection] **never** in my life.
- (105) a. **Nowhere in Germany**, does the possibility of meltdown [seem to **anyone** to exist in a nuclear plant in the next province].
 b. ?*Possibility of meltdown [seems to **anyone** to exist in a nuclear plant in the next province] **nowhere in Germany**.

The acceptability of (106a-b) below indicates that the awkwardness of (104b) and (105b) indeed stems from the licensing of negative polarity.

- (106) a. I have felt **her** affection **never** in my life.
 b. The possibility of meltdown [seems to **a local official** to exist in a nuclear plant in the next province] **nowhere in Germany**.

The contrast in each of (107) and (108) below with respect to superiority effect also demonstrates that the negative expressions do c-command the polarity items in (104b) and (105b).³⁴

- (107) a. **On which occasion**₁ did you [feel **whose affection**₂] **t**₁?
 b. ***Whose affection**₂ did you [feel **t**₂] **on which occasion**₁?
- (108) a. **In which German province**₁ does the possibility of meltdown [seem to **which congressman** to exist in a nuclear plant in the next province] **t**₁?
 b. ***To which congressman**₂ does the possibility of meltdown [seem **t**₂ to exist in a nuclear plant in the next province] **in which German province**₁?

What went wrong in (104b) and (105b), in other words, indeed seems to be the relative linear order between a negative expression and a polarity item. Although I have no definite idea

negative polarity facts is that they tend to fall short of offering clear support to the Attract Locative Analysis, but for good reasons.

One non-trivial issue that we have not discussed so far is agreement. The operation Attract Locative does not appear, at least at first sight, to directly control the number agreement observed between the post-verbal DP and the verb in the there construction. A couple of possibilities come to mind. First, the agreement in question, in fact, might be established directly between the verb and the post-verbal DP within the verbal projection. Since the notion "checking domain" (Chomsky (1993)) is rather artificially defined, and the notion like "Case of unaccusative" (Belletti (1988)) suggests independent need for establishing such relations, this option is not out of the question.³⁵ Another possibility is that a locative expression inherits number from the post-verbal DP in one way or another, and agrees with the verb (via T) at LF when it is attracted to there. den Dikken and Næss (1993), for instance, argue that a locative expression as a predicate agrees with a post-verbal DP as its subject in the locative inversion construction. That locative PPs can participate in number agreement from a subject position can be also demonstrated by (110a-b).

- (110) a. [_{PP} Under the chair] **is** a nice place for the cat to sleep. (Stowell (1981))
 b. [_{PP} Under the chair] and [_{PP} on the TV set] **are** two nice places for the cat to sleep.

Whichever of these analyses may turn out to be correct, we perhaps need to postulate a chain of agreement to explain why the agreement in the subordinate clause is inherited in the matrix in (111).

- (111) There₁ seems [_{IP} t₁ to be **a problem** in the main cabin].
 ↑ _____ ↓

3.1.3 Attract Clause

In this subsection, I will attempt to motivate what I call the "Attract Clause" Analysis of the expletive it as summarized in (114).

- (114) a. The so-called expletive it is anaphoric to CP.
b. It covertly attracts the associate CP for referential saturation.³⁶
c. The entire content rather than just formal features of the associate CP is attracted.

The Attract Clause Analysis is illustrated by the derivation in (115).

- (115) a. Identify:

LF_i: **It** is unlikely [_{CP} that he will win].
 |_____|

- b. Attract:


LF_j: [_{CP} **that he will win**] is likely **t**.
 ↑_____|

Descriptively, we can state that Attract Clause takes place when the pronominal it is generated in a non-thematic position, and c-commands the CP it is identified with as exemplified by (115a). When the entire content of the associate CP is transferred onto it as in (115b), this proform becomes referentially saturated. (We will discuss this mode of referential saturation in further detail in 3.3 below, and show how it can avoid BT (D) violations.) In a sense, this LF-derivation is a covert counterpart of Emonds's (1970) "intraposition" analysis of clausal subjects.


It has long been recognized, both in traditional grammar and generative grammar, that the expletive it is anaphorically or otherwise associated with the post-verbal CP.³⁷ It therefore is not entirely misdirected to state that the Attract Clause Analysis captures our intuition quite faithfully. The major observation which has made researchers shy away from this analysis in the minimalist tradition, I believe, is that the agreement comparable to that

observed in the there construction is missing in the CP-extraposition construction. In what follows, I will first present one empirical motivation for adopting the Attract Clause Analysis. I will then attempt to show that the premise of the rejection of the Attract Clause Analysis just described, namely, the assumption that the expletive it does not exhibit number agreement is erroneous.

The empirical argument for the Attract Clause Analysis is based upon the observation offered by Chomsky (1981) concerning the locality of anaphor dependency. We actually extended it to the analysis of there above, and the form of the argument is basically the same here. First, anaphor binding is disrupted by an intervening DP as in (116) (as we have already seen in 3.1.2).

(116) *They know [that **I** believe [that each other's books will be best-sellers]].


Quite interestingly, an anaphor can be non-locally bound when the intervening SUBJECT is the expletive it as in (117) below:

(117) They think [that **it** is unlikely [that each other's books will be best-sellers]].


One crucial observation here is that each other is located in the CP associate of the intervening "expletive" it. This situation certainly reminds us of a similar observation in regard to there, and naturally leads us to a solution similar to Attract Locative. If we adopt the Attract Clause Analysis here, the sentence in (117) comes to be represented as in (118) below after the CP associate is attracted to it at LF:

(118) LF after "Attract Clause":

↓ _____ |

LF: They think [that [_{CP} **that each other's books will be best-sellers**] is unlikely it]

In this representation, the locality constraint on anaphor binding is in fact satisfied, since each other is locally bound by its antecedent they. This motivates the "Attract Clause" Analysis, under which the entire content of the CP associate including the contained anaphor is attracted to it. As Lasnik and Uriagereka (1988) pointed out, on the other hand, mere presence of the expletive it does not necessarily override the locality restriction on anaphor binding, as shown in (119a-b).

- (119) a. They said that [we think that it is unlikely [that **each other's books will be best-sellers**]].
- b. They think that it surprised **each other** [_{CP} that Bill won].

These facts also follow naturally from the "Attract Clause" Analysis. In (119a), even after the associate CP is attracted to it, the intended anaphor binding between they and each other is not local because of the intervention of we. In (119b), Attract Clause does not improve the situation since the anaphor is not contained in the associate CP. When the order of the intervening plural NP and the expletive it as in (119a) is reversed, and when the anaphor in (119b) is contained in the associate CP, on the other hand, Attract Clause becomes relevant again and an anaphor can be non-locally bound across the expletive it. Compare (120a-b) below with (119a-b).

- (120) a. They think that it surprised us [that **each other's books were on sale**].

- b. They think that it surprised Bill [that each other's books were on sale].

Let us now turn to the issue of agreement. Since his early minimalist analysis (Chomsky (1986)), Chomsky has maintained the claim that there triggers the covert movement of part or whole of its associate while it does not. Chomsky (1995, pp. 273-274) attempts to justify this asymmetry with the assumption that it has the capacity to check all of categorial D, Case- and Φ -features of T while there lacks the capacity to check Case- or Φ -features of T. There, in other words, drives the application of Move FF (associate) for the convergence of derivation, while the Last Resort Principle prohibits its application to it.³⁸

McCloskey (1991) further argues for the absence of LF-replacement of the expletive it by its CP associate in the following way. First, the subject-verb agreement in (121) below shows that conjoined propositions denoting "distinct situation-types" are plural in number.

- (121) [_{CP} [_{CP} That the president will be reelected] and [_{CP} that he will be impeached]] **are** equally likely at this point.

The expletive it , however, does not exhibit plural agreement with a verb even when it has a plural conjoined CP of this sort:

- (122) ***It seem** equally likely at this point [_{CP} [_{CP} that the president will be reelected] and [_{CP} that he will be impeached]].

According to McCloskey, this demonstrates that the expletive it does not participate in number agreement with its CP associate, and hence that it does not undergo Attract Clause in our terms (whether it attracts only formal features or the entire content). Note, however, that it is inherently singular, and is disagreeing with the inflection of the verb seem in (122). The sentence, in other words, is bound to be ungrammatical irrespective of the agreement between

it and the CP-associate. In this regard, the example involving the plural form they as in (123) below is more relevant, and still supports McCloskey's point.

(123) ***They** are equally likely at this point [_{CP} [_{CP} that the president will be reelected] and [_{CP} that he will be impeached]].

At this point, there arise two questions that need to be answered under the Attract Clause Analysis. First, why and how the anaphoric relation in (124a) below is prohibited while such is not a problem in (124b).

(124) a. ***They** are equally likely [_{CP} that John will win **and** that he will lose].
b. [_{CP} That John will win **and** that he will lose] are equally likely, but **they** can't both happen.

Since the Affect Approach does not discriminate expletives from "regular" anaphoric items, this asymmetry is unexpected. Second, why can the plural proform they not serve as an expletive while the singular proform it can? How can we explain, in other words, the unsuccessful plural agreement as in (124a) above and the successful singular agreement in (125a-b) below at the same time?

(125) a. **It** seems [_{CP} that he will win].
b. **It** seems equally likely at this point [_{CP} that the president will be reelected and that he will be impeached]. (McCloskey (1991, p. 565))

In what follows, I would like to show that there is a systematic reason why the plural agreement as in (124a) fails to surface. If successful, such an attempt will allow us to neutralize McCloskey's counterargument to the Attract Clause Analysis, which seems to be the strongest objection to this analysis raised in the literature.

I believe that the key to identifying the actual but hidden problem here is to understand the nature of plurality involved in the examples like (124a-b). Here, the crucial and perhaps obligatory use of the expressions equally and both in (124a-b) provides us with an important clue. First, a sentence of the form in (126a) is interpreted as in (126b).

- (126) a. CP₁ and CP₂ are **equally** likely.
 b. CP₁ is likely, and CP₂ is likely, and the degree of likelihood in two cases is equal.

The likelihood (or at least possibility) of the realization of **each** individual situation in (126a), in other words, is taken up and their relation is asserted. Likewise, a sentence of the form in (127a) is interpreted as in (127b).

- (127) a. CP₁ and CP₂ can **both** happen.
 b. CP₁ can happen, and CP₂ can happen, and the realization of each situation is not mutually exclusive.

Here again, the potential realizability of **each** individual situation in (127a) and their relation is asserted. The use of **equally** and **both** in the contexts like (126a) and (127a), in other words, seems to induce a distributive interpretation of a plural set of events rather than its collective interpretation.

Arguing that Binding Condition B (henceforth BT (B)) operates on semantic predicates, Reinhart and Reuland (1993, 677) also make a crucial appeal to this property of **both** to account for the contrast in (128).

- (128) a. [**Max**₁ and Lucie] talked about **him**₁.
 b. ***Both** [**Max**₁ and Lucie] talked about **him**₁.

The preferred interpretation in (128a) is the collective one, suggesting an act of mutual talking. To most speakers, on the other hand, **both** in (128b) forces the distributive interpretation, entailing two separate acts of talking by Max and by Lucie. The two interpretations of (128a-b) therefore can be represented as in (129a-b), respectively.

- (129) a. Max and Lucie (λx (x talked about **him**))
 b. Max (λx (x talked about **x**)) & Lucie (λx (x talked about him))

Under the collective interpretation in (129a), the two NPs making up the subject are taken as one set, and the predicate is not regarded as reflexive. Under the distributive interpretation in

(129b), on the other hand, the predicate is distributed over the two distinct NPs, and one of them (*x talked about x*) is reflexive, which leads to the violation of BT (B).

Thus, we may characterize the plurality involved in (124a-b) (and possibly the plurality of CPs in general) as distributive (or aggregate) in nature rather than being collective. That is, the individuality of each conjunct CP is retained in the coordinated CP. The plural pronoun they in each of these examples, in other words, is anaphoric to the two conjunct CPs rather than the entire coordinate structure, much in a way similar to the case of "split antecedents", as indicated by the coindexation in (130a-b).

- (130) a. [_{CP1} **That John will win**] and [_{CP2} **that he will lose**] are equally likely, but **they**₁₊₂ can't both happen.
b. ***They**₁₊₂ are equally likely at this point [_{CP1} **that the president will be reelected**] and [_{CP2} **that he will be impeached**].

The sentence (131) below exemplifies similar split antecedents involving conjoined DPs denoting "aggregate" plurality.

- (131) [_{DP1} **Michael Jordan**] and [_{DP2} **Larry Bird**] are perhaps two of the most well-known players in the history of NBA, and coincidentally **they**₁₊₂ were both named after an uncle.

Note the singular expression "named after an uncle", which clearly suggests that the individuality of each antecedent DP is retained. So, the question now can be restated — why are the split antecedents permitted in (130a) but not in (130b)? I would like to point out here that the contrast follows naturally when we adopt the Affect Approach to anaphoric interpretation. In particular, the answer lies in the two distinct ways the pronoun they is saturated at LF in these sentences. First, in (130a), there does not exist a c-command relation between the pronoun and the two conjunct CPs it has been identified with. What must take place at LF for saturation, therefore, is the application of covert Copy out of a coordinate structure, as illustrated in (132).³⁹

(132) LF: [_{CP1} That John will win] and [_{CP2} that he will lose] are equally likely,

but { [_{CP1} **That John will win**]
[_{CP2} **that he will lose**] } can't both happen.

As we have already seen, similar split antecedents with DP conjuncts as in (131) above and (133a) below are also possible, and covert Copy out of a coordinate structure as illustrated in (133b) must be permitted.

(133) a. [_{DP} **John**₁ and **Bill**₂] have returned, but **they**₁₊₂ are both injured.

b. **John**₁
 LF: [_{DP} John₁ and Bill₂] have returned, but { _____ } are both injured.
Bill₂

In (130b), on the contrary, the pronoun they generated in a non-thematic position c-commands the two conjunct CPs it has been identified with. Saturation of this pronoun, therefore, must be achieved by the application of Attract rather than Copy, as illustrated in (134).

(134) LF: *{ [_{CP1} **that the president will be reelected**]
↑
[_{CP2} **that he will be impeached**] } are equally likely
↑

 at this point [t and t].
 _____|_____

As illustrated in (135) below, however, extraction of conjuncts out of a coordinate structure is known to be prohibited (Ross (1967)).

(135) ***What**₁₊₂ did you buy [_{DP} **t**₁ and **t**₂]?
 _____|_____

We can, in other words, reduce the contrast between (130a) and (130b) to the different option of Affect to be adopted for the saturation of the pronoun in each construction.

One fact that we still must account for is why the singular "expletive" it is possible in (136) (= (125b)).

(136) **It** seems equally likely at this point [_{CP} that the president will be reelected and that he will be impeached].

Here, it must be the case that the entire coordinate CP is covertly attracted to it and that this CP is singular. Somewhat surprisingly, in fact, many speakers accept (137) below not only with are but also with is.

(137) [_{CP} That the president will be reelected and that he will be impeached] { **is / are** }
equally likely at this point.

It must be the case, therefore, that equally does not necessarily force a distributive interpretation and the entire coordinate structure in (136) can be singular, though the semantics involved in this interpretation is not at all clear to me. This conclusion makes (136) at least compatible with our analyses above. Since this sentence involves covert attraction of the entire coordinate CP rather than that of the individual conjuncts out of a coordinate structure, no problem is expected to arise. Perhaps, the entire coordinate CP is regarded as a single set and hence as a singular element under the collective interpretation whereas the individual conjunct CPs as members of this set are regarded as plural under the distributive interpretation. While this asymmetry shows up only as distinction in number agreement in (137), the same asymmetry permits it in (136) but rejects they in (130b) as the attractor of CPs because only (130b) involves attraction of CPs out of a coordinate structure.

To sum up, the ungrammaticality of (130b) can be ascribed to the general prohibition against the extraction of individual conjuncts out of a coordinate structure under the Attract Clause Analysis of expletives. If credible, this conclusion permits us to consider that the CP-extraposition construction does in fact involve the subject-verb agreement that reflects the

anaphoric relation between the subject proform and its associate CP. When a singular proform it is generated in a typical CP-extrapolation construction as in (138) below, the singular number of its associate CP is straightforwardly reflected by the verbal inflection.

(138) **It** seems [_{CP} that he will win].

When a plural proform they is generated in a CP-extrapolation construction as in (130b) above, on the other hand, its association with a plural CP necessarily involves illicit application of Attract, and therefore the expected plural agreement fails to surface legitimately. There is, in other words, a systematic reason why the CP-extrapolation strikes as not involving number agreement comparable to the agreement the there construction exhibits. The strongest objection to the Attract Clause Approach therefore can be dismissed. By adopting the Attract Clause Analysis, on the contrary, we can capture the notion 'CP associate' of the expletive it in terms of a pure anaphoric relation between these items.⁴⁰

3.1.4 Theoretical Consequences:

In the literature of generative syntax in 1980s and 1990s, it has been simply assumed that UG makes available expletives as a small class of exceptional linguistic entities that lack a referential function. We can, however, ask a number of somewhat naive but perfectly legitimate questions as to the properties of expletives characterized in this way, as in (139).

- (139) a. Why are expletives always proforms?
b. Why can't they (co)refer unlike other proforms?
c. Why are they the counterpart of it (non-animate proform) and there (locative proform) cross-linguistically, and not he or she, for example?

I believe that the approach incorporating Attract Locative and Attract Clause can provide quite straightforward answers to all of these questions. To begin with, the basic assumption underlying this approach is that exceptional linguistic entities called expletives need not be postulated in UG. They are proforms that are base-generated in a non-thematic position, and

It, however, does not necessarily have to do so even as an argument. A CP may appear, for instance, as a complement of seem as in (143a) below, while the ill-formedness of (143b) indicates that this verb lacks a Case feature.

- (143) a. It seems [_{CP} that he is innocent].
b. *It seems [**him** to like it].

Obviously, in other words, if the "visibility" condition is to be maintained, it constrains only nominal (DP) arguments. When there and it attract their associates and create chains at LF, therefore, neither of the problems observed in (140) and (141) above arise.⁴¹

To sum up, the Attract Locative/Clause Analysis can provide simple answers to all of the questions in (139), and eliminates "expletives" as special linguistic entities.

Finally, let us emphasize again that if Attract Locative/Clause Analysis is plausible, we will acquire quite reasonable grounds for adopting the view that covert Affect be characterized as in (144a-b) below, departing from the current "Chomskian" view of computational processes in general.

- (144) a. Covert Affect can be triggered by semantic factors.⁴²
b. Covert Affect can manipulate not just formal features but the entire content of an item (including its semantic features).

With this conclusion in mind, let us now turn to the motivation for other options of Affect for anaphoric saturation.

3.2 Identify

The essence of "Identify" as a computational process has been adopted and argued for by a number of researchers ever since Higginbotham (1983) proposed "Linking" (e.g., Seely (1988), Fox (1998)). It therefore is the option of Affect which seems to require least justification. Here, I will only discuss the empirical phenomenon which allows us to confirm

why we should adopt Identify over coindexation, adopting and reinforcing Heim's (1992) argument.⁴³

First, the sentence in (145) below can be ambiguously interpreted as illustrated by the two distinct near paraphrases in (146a-b).

(145) Every boy_i thinks that only he_i likes his_i mother.

- (146) a. Every boy thinks that other boys do not like their own mothers.
 b. Every boy thinks that other boys do not like his mother.

Roughly speaking, the interpretation illustrated in (146a) concerns "other boy's liking of their own mothers", while that illustrated in (146b) concerns "other boy's liking of one boy's mother". Crucially, however, the coindexation indicated in (145) fails to distinguish these two interpretations. We can, on the other hand, establish two distinct binding relations as illustrated in (147) in terms of two distinct modes of the application of Identify.

(147) a. **Every boy** thinks that only **he** like **his** mother. (Serial Binding)

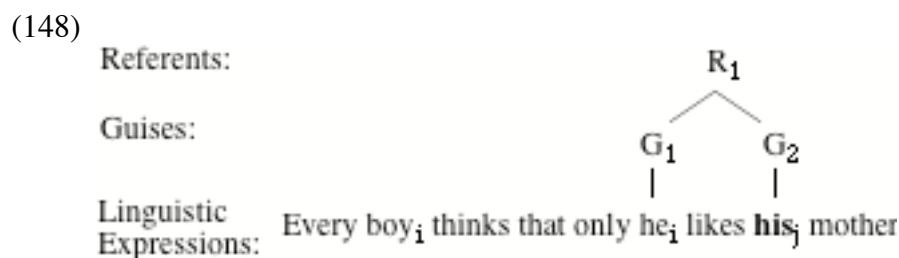
|_____||_____|

|_____|

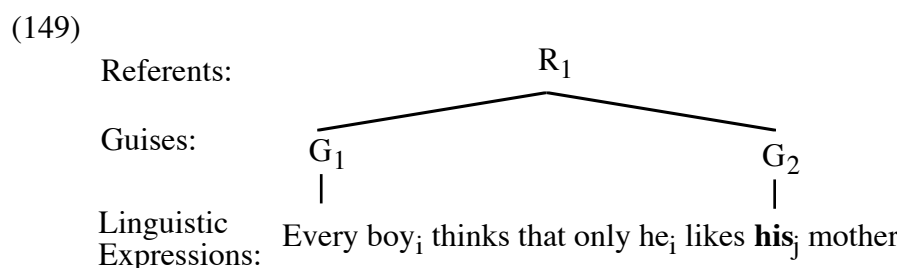
b. **Every boy** thinks that only **he** like **his** mother. (Parallel Binding)

|_____|

In (147a), two applications of Identify established two instances of binding in a "serial" fashion, which yields the reflexive interpretation between he and his. In (147b), on the other hand, two applications of Identify established two instances of binding in a "parallel" fashion, which distinguishes he as the person who likes the mother from his as the son of the mother. At first site, the reading in (146b) may strike as a case involving multiple guises — one guise as the person who (thinks that he) likes the mother and another guise as the son of the mother, and one may attempt to capture this reading with coindexation as illustrated in (148).



It seems inappropriate, however, to regard he_i in (148) as G-linked, since it is interpreted as a variable bound by its quantified antecedent every boy.⁴⁴ Another possibility is to postulate G-linking and R-linking as in (149).



This analysis, however, would require us to analyze a quantified element as having a referent. Even if we ever allow ourselves to do that, we would have to regard a (semantically) singular noun his and every boy as sharing an identical referent. The reading in (146b), however, certainly does not require everyone to be interpreted as a unit set.

The same ambiguity persists in (150) below, and this fact also disfavors the multiple guise analysis of the reading in (146b).

(150) Every child thinks that only **he or she** likes **his or her** mother.

Note that the disjunctive pronominal his or her in (150) cannot be associated with any particular referent (via a guise) when it is interpreted as a variable bound by the quantified element. Both instances of his or her in (150), in other words, are saturated by dependency even when the reading in (146b) is obtained. Thus, we have good reason to believe that the

reading as in (146b) is not made available by multiple guises, but with "parallel" binding as in (147b).

To sum up, the ambiguity in (145) can be captured with "Identify" but not with coindexation. This provides us with appreciable empirical motivation to adopt the former over the latter.

3.3 Copy

We can also motivate "Copy" as a covert computational process in several different ways. The first argument arises from examination of the so-called Null Object Construction in Japanese as in (151B) below, which may yield both sloppy and strict identity interpretation as indicated by the English translation.

(151) A: John-wa zibun-o nagusameta ga,
 -TOP self-ACC consoled though

'John consoled himself.'

B: Bill-wa [_{NP} e] semeta.
 -TOP blamed

= 'Bill blamed **himself**.'

= 'Bill blamed **John**.'

Here, sloppy identity is possible even when the two sentences involve VPs headed by distinct verbs, and hence apparently without involving VP-Ellipsis. While Otani and Whitman (1991) claim that the null object construction in Japanese as in (151B) involves "VP Ellipsis in disguise", the validity of this hypothesis has been questioned by Hoji (1998) and Kitagawa (1999). Sloppy identity in this construction, on the other hand, can be derived without any recourse to VP-Ellipsis or λ -abstraction when we postulate covert "NP-Copy".⁴⁵ All we must do is simply to combine our Affect Approach with Kuroda's (1965) claim that the null object in this construction is a phonetically empty pronoun, as illustrated in (152).

(152) a. Identify:

LF_j: John-wa [_{NP} **zibun-o**] nagusameta ga, Bill-wa [_{NP} **e**] semeta.
|-----|

b. Copy:

LF_j: John-wa [_{NP} zibun-o] nagusameta ga, Bill-wa [_{NP} **zibun-o**] semeta.

c. Identify:

LF_j: **John**-wa [_{NP} **zibun-o**] nagusameta ga, **Bill**-wa [_{NP} **zibun-o**] semeta.
|-----| |-----|

As in (152c), Identify applying after Copy correctly lets zibun become saturated via dependency in each clause and yields sloppy identity without recourse to any extra mechanism.

For the sake of completeness, the derivation for the strict identity in (151) is also given in (153) below, in which zibun undergoes Identify and becomes saturated before the NP containing it undergoes Copy.⁴⁶

(153) a. Identify:

|-----|
LF_j: **John**₁-wa [_{NP} **zibun-o**] nagusameta ga, **Bill**₂-wa [_{NP} **e**] semeta.
|-----|

b. Copy:

LF_j: John₁-wa [_{NP} zibun₁-o] nagusameta ga, Bill₂-wa [_{NP} **zibun**₁-o] semeta.

The Affect Approach incorporating covert Copy can be further motivated when we examine various types of interpretive restrictions observed in English — the violation of the "i-within-i" filter in (154), "referential circularity" in (155), and the violation of BT (D) in (156).

(154) *_i[his_i friend]

(155) * $[_j \text{ His}_i \text{ wife}]$ admires $[_i \text{ her}_j \text{ husband}]$

(156) ***He**_i saw **John**_i.

Consider first the so-called "i-within-i" violations exemplified by (154). The interpretive restriction imposed on the representation here — that his and his friend cannot share an identical referent — has been captured by the "i-within-i" condition, which takes the form of a filter prohibiting coindexation as schematized in (157) (Chomsky (1981, p. 212)).

(157) * $[_{\beta_i} \dots \alpha_i \dots]$

In the Affect Approach, (154) will be represented as in (158) after Identify applies at LF.

(158) * $[_{\text{his friend}}]$
|
|

In (158), the saturation of his is to be achieved by its dependency upon the entire NP his friend. The interpretation of this NP, however, is contingent upon the saturation of his.

Intuitively, what goes wrong here is clear — the interpretation of an item is forced to be given in terms of that item itself because of the involvement of dependency and containment at the same time. As a result, the saturation of his cannot be achieved. The "i-within-i" violation in (154) therefore can be regarded as a case of the violation of FI involving failure of referential saturation. In the Affect Approach, we can appeal to the notions "identification", "dependency" and "saturation", and depict this FI violation as a problem that arises when a syntactic state described in (159) below holds at LF, which we will refer to as "Infinitely Regressive Saturation (henceforth IRS)".

(159) Infinitely Regressive Saturation (IRS):

If β is dependent upon α , and α contains β , the saturation based upon the identification of α and β is infinitely regressive.

Informally, IRS depicts the failure of saturation when the identification of an unsaturated item based upon c-command circulates back to that item itself due to containment. I believe

that it is quite understandable in the perspective of compositional semantics that structural containment plays a crucial role in inducing IRS since the interpretation of the whole remains incomplete when the referential content of its part is undetermined.⁴⁷

In the characterization of IRS, the definition of c-command we have adopted from Reinhart (1983) (repeated here as (160)) plays an important role, reflecting Reinhart's original intention behind this particular definition.

(160) C-command: (= (17a))

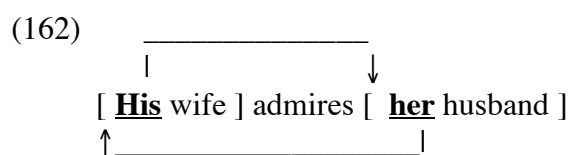
Node α c-commands β iff the branching node immediately dominating α also dominates β , where $\alpha \neq \beta$.

The definition in (160) permits α to c-command β even when the former dominates the latter. α 's containment of β , therefore, permits β to be dependent upon α when they are identified. In (158), for instance, the entire NP his friend c-commands his, and hence his is dependent upon his friend when they are identified. The saturation intended by the application of Identify in (158), therefore, gives rise to IRS, and the "i-within-i" violation is reduced to FI.⁴⁸

With IRS in mind, let us now turn to 'referential circularity' observed in a sentence like (155) (repeated below as (161)), in which it cannot be the case that his is anaphoric to her husband and her is anaphoric to his wife simultaneously (Brody (1981), Higginbotham and May (1981), et al.).

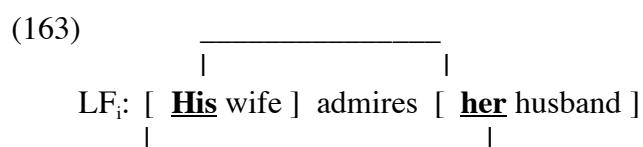
(161) *_j [**His**_i wife] admires [_i **her**_j husband]

Providing the analysis in (162) below in his linking approach, Higginbotham (1983, 404) attempts to capture the interpretive constraint here in terms of the transitivity of some anaphoric dependence established by the "containment" of an anaphoric item in the antecedent of another anaphoric item.⁴⁹

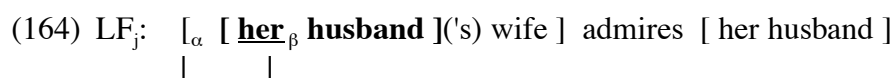


In (162), the pronoun his is contained in his wife, the antecedent of her, and at the same time the pronoun her is contained in her husband, the antecedent of his. As a result, his comes to be anaphorically dependent upon his itself and her also comes to be anaphorically dependent upon her itself, forcing these items to be interpreted in terms of themselves. In this approach, the essence of the problem is correctly captured — that a pronoun cannot depend upon itself to establish its reference. I would like to point out, however, that this linking analysis does not characterize the problem precisely enough, involving certain redundancy. I would like to claim further that the Affect Approach incorporating covert Copy permits us to completely assimilate "referential circularity" in (161) to the "i-within-i" violation in (158) above by eliminating this redundancy.

Let us now reanalyze (161), starting with (163) below, in the Affect Approach.



In (163), both his and her underwent Identify, and her comes to be dependent upon his wife due to the c-commanding relation holding between the two. His, on the other hand, cannot be dependent upon her husband since the latter does not c-command the former. As a result, his undergoes Copy for its saturation, and her husband is duplicated onto it, as illustrated in (164).



Note that the referential circularity involving his has disappeared at this point, unlike in Higginbotham's linking approach. A problem, however, still persists. Since her was to be

saturated by his wife in (163), and his wife now has turned into her husband's wife in (164), the saturation of her in (164) (= β) is dependent upon her husband's wife (= α), which contains her (= β). That is, IRS defined in (159) (repeated here as (165)) arises in (164) due to a basically identical dependency-containment pair with that we observed in the "i-within-i" violation in (158).

(165) Infinitely Regressive Saturation (IRS): (= (159))

If β is dependent upon α , and α contains β , the saturation based upon the identification of α and β is infinitely regressive.

Note also that IRS cannot be avoided even when dependency is regarded to be established by the "original" her (= β_1) as in (166) below, since the saturation of her husband's wife (= α) still contains the "duplicate" of her (= β_2), which functions on a par with the "original" her (= β_1).

(166) LF_j: [α [her _{β_2} husband]'s wife] admires [her _{β_1} husband]
|-----|

Under the Copy analysis, in other words, (163) is characterized as involving not two but one instance of referential circularity. Because of that simplification, we can completely reduce "referential circularity" to the "i-within-i" violations in terms of IRS arising in their LF-representations.

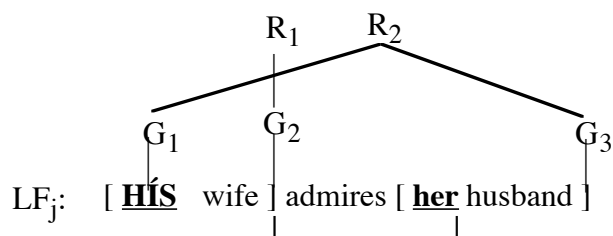
Interestingly, referential circularity can be avoided when we interpret his in (163) above as a deictic pronoun, for example, with the speaker's pointing to its actual referent and/or placing some emphatic stress, i.e., as an item that is saturated from the outset (as indicated by capitalization with stress) as in (167).⁵⁰

(167) LF_i: [HIS wife] admires [her husband]
|-----|

This contrast is also a natural consequence in the Copy approach. In (167), HIS is saturated from the outset, and her is saturated by its dependency upon HIS wife. No further application

of Affect therefore is called for, and no IRS arises. The sentence can be interpreted perhaps with multiple guises, as illustrated in (168).

(168)

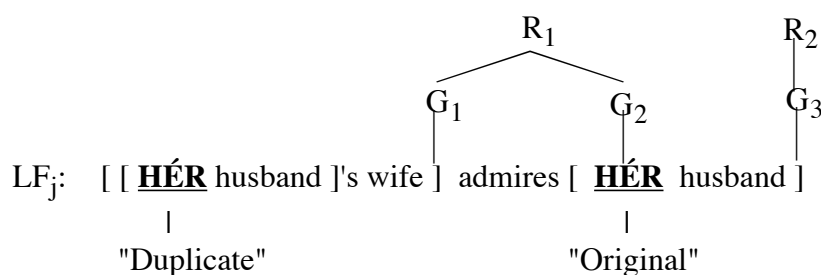


One puzzle related to this phenomenon is that referential circularity seems to persist when we interpret her in (163) (instead of his) as a deictic pronoun, as indicated in (169).

(169) LF_j: [His wife] admires [**HÉR** husband]

In (169), his is yet to be saturated since it is identified with, but is not dependent upon **HÉR** husband due to the absence of a c-command relation. It therefore will undergo Copy and the multiple guise interpretation comparable to that in (168) will require an LF-representation as in (170).

(170)



In this representation, however, the "duplicate" **HÉR** is not identified with, and hence is not dependent upon, her husband's wife, and no IRS is expected to arise.⁵¹ Yet, referential circularity appears to be unavoidable. One may consider that the crucial difference between (167) and (169) is that only the latter involves covert Copy and comes to yield containment

relation at LF, as in (170). The intended interpretation in (167), however, is available even when we alter the c-command relation between the identified items as in (171a) and induce containment at LF as in (171b).

(171) a. LF_i: [Friends of [**HÍS** wife]] admire [**her** husband]
 |_____|

b. LF_j: [Friends of [**HÍS** wife]] admire [[**HÍS wife**](‘s) husband]

Containment relation without identification, therefore, does not seem to cause any problem in (170), as expected in the Affect Approach. Another path we can take is to regard the difficulty in (169) as arising from some discourse problem due to the backward pronominalization, i.e., the linear order involved there. The relevance of linear order in fact can be demonstrated with a sentence involving a psyche verb as in (172).⁵²

(172) LF_i: [Stories about [**her** husband]] annoy [**HÍS** wife]
 |_____|

Here, we have reversed the linear order of the identified items in (171a), and the problem as in (169) emerges again. As shown in (173) below, however, the backward quantifier binding is permitted in the same configuration.

(173) [Stories about [**her** husband]] annoy **every woman**.

This suggests that the c-command relation between the identified items in (172) is identical to that in (167), and hence no containment relation should arise at LF. I therefore conceive that not only the referential restriction observed in (172) but also that observed in (169) is caused by some discourse factor involving linear order rather than by IRS. If so, (169) is still compatible with the Affect Approach.

Finally, let us take up BT (D) violation as in (174).

(174) LF_i: **He** saw **John**.
 |_____|

He in (174) is identified with, but not c-commanded by, John. He therefore is not dependent upon John, and undergoes covert Copy, as illustrated in (175).

(175) LF_j: **John** saw John.

At first sight, this representation appears to be totally unrelated to the "i-within-i" violations or "referential circularity" examined above. It, however, can be also regarded as involving IRS (whose definition is repeated below as (176)) when we follow Higginbotham (1983) and assume that the notion 'contains' stated in its definition can be **reflexive** as in (177).

(176) Infinitely Regressive Saturation (IRS): (= (159))

If β is dependent upon α , and α contains β , the saturation based upon the identification of α and β is infinitely regressive.

(177) The relation "contains" is understood as reflexive: α always contains β **if $\alpha = \beta$** .⁵³

First, let us label he and John in (174) as in (178) below for ease of explanation.

(178) LF_i: [_{α} **He**] saw [_{β} **John**]
 |_____|

Note that John as β here is dependent upon he as α although the opposite is not true. The application of Copy as in (175) then has the effect of turning α (he) into β (John) as illustrated in (179).

(179) LF_j: [_{$\alpha = \beta$} **John**] saw [_{β} **John**]
 |_____|

Since α now **is** β , α does contain β in accordance with (177). α (he) thus comes to contain β (the "duplicate" John) while β (the "original" John) is still dependent upon α . This gives rise to IRS in accordance with (176). Note that (176) defines IRS whether the item to be saturated is α or β . The crucial aspect of BT (D) violations, in other words, is that if a name is being anaphoric to a pronoun via dependency, the anaphoricity inevitably circulates back to the name itself because of the containment arising from the application of covert Copy at

LF. Note that the reflexive containment in (179) does not give rise to β 's dependency upon α since the condition "where $\alpha \neq \beta$ " in the definition of c-command (160) above guarantees that he as α does not c-command itself (= the "duplicate" John as β in (179)). Rather, it is the "original" John as β which establishes dependency upon α .⁵⁴

The involvement of dependency established in this fashion plays a crucial role in distinguishing BT (D) violation from successful coreference achieved by covert Copy as illustrated in the derivation (180a-b).

(180) a. LF_i: [[β **John's**] mother] saw [α **him**]
 |_____|

b. LF_j: [[β **John's**] mother] saw [$\alpha=\beta$ **John**]
 |_____ -cc _____|

In (180b), while the self-containment holds between α and β , it does not achieve dependency, as has just been discussed. Moreover, unlike in the case of BT (D) violation in (174), the "original" John as β is not c-commanded by, and hence is not dependent upon, α . (180b) therefore does not induce any IRS, and the intended coreference is permitted. The application of cover Attract as illustrated in (181) below does not give rise to IRS, either.

(181) a. LF_i: [α **There**] arose a storm [β **in the South**]
 |_____|

b. LF_j: [$\alpha=\beta$ **in the South**] arose a storm **t**
 ↑ |_____|

Again, the self-containment holds between α and β in (181b), but does not achieve dependency. Unlike in the cases of Copy, moreover, no referential content of the "original" β is left behind since Attract transfers rather than duplicates them onto α .⁵⁵ Thus, no dependency is achieved between the "original" β and α , and no IRS arises. The legitimate cases of covert Copy in (180) and Attract in (181), in other words, can be correctly permitted.

To sum up, the Affect Approach incorporating covert Copy permits us to unify all of "i-within-i" violations, "referential circularity" and BT (D) violations in terms of IRS holding at LF. This, I believe, is a commendable result since all of these phenomena intuitively share one and the same problem — the failure of saturation when the referential dependency of an item circulates back to that item itself. The Copy analysis permits us to reduce this problem to IRS, inducing simultaneous containment and dependency in all these phenomena alike.⁵⁶

4. Summary and Conclusions

We proposed and argued for the Affect Approach to anaphoric interpretation, in which referentially underspecified and hence "unsaturated" proforms undergo one or more of the options of Affect — Identify, Copy and Attract — at LF to satisfy the Principle of Full Interpretation. We provided empirical and theoretical motivations for the application of each such option of Affect for the syntactic preparation of the proper anaphoric interpretation in the CI-interface, i.e., semantic interpretation. The arguments provided for the support of this approach led us to the theoretical conclusions that the driving force of "Affect" is not limited to the need for the checking of "formal features", and that postulation of a special class of entities called expletives is not necessary.

Notes

***Acknowledgment here.**

¹ Throughout this work, we will use the term "deictic" in this general sense.

² A similar view can be found in Reinhart and Reuland (1993), in which anaphors are regarded as referentially defective and binding is considered as the procedures assigning the content necessary for their referential interpretation.

³ Higginbotham in turn ascribes the original observation to Nancy Brown. Throughout this work, labelling with uppercase letters indicates that the example sentences make up a discourse.

⁴ Following a growing trend, I will refer to the following generalization offered by Lasnik (1989) as the condition D of the binding theory:

(i) A less referential expression may not bind a more referential one.

In Section 3.3 below, we will attempt to reduce BT (D) to FI.

⁵ Fiengo and May's (1994) " σ -sequence" more or less corresponds to the layer of guises in (11). Following Fiengo and May, we will assume that the domain of the layer of guises is a discourse rather than a clause or a single utterance.

⁶ One possibility is that G-link is established along with the association of nominal expressions and other types of grammatical information when Numeration is formed. Alternatively, we may consider that it is established in the lexicon as part of the lexical information of R-expressions.

⁷ The following example brought to my attention by Juan Uriagereka (p.c.), however, may suggest that (12a) is too strong:

(i) George Washington's mother [_{VP} loved **George** dearly], and George Bush's mother did [_{VP} e], too.

Note that the interpretation of the name George in the VP reconstructed at the ellipsis site suggests that this R-expression is not G-linked independently, or alternatively, it is not interpreted as an R-expression. In what follows, I will concentrate on the apparently unmarked use of R-expressions, and leave this interesting phenomenon unexplored.

⁸ Our definition of referential dependency is distinct from Evans's (1980) "referential dependency" in several crucial respects. For example, while Evans defines it in terms of its semantic consequence, referring to "one term's picking up its reference from another," we regard it as a syntactic state that necessarily induces such a semantic consequence, which may or may not lead to referential saturation. Evans also permits referential dependency to hold even without a c-command relation between two terms, while we do not.

⁹ If one opts for Chomsky's copy theory of movement, the options of Affect will be Identify, Copy and Delete. Our "Attract" in (21c) then corresponds to Copy followed by Delete, while our "Copy" in (21b) corresponds to Copy without subsequent application of Delete.

¹⁰ Recall here that identification already requires the two items to agree in relevant grammatical features.

¹¹ One possibility pointed out to me by Chris Tancredi (p.c.) is that Copy actually duplicates the G-link as part of the content of the antecedent, and the two guises are necessarily co-linked with an identical referent, as illustrated in (i):

(i) Copy for Saturation:

²⁷ The example in (64a) was drawn from Dunlap (1985), who discusses binding both into and out of PPs. See also Reinhart and Reuland (1993) and Epstein, et al. (1998) for relevant discussion.

²⁸ All pictures as an associate DP in the same sentence presumably exhibits the same scope restriction, but is ruled out due to the definiteness effect.

²⁹ It can also take scope lower than negation, which we will not discuss. See, however, footnote 30 below.

³⁰ One of the anonymous reviewers considers that we incorrectly predict the absence of narrow scope of many / all in a sentence like (ia) below in the Attract Locative analysis, in which the locative PP is attracted to the position higher than **not** at LF, as in (ib).

(i) a. **There** do **not** seem **t** to remain Power Ranger dolls [in { **many** / **all** } of our stores].

b. LF: [₁ in { **many** / **all** } of our stores] do **not** seem **t**₁ to remain Power Ranger dolls **t**₁

This, however, is not necessarily a prediction we make. Suppose that we adopt the view that an interpretive operation may apply at more than a single stage of derivation (Lebeaux (1988), Lebeaux (1991) and Epstein, et al. (1998)), and extend it to covert syntax, as has been done in Kitagawa (1986). In this "multiple level" interpretation approach, the seemingly contradictory binding facts in (i) below is explained by encoding the violation of BT (C/D) (he_{*2}... Bill₂) **before** wh-movement applies, and by encoding the satisfaction of BT (A) (Mary₁ ... herself_{ok1}) **after** wh-movement applies.

(i) **Mary**₁ wondered [which claim that pictures of **herself**₁ disturbed **Bill**₂] **he**_{*2} made **t**
 (Brody (1995, 134))

Following the spirits of Chomsky (1993) and Fox (1995b), we can also reinterpret May's (1985) and Aoun and Li's (1989) analyses of quantifier lowering. In particular, the scope ambiguity in a sentence like (ii) below is ascribed to the two distinct positions the quantified subject occupies at different points of derivation, as illustrated in (iii).

(ii) **Most nebulas**₁ seem [t₁ to gyrate]. (SEEM > MOST / MOST > SEEM)

(Mats Rooth (p.c.))

(iii) a. ____ seem [**most nebulas** to gyrate].

b. **most nebulas**₁ seem [t₁ to gyrate].

Similarly in the derivation of (ia-b), the quantified locative occupies the subordinate position before it undergoes Attract Locative, which may be regarded as the source of the lower scope reading.

³¹ Lasnik offers the following three arguments against the QR account (pp. 54-55), each of which can be shown to have some flaw. First, Lasnik points out that, if QR is responsible for the wide scope of everyone in (ia) below, it should also resolve ACD in (ib), contrary to the fact.

(i) a. **Who**₁ do you think [_{IP} **everyone** saw t₁ at the rally]? (\forall > WH)

b. *John believed (that) [_{IP} [_{NP} **everyone** you did [_{VP} e]] was a genius].

The impossibility of the wide scope of everyone in (ii) below, however, suggests that a similar scope reading in (ia) is not made possible by QR to begin with.

(ii) **Who**₁ t₁ thinks [_{IP} **everyone** saw her at the rally]? (* \forall > WH)

Second, if QR is to resolve ACD, it must raise the whole DP containing the modifier of the quantified nominal. Lasnik argues that such an analysis would incorrectly leave the contrast in (iii) below concerning the BT (D) violation.

- (iii) a. ***He**₁ liked [_{NP} every book that **John**₁ read].
 b. [_{NP} Which book that **John**₁ read]₁ did **he**_i like **t**₁?

As discussed by Brody (1995, 134), Lebeaux (1991), and Epstein, et al. (1998), however, BT (D) violation is induced by overt Wh-movement as long as the R-expression is not introduced in an adjunct, as illustrated in (iv).

- (iv) Mary wondered [which claim that pictures of herself disturbed **Bill**₂] **he**_{*2} made t
 ↑ _____ |

Note that in Lasnik's example (iiib), the name John is introduced in an adjunct clause.

Finally, Lasnik cites Takahashi's (1996) example in (v) below, which allegedly demonstrates that QR fails to resolve ACD, disallowing a sloppy identity interpretation of the reflexive proform zibun 'self'.

- (v) John-ga/mo [_{VP} zibun-no hahaoya-ni [_{DP} Mary-ga [_{VP} e pro₁ t₂] okutta₂
 -NOM/ALSO self's mother-DAT -NOM sent
dono-hon₁-mo t₃]okutta₃
 whichever.book sent

'John (also) sent to his mother all the books that Mary sent.'

This example, however, does not seem to either argue for or argue against the QR account of ACD. First, although the easiest and the strongest reading here involves strict identity, this example can be felicitously uttered and interpreted even when John sent to his mother all the books that Mary sent to her mother, perhaps due to what Hoji (1998) calls "sloppy-like" interpretation. This reading becomes easier when we add -mo 'also' to the dative phrase containing zibun, as in (vi) below.

(vi) John-ga zibun-no hahaoya-ni-**mo** [_{DP} Mary-ga e pro₁ okutta
 -NOM -ALSO

dono-hon₁-mo] okutta (koto)

A similar reading seems to be straightforwardly available also in (vii).

(vii) John-ga [Mary-ga e okutta **dono-kaisya**]-ni-**mo** [zibun-no rirekisyo]-o
 -NOM -NOM sent to.whichever.company self's CV-ACC

okuranakatta wake
 did.not.sendreason

'the reason why John sent his CV to none of the companies to which Mary sent her CV'

This kind of interpretation, in fact, is possible even when we eliminate the quantificational element from (v), as in (viii) and (ix).

(viii) John-ga zibun-no hahaoya-ni-mo [_{DP} Mary-ga e pro₁ okutta
 -NOM -ALSO

hon₁-o] okutta₃ (koto)
 book-ACC

(ix) Mary-ga zibun-no booihurendo-ni-mo [_{DP} Susan-ga e pro₁ okutta
 -NOM self's boyfriend-DAT-ALSO -NOM sent

itimanen-no tyokorecto₁-o] okutta₃ (koto)
 ¥10,000-GEN chocolate-ACC sent (fact)

'(the fact that) Mary sent to her boyfriend the ¥10,000 chocolate, which Susan sent.'

Finally, Otani and Whitman's (1991) "Disguised VP-Ellipsis" analysis of (v), which Takahashi adopts, is full of problems, as pointed out by Hoji (1998) and Kitagawa (1999).

³² I would like to leave open, however, whether the covert raising of there should be regarded as ACC-raising or not. One of the anonymous reviewers in fact considers that it should not, since the locative does not require Case-checking. (Note, however, that there may require Case-checking.) Lasnik (1999, 160, 167) claims that the object shift in general is triggered

by an EPP feature that resides in Agr_O. Once we are freed from the assumption that Case-checking is the only possible trigger for object shift, we can also imagine some other possible trigger, for instance, Φ -features of Agr_O which require object agreement in covert syntax.

³³ As one of the reviewers predicts, my informants find it difficult to get the extraposed clause (CP₁) in (i) below to be contained in the deletion part of the sentence. That is, (i) does not mean something like "Watson always expects there to be something hidden that will surprise all of us whenever Holmes expects there to be something hidden that will surprise all of us."

- (i) Watson always [_{VP} expects [_{IP} there to be something hidden t₁ **whenever Holmes does** [_{VP} e]] [_{CP1} **that will surprise all of us**]].

I believe that we can regard this restriction on the interpretation of the extraposed clause as the indication that ACD cannot be resolved in this construction.

³⁴ While my informants generally did not have any trouble, some speakers may find it difficult to extract any experiencer PP as in (i) below.

- (i) a. **To which congressman**₁ does the possibility of meltdown seem t₁ to exist?
b. **To whom**₁ does John seem t₁ to be clever?

For those speakers, therefore, superiority effect may not be the sole cause of the ungrammaticality of (108b).

³⁵ See also Epstein, et al. (1998) for relevant discussion on this issue. Analyzing overt locative inversion in languages like Hindi, Freeze (1992, 562) claims that Infl agrees directly with the post-verbal DP when a locative P', whose head selects the post-verbal DP as its PP-internal subject, moves to Spec-IP and turns the PP node into a non-barrier.

³⁶ Chomsky (1986, pp. 131 ff., 143, 179) proposes LF-replacement of expletive there with its DP associate, but seems to abstain from extending this analysis to expletive it and its associate CP.

³⁷ Hoekstra (1984, p. 295, footnote 65) pointed out with the example (ia) below that the expletive it can in fact antecede an anaphor, and hence should be regarded as having a referential function.

- (i) a. **It**₁ suggested **itself**₁ [_{CP1} that this solution should be rejected].
b. [_{CP1} That this solution should be rejected] suggested **itself**₁.

Although there seems to exist some discrepancy among different speakers as to the acceptability of (ia), those speakers who accept (ia) can interpret it synonymously with (ib).

³⁸ Within the GB-framework, Safir (1985, pp. 65-66) claims that the expletive it and the associate CP cannot form a θ -chain since it would yield BT (C) violation. In a sense, the Attract Clause Analysis is the minimalist solution to this problem. See 3.3 below for relevant discussion.

³⁹ At this point, it is not clear to me how exactly the copied split antecedents should be represented at LF. I tentatively represent the two duplicates on top of each other.

⁴⁰ There is one fact, however, that remains unaccounted for in the Attract Clause Analysis — even the speakers who accept (137) with is do not seem to permit this sentence to be followed by (i) below, in which it is intended to refer to the entire coordinate CP:

- (i) ..., but **it** certainly cannot happen.

This must remain to be an unsolved problem at this moment.

⁴¹ As has been already noted in Kitagawa (1995), one non-trivial question that arises in this approach is why the temporal pro-form then may not function as an expletive. A clue to this query may be found, however, in Murasugi's (1996) work. To make the long story short, Murasugi argues that wh-in-situ in (i) below is ruled out since when is forced to be interpreted as the argument of Tense (or event predicate) present in the argument-taking NP, and this would induce the violation of the θ -Criterion (more generally, that of FI).

(i) *Who witnessed [_{NP} the falling of the big trees **when**]?

Crucially underlying this argument is Miyamoto's (1992) claim that Larson's (1990) empty temporal operator, which captures the scope ambiguity of tense observed in (ii) below, be regarded as an obligatorily selected temporal argument of Tense, and is to be distinguished from overt temporal expressions like when.

(ii) before [John said [Mary would arrive]] (Larson (1990))

- a. Higher scope: before the time of John's saying that Mary will arrive
- b. Lower scope: before the time of Mary's arrival as predicted by John

She then contends that wh-in-situ is permitted in (iii) below with where because Tense can select where as its NP-argument independently of its empty temporal argument without causing the violation of FI.

(iii) a. Who witnessed (with a remote camera) [_{NP} the falling of the big trees **where**]?
 b. Who criticized [_{NP} the shooting of rabbits **where**]?

Extending Murasugi's generalization, we may assume that then would necessarily yield a conflict with the empty temporal operator when it is introduced under IP (or TP), while there can be introduced without causing such a conflict.

⁴² Fox (1995a), Kennedy (1997) and Epstein, et al. (1998, 176) also reach a similar conclusion.

⁴³ As cited by Fox (1998, pp. 136-137).

⁴⁴ The same problem arises even if we (alter our assumption and) let the trace of the quantified element every boy G-linked at LF QR applies.

⁴⁵ See Kitagawa (1991b) for the arguments that sloppy identity in VP-Ellipsis in fact is not derived by λ -abstraction. Hoji (1998) proposes what he calls the "Supplied N Head" analysis of the null object construction. Since the analysis of the null object construction is not the main goal of this work, I will not attempt full comparison of our NP-Copy Approach with the "Disguised VP-Ellipsis" Approach and the "Supplied N Head" Approach in this work.

⁴⁶ We use coindexation in (153) (and also in some other examples below) simply for ease of presentation. A crucial assumption adopted for the derivation of strict identity in (153) is that after zibun 'self' is legitimately saturated under dependency in the antecedent clause, it may be copied into the second clause, maintaining its saturated status.

⁴⁷ See Fiengo and May (1994, p. 60) for a different opinion on this matter, although their objection is directed against the appeal to the notion containment in the definition of antecedenthood.

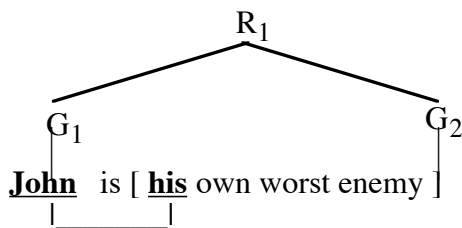
⁴⁸ Presenting "acceptable and interpretable" examples as in (i) below, one of the anonymous reviewers casts doubt on the claim that "i-within-i" violation is an empirically veritable phenomenon.

(i) a. John_i is [_i **his**_i own worst enemy]

b. [_i John's story about **itself**_i]

These examples, however, may not actually involve an "i-within-i" violation (or IRS more precisely). First, the use of "equative" copula in (ia) makes it easy for this sentence to be interpreted with multiple guises. This sentence thus can be analyzed as in (ii) below, which does not involve any IRS.

(ii)



When we deprive the sentence of the possibility of multiple guises, as in (iii), on the other hand, "i-within-i" violation can never be avoided.

(iii) ***John** attacked [_i **his**_i enemy].

The dependency involving two referential expressions as in (iv) below, on the other hand, is prohibited by the Last Resort Principle since referential identification can be established only by the application of the computational process "Identity".

(iv) [**John**'s friend]
|____|

The coreference between John and John's friend in this construction is permitted only when multiple guises as in (ii) is permitted, for instance, as in (v).

(v)



The example in (ib) also seems to involve some extra factors. In order to accept this sentence, we must first imagine a somewhat special situation in which John wrote a story, which was about the story he was writing then. (ib) also contrasts with a typical case of "i-within-i" violation as in (vi).

(vi) *_i[John's story of **itself**_i]

The two sentences are only minimally distinct. In (vi), of introduces itself as the complement of story, while about in (ib) establishes a **relation** between story and itself. In a sense, then, story and itself in (ib) are equated in a way similar to the two items equated by the copula be, as pointed out to me by Chris Tancredi (p.c.). As a result, the two guises linked to story and itself, respectively, can now be linked to a single referent (or alternatively, itself does not involve reference any longer, being predicative). This way, we can capture the contrast between (ib) and (vi). Simply rejecting "i-within-i" as an empirical phenomenon, on the other hand, would disallow us to capture this contrast, and leave the referential circularity in (iii) and many other cases unaccounted for.

⁴⁹ Higginbotham (1983) proposes the condition in (i) below together with the definitions of the notions "antecedent" and "dependence" as in (ii) and (iii).

(i) Not: $D^*(X, X)$; [where D^* denotes the relation of dependence.]

(ii) X is dependent on Y if:

- a. Y is contained in an antecedent of X or
- b. for some Z, X is dependent on Z, and Z is dependent on Y, where
- c. the relation "is contained in" is understood as reflexive: Y is always contained in Z if Y = Z.

(iii) Y is an antecedent of X if X is linked to Y or, for some Z, X is linked to Z and Y is an antecedent of Z.

⁵⁰ I am grateful to Steven Franks for bringing this fact to my attention. Fiengo and May (1994, pp. 58-60, 74-75) also discuss this phenomenon with the assumption that coindexation for anaphoric dependency has access to the derivational history the traditional phrase structure rules provide, and say "what underlies the problem with circular reference sentences is not a problem with establishing referents for the pronouns". Instead, they regard it as a problem of the unrealizability of embedded dependencies in the derivational history. The plausibility of their approach depends upon the plausibility of maintaining the traditional phrase structure rules, which apply in a top-to-bottom fashion, since there does not exist any way to distinguish the alleged unrealizable dependency (= referential circularity) in (i) below and realizable dependency in (ii) if phrase structures are assumed to be generated in a bottom-up fashion, for example, with the application of Merge (Chomsky (1994)).

- (i) His₁^β wife₂^α loves her₂^β husband₁^α.
- (ii) John₁^α told his₁^β wife₂^α that she₂^β is beautiful.

⁵¹ Recall that referential identification arises only by way of the application of a computational process "Identify" in the Affect Approach.

⁵² I am grateful to Chris Tancredi for providing me with this argument.

⁵³ See Higginbotham's (1983) definition of the notion "dependent" (ii) in Footnote 49 above.

While we have chosen the notion "containment" in defining IRS, we could replace it with the

notion "dominance" as well. The assumption that a node dominates itself is quite familiar to generative syntacticians.

⁵⁴ The IRS observed in (179) is identical to that involved in (166) except that the items saturated under containment are reversed.

⁵⁵ If one adopts the copy analysis of movement, Attract is followed by the obligatory deletion of the original β while Copy is not.

⁵⁶ As one of the anonymous reviewers correctly points out, there should be no reason why Copy cannot be applied to a proform that takes a quantificational element as its antecedent, as in (ia-b).

- (i) a. **Many people**_x were unhappy, and **they**_x left.
- b. **Someone**_x called. **He**_x didn't leave a message.

The resulting LF, however, certainly is not synonymous with that derived from the surface representations as in (iia-b), in which two distinct sets of individuals are defined by the two instances of quantificational expressions in each sentence.

- (ii) a. **Many people**_x were unhappy, and **many people**_{y/*x} left.
- b. **Someone**_x called. **Someone**_{y/*x} didn't leave a message.

Kitagawa (2000) proposes to solve this problem making an appeal to a type of economy condition while motivating covert copy of bound variables. In the same work, it is argued that the proposed Copy analysis enables us to capture in a uniform fashion a type of "strict identity" interpretation available in all of VP-Ellipsis, DP-Ellipsis and E-type anaphora in (iii)-(v).

(iii) [A statement made by the principal of a boys' school]

In our school, **every student**_x [_{VP} respects **his**_x teacher], and the parents also expect me to [_{VP} e].

(iv) siritu-daigaku-no **dono kyoozyu**_x-ga [_{DP} **zibun**_x-no gakusee]-o suisensite-**mo**,
private-college-GEN which professor-NOM [_{DP} self-GEN student]-ACC recommend-ever

Monbusyoo-wa [_{DP} e] saiyoosi-nai-daroo.
Ministry.of.Education-TOP [_{DP} e] employ-not-perhaps

'No matter which professor of a private college may recommend self's (= his or her own) student, the Ministry of Education will probably not employ them.'

(v) **Few congressmen** admire Kennedy(, and) **They** are very junior.