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Sloppy Identity in Surface and Deep Anaphora

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If 'the aim of science is, on the one hand, a comprehension, as *complete* as possible, of the connection between the sense experiences in their totality, and, on the other hand, the accomplishment of this aim *by the use of a minimum of primary concepts and relations*', as Einstein (1936:293) puts it, and if generative grammar is that part of science whose aim consists in part of a comprehension of the connection between the sense experiences as reflections of the language faculty, it follows that one of the tasks in generative grammar is to identify what the relevant sense experiences are. Since our sense experiences, such as introspective judgments about a given sentence in a given language in a given context, most likely reflect more than the language faculty proper, such a task necessarily involves hypotheses about the nature of the relevant sense experiences, in particular, hypotheses as to which aspects of our sense experiences under discussion are reflections of the language faculty, i.e., grammar, and in what theoretical terms they are to be expressed.

1. Introduction

1.1. Deep and surface anaphora

HANKAMER & SAG 1976:392

(1) A: I'm going to [$_{VP*}$ stuff this ball through this hoop].
B: It's not clear that you'll be able to [$_{VP*}$].
B': It's not clear that you'll be able to [$_{VP*}$ do it].

Observation: The three instances of VP* in (1) seem to 'mean' the same thing.
Question: Does this mean that the forms in (2) can have the same LF representation?

(2) a. You'll be able to.
b. You'll be able to do it.
c. You'll be able to stuff this ball through this hoop.

Answer: No. (2a) and (2c) can have the same LF representation but (2b) cannot. I.e., (2a) and (2b) do not have the same LF representation. I.e., the null VP (VPE) and *do it* in English do not have the same LF representations.

The Initial Difference: Surface anaphora requires a linguistic antecedent, while deep anaphora does not.

(3) (Hankamer & Sag 1976:39)
[Hankamer attempts to stuff a 9-inch ball through a 6-inch hoop]
Sag: #It's not clear that you'll be able to.
Sag: It's not clear that you'll be able to do it.

(4) a. The PF representation for (1B)
It's not clear that you'll be able to [$_{VP*}$].
b. The LF representation for (1B)
It's not clear that you'll be able to [$_{VP*}$ stuff this ball through this hoop].

(5) a. The PF representation for (1B')
It's not clear that you'll be able to [$_{VP*}$ do it].
b. The LF representation for (1B')
It's not clear that you'll be able to [$_{VP*}$ do it].

1.2. Strict and sloppy identity

ROSS 1967

(6) A: John$_1$ will vote for his$_1$ father.
B: Bill will, too.
(i) <vote for John's father> (strict identity)
(ii) <vote for Bill's father> (sloppy identity)

SAG (1976) AND WILLIAMS (1977)

(7) John$_1$ will [$_{VP}$ praise his$_1$ father], and Bill$_2$ will [$_{VP}$], too.

(8) a. John$_1$ will [λx [x praise his$_1$ father]], and Bill$_2$ will [λx [x praise his$_1$ father]], too. (strict reading)
b. John$_1$ will [λx [x praise x's father]], and Bill$_2$ will [λx [x praise x's father]], too. (sloppy reading)

1.3. Sloppy identity in deep anaphora

DALRYMPLE 1991

(9) (Dalrymple 1991:(21))
[John touches his finger to his nose. To Bill:] Now you do it.
(a) sloppy: Bill touches his own nose.
(b) strict: Bill touches John's nose.

Question: Is this due to the illocutionary force of an imperative?
Answer: Not really.

(10) [Observing John touch his own nose]
Bill did it/that too.

DO THE SAME THING AS AN INSTANCE OF DEEP ANAPHORA

(11) [Observing someone put soy sauce on a hamburger]
My brother does the same thing.

THE STRICT/SLOPPY AMBIGUITY WITH *DO THE SAME THING*

(12) (Cf. (9) (= Dalrymple 1991:(21)).)
A: John washed his car on that rainy day.
B: Bill did the same thing.
(i) <washed John's car on that rainy day> (strict)
(ii) <washed his own car on that rainy day> (sloppy)

THE STRICT/SLOPPY AMBIGUITY WITH *DO THE SAME THING* WITHOUT A LINGUISTIC ANTECEDENT

(13) [Observing John touch his finger to his nose]
Bill did the same thing.
'the same thing' = the same thing as the speaker just observed; namely:
(i) the act of touching one's finger to one's nose, or
(ii) the act of touching one's finger to John's nose

The general goal: To illustrate how we can distinguish grammatical and non-grammatical contribution to our linguistic intuitions.
A specific goal: To argue that the nature of the sloppy identity in surface anaphora is distinct from that in deep anaphora.

2. Sloppy Identity and Bound Variable Anaphora

(14) **The Initial Assumption**:
The distribution of sloppy identity readings is constrained in the same way as that of bound variable anaphora.[1]
(Lasnik 1976:Appendix and Reinhart 1983:chap. 7.)

2.1. Bound variable anaphora: BVA(A, B) and FD(A, B)

We can obtain insight into the nature of grammar—and hence ultimately that of UG—by examining a certain type of anaphoric relations between nominal expressions, i.e., bound variable anaphora (=BVA). We can observe BVA(α, β) most clearly when β is singular-denoting and α is not.

(15) ... α ... β ...

(16) a. LF: [α_1 [... t_1 … β …]]
b. SR: α (λx (… x … x …)) (SR=Semantic Representation)

(17) For all y, y = a member of "α," y (λx (… x … x …))

[1] Fiengo&May's (1994) objection to this will be addressed later.

Question: What is "α"?

(18) a. [even John]$_1$ t_1 voted for his$_1$ father
'EVEN x, x=John, x voted for x's father'
b. [only you]$_1$ voted for your$_1$ husband
'ONLY x, x=you, x voted for x's husband'

Even and *only* are not quantifiers. But *even NP* and *only NP* count as A of BVA(A, B) that we are concerned with.

(19) **Hypothesis**
The mapping of β in (16a) to x in (16b) is possible only if FD(t, β) is established at LF.[2] (FD = Formal Dependency)

FD(α, β) is a concept in the theory of grammar while BVA(A, B) is a descriptive term for the speaker's intuition that two nominal expressions *A* and *B* can be understood to be anaphorically related as in (15)-(18).

(20) The three necessary conditions for an FD(A, B), where A and B are in argument positions:[3]
a. THE LEXICAL REQUIREMENT: B is [+β].
b. THE C-COMMAND REQUIREMENT: A c-commands B.
c. THE ANTI-LOCALITY REQUIREMENT: A is not in the local domain of B.

- THE LEXICAL REQUIREMENT (20a)

(21) Personal pronouns in English can be [+β]:
a. [every boy]$_1$ will praise his$_1$ father
b. [only I]$_1$ voted for my$_1$ father
c. [only John]$_1$ thinks that we will support him$_1$

(22) Names in English cannot be [+β]:
*[only John]$_1$ voted for John$_1$'s father
=/= ONLY x, x =John, x voted for x's father

- THE C-COMMAND REQUIREMENT (20b)

(23) a. [even John]$_1$ praised his$_1$ father
b. *his$_1$ father praised [even John]$_1$

- THE ANTI-LOCALITY REQUIREMENT[4] (20c)

[2] See Ueyama 1998: 5.3.2 for details.

[3] This simplifies the matter slightly; see Ueyama 1998: 5.3.2 and Hoji 2003.

[4] For the purpose of the present discussion, it suffices to assume that the local domain of B is the minimal NP/DP or IP that dominates B.

(24) a. [only I]$_1$ t_1 voted for my$_1$ father
'ONLY *x*, *x*=me, *x* voted for *x*'s father'
b. *[only I]$_1$ t_1 voted for me$_1$
'ONLY *x*, *x*=me, *x* voted for *x*'

(25) (Cf. Hoji 1995:(48) and (49).)
a. [no linguist]$_1$ recommended HIS$_1$ student for that lucrative position
b. *[no linguist]$_1$ recommended HIM$_1$ for that lucrative position

(26) a. I voted for me
b. John$_1$ recommended HIM$_1$ for that lucrative position

2.2. Sloppy identity in surface and deep anaphora

(20) The three necessary conditions for an FD(A,B), with A and B being in argument positions:
a. B is [+β].
b. A c-commands B.
c. A is not in the local domain of B.

(27) **The Main Claims**
a. The distribution of sloppy identity readings in surface anaphora is constrained in the same way as that of bound variable anaphora; see (14).
b. The sloppy identity reading in deep anaphora is not of the same nature as that in surface anaphora.
c. Hence the distribution of sloppy identity readings in deep anaphora is not constrained in the same way as that of bound variable anaphora.

3. The Experiments

(28) The Goals
a. To demonstrate that certain interpretations are possible in deep anaphora but not in surface anaphora.
b. To demonstrate that certain interpretations are possible in surface anaphora but not in deep anaphora.

4. Experiment 1: The lexical requirement

(29) FD(A, B) only if B is [+β]. (See (20a).)

✧ **Prediction**: The sloppy identity reading in surface anaphora obtains only if the 'sloppy pronoun' is [+β], but that in deep anaphora may obtain even if it is [-β].

4.1. A [-β] category and surface anaphora

(30) John$_1$ will [$_{VP}$ vote for his$_1$ father];
I want Bill to [$_{VP}$ *ec*] too.
(i) <vote for John's father> (strict)
(ii) <vote for Bill's father> (sloppy)

(31) John will [$_{VP}$ vote for John's father];
I want Bill to [$_{VP}$ *ec*] too.
(i) <vote for John's father> (strict)
(ii) *<vote for Bill's father> (sloppy)

4.2. A [-β] category and deep anaphora

(32) A: John washed his car on that rainy day.
B: Bill did the same thing.
(i) <washed John's car on that rainy day> (strict)
(ii) <washed Bill's car on that rainy day> (sloppy)

(33) A: John washed John's car on that rainy day.
B: Bill did the same thing
(i) <washed John's car on that rainy day> (strict)
(ii) <washed Bill's car on that rainy day> (sloppy)

✓ **The Prediction Confirmed.**

5. Experiment 2: Soppy identity and local disjointness

(34) ((20c) slightly restated)
FD(A, B) only if A is not in the local domain of B.

(24) a. [only I]$_1$ t_1 voted for my$_1$ father
'ONLY *x*, *x*=me, *x* voted for *x*'s father'
b. *[only I]$_1$ t_1 voted for me$_1$
"ONLY *x*, *x*=me, *x* voted for *x*'

✧ **Prediction:** Surface anaphora exhibits local disjointness effects, but deep anaphora does not (in the way surface anaphora does).

5.1. Surface anaphora in English and local disjointness

(35) I voted for my husband, and I wanted you to [$_{VP}$ *ec*] (too).
(i) <vote for my husband> (strict)
(ii) <vote for your husband> (sloppy)

(36) I voted for me, and I wanted you to [$_{VP}$ *ec*] (too).
(i) <vote for me> (strict)
(ii) *<vote for you> (sloppy)

(37) I voted for me, and I wanted Mary to [$_{VP}$ *ec*] (too).
(i) <vote for me> (strict)
(ii) *<vote for Mary> (sloppy)

5.2. Deep anaphora and local disjointness

(38) I voted for my husband, and I wanted you to do the same thing.
(i) <vote for my husband> (strict)
(ii) <vote for your husband> (sloppy)

(39) I voted for me, and I wanted you to do the same thing.
(i) <vote for me> (strict)
(ii) <vote for you> (sloppy)

(40) I voted for me, and I wanted Mary to do the same thing.
(i) <vote for me> (strict)
(ii) <vote for Mary> (sloppy)

✓ **The Prediction Confirmed.**

6. Experiment 3: The Mix reading test

6.1. Mix readings

The Results in sections 4 and 5:
The distribution of sloppy identity readings in surface anaphora is constrained by the lexical requirement and the anti-locality condition, but that in deep anaphora is not; see (28a).

The Goal of this section:
To show that certain interpretations are possible in surface anaphora but not in deep anaphora; see (28b).

The Crucial Observation:
(41) allows the readings in (43a,b,c) but not the one in (43d), while (42) allows all of the four readings in (44). (Fiengo&May 1994, Dahl 1974 and Sag 1976 and Dalrymple, Shieber, & Pereira 1991)

(41) Max said he saw his mother; Oscar did too.
(42) Max said his mother saw him; Oscar did too.

(43) The interpretive possibilities for (41):
a. Max_1 said he_1 saw his_1 mother; $Oscar_2$ said he_1 saw his_1 mother.
b. Max_1 said he_1 saw his_1 mother; $Oscar_2$ said he_2 saw his_2 mother.
c. **Mix 1**:
Max_1 said he_1 saw his_1 mother; $Oscar_2$ said he_2 saw his_1 mother.
d. **Mix 2**:
*Max_1 said he_1 saw his_1 mother; $Oscar_2$ said he_1 saw his_2 mother.

(44) The interpretive possibilities for (42):
a. Max_1 said his_1 mother saw him_1; $Oscar_2$ said his_1 mother saw him_1.
b. Max_1 said his_1 mother saw him_1; $Oscar_2$ said his_2 mother saw him_2.
c. **Mix 1**:
Max_1 said his_1 mother saw him_1; $Oscar_2$ said his_2 mother saw him_1.
d. **Mix 2**:
Max_1 said his_1 mother saw him_1; $Oscar_2$ said his_1 mother saw him_2.

(45) **Hypothesis**
The possibility of Mix readings is contingent upon the establishment of FDs.

(43') c. **Mix 1**:
$[Max^{\alpha}_1\ [\ t_1$ said he^{β} saw his^{α}_1 mother$]]$ FD(t_1, he^{β})
$[Oscar^{\alpha}_2\ [\ t_2$ said he^{β} saw his^{α}_1 mother$]]$ FD(t_2, he^{β})

The SR object shared by the two conjuncts:
λx (x said x saw his^{α}_1 mother)

d. Mix 2 *not available*!:
$[Max^{\alpha}_1\ [\ t_1$ said he^{α}_1 saw his^{β} mother$]]$ FD(t_1, his^{β})
$[Oscar^{\alpha}_2\ [\ t_2$ said he^{α}_1 saw his^{β} mother$]]$ FD(t_2, his^{β})

The SR object shared by the two conjuncts:
λx (x said he^{α}_1 saw x's mother)

(44') c. **Mix 1**:
$[Max^{\alpha}_1\ [\ t_1$ said his^{β} mother saw $him^{\alpha}_1]]$ FD(t_1, his^{β})
$[Oscar^{\alpha}_2\ [\ t_2$ said his^{β} mother saw $him^{\alpha}_1]]$ FD(t_2, his^{β})

The SR object shared by the two conjuncts:
λx (x said x's mother saw him^{α}_1)

d. **Mix 2**:
$[Max^{\alpha}_1\ [\ t_1$ said his^{α}_1 mother saw $him^{\beta}]]$ FD(t_1, him^{β})
$[Oscar^{\alpha}_2\ [\ t_2$ said his^{α}_1 mother saw $him^{\beta}]]$ FD(t_2, him^{β})

The SR object shared by the two conjuncts:
λx (x said his^{α}_1 mother saw x)

Given that Mix 2 is not possible in (41), it seems reasonable to hypothesize that at least one of the two 'intended FDs' for (43'd) cannot be established.

Q: Which of the two FDs?
A: The first FD, and the reason is:

FD(*t*, *his*) must be possible in (46).

(46) [[Even John]$_1$ [t_1 said Mary saw his$^{\beta}$ mother]]
FD(t_1, *his*$^{\beta}$)

Given (46), there is no reason why FD(t_2, *his*$^{\beta}$) in (43'd) should not be possible. Therefore, it must be FD(t_1, *his*$^{\beta}$) whose establishment is blocked in (43'd).

Given that both Mix readings are possible in (42), it must be the case that whatever blocks the establishment of FD(t_1, *his*$^{\beta}$) in (43'd) should not block the establishment of any of the FDs in (44'c) and (44'd).

Conclusion: Something blocks the establishment of FD(*t*, *his*) with the *t* being the trace of *Max* in (43'd) but it does not block the establishment of any of the other FDs in (43') and (44'), including FD(*t*, *him*) in (44'd) with the *t* being the trace of *Max*.

(47) (for (43'd))
[Max$^{\alpha}{}_1$ [t_1 said he$^{\alpha}{}_1$ saw his$^{\beta}$ mother]]
*FD(t_1, *his*$^{\beta}$)

(48) (for (44'd))
[Max$^{\alpha}{}_1$ [t_1 said his$^{\alpha}{}_1$ mother saw him$^{\beta}$]]
FD(t_1, *him*$^{\beta}$)

(49) *FD(A, B) if B is c-commanded by an NP C, where A and C have the same (indexical) value and C does not c-command A; cf. Fox 1998 and 2000: chap. 4.

Mix 2 is not possible in (41) because of (49).

Prediction (cf. Fox 1998):

(50) a. John said that John had praised his students; Bill will too. *<say that John will praise Bill's students>
b. John said that John's mother had praised his students; Bill will too. <say that John's mother will praise Bill's students>

(51) a. λ*x* (*x* say that John had praised *x*'s students)
b. λ*x* (*x* say that John's mother had praised *x*'s students)

6.2. Mix readings and deep anaphora

(45) **Hypothesis**
The possibility of Mix readings is contingent upon the establishment of FDs.

The establishment of an FD(α, β) is contingent upon α and β being part of the

relevant LF representation. The LF representation of surface anaphora may contain α and β for FD(α, β) necessary for a Mix reading, for example, as the result of the copying of some linguistic object in the 'ellipsis site'. The LF representation of deep anaphora, on the other hand, does not contain α and β for FD(α, β) necessary for a Mix reading. Given this, we are led to:

Prediction: Deep anaphora fails to give rise to Mix readings.

(52) a. John said/declared (before the class) that he had hit his roommate, and Bill did the same thing.
b. John said/declared (before the class) that his roommate had hit him, and Bill did the same thing.

(53) a. John said/declared (before the class) that he had hit his roommate, and Bill did that, too.
b. John said/declared (before the class) that his roommate had hit him, and Bill did that, too.

It seems that (52) and (53) allow the across-the-board strict reading and the across-the-board sloppy reading, but fail to yield Mix 1 or Mix 2.

✓ **The Prediction Confirmed.**

6.3. Summary

Surface anaphora can give rise to Mix readings, but deep anaphora cannot.

7. Experiment 4: Mix readings and local disjointness

The relevant paradigms in Japanese not included here.

8. Experiment 5: C-command, Mix readings, and surface/deep anaphora

8.1. Surface and deep anaphora

(27) **The Main Claims**
a. The distribution of sloppy identity readings in surface anaphora is constrained in the same way as that of bound variable anaphora; see (14).
b. The sloppy identity reading in deep anaphora is not of the same nature as that in surface anaphora.
c. Hence the distribution of sloppy identity readings in deep anaphora is not constrained in the same way as that of bound variable anaphora.

(19) **Hypothesis**
The mapping of β in (16a) to *x* in (16b) is possible only if FD(*t*, β) is established at LF. (FD = Formal Dependency)

(16) a. LF: [α_1 [... t_1 … β …]]
b. SR: α (λ*x* (… *x* … *x* …)) (SR=Semantic Representation)

(20) The three necessary conditions for an FD(A, B), where A and B are in argument positions:
a. THE LEXICAL REQUIREMENT: B is [+β].
b. THE C-COMMAND REQUIREMENT: A c-commands B.
c. THE ANTI-LOCALITY REQUIREMENT: A is not in the local domain of B.

(54) Properties of surface anaphora:
a. It requires a linguistic antecedent.
b. It cannot give rise to a sloppy identity reading with a [-β] category.
c. The availability of a sloppy identity reading is contingent upon the c-command requirement. (Not demonstrated yet.)
d. It cannot give rise to a sloppy identity reading in the local context.
e. It can give rise to Mix readings.

(55) Properties of deep anaphora:
a. It does not require a linguistic antecedent.
b. It can give rise to a sloppy identity reading with a [-β] category.
c. The availability of a sloppy identity reading is not contingent upon the c-command requirement. (Not demonstrated yet.)
d. It can give rise to a sloppy identity reading in the local context.
e. It cannot give rise to Mix readings. (To be qualified.)

8.2. Sloppy identity readings without satisfying the c-command condition

(56) (Based on Fiengo&May 1994: p. 109 (41a), which is based on examples due to M. Wescoat, cited in Dalrymple et. al 1991.)
The policeman who arrested $John_1$ read him_1 his_1 rights,
and the one who arrested $Bill_2$ did too.
<read Bill Bill's rights>

Given that c-command is a necessary condition for the establishment of FD, we are led to conclude that the sloppy identity reading in (56) is not based on FD.

Hence what is observed in (56) is a sloppy identity reading in deep anaphora.[5]

8.3. Deep anaphora and sloppy identity

✧ **Prediction**: The use of a [+β] category is not necessary for the sloppy identity reading in (56); see (55b).

[5] But see Hoji 2002: footnote 57.

(57) The policeman who arrested $John_1$ read $John_1$ his_1 rights, and the one who arrested $Bill_2$ did too. <read $Bill_2$ $Bill_2$'s rights>

(58) a. The professor who taught $John_1$ recommended him_1 for the Harvard position, and the one who taught $Bill_2$ did too.
<recommended $Bill_2$ for the Harvard position>
b. The professor who taught $John_1$ recommended $John_1$ for the Harvard position, and the one who taught $Bill_2$ did too.
<recommended $Bill_2$ for the Harvard position>

✓ **The Prediction Confirmed**.

✧ **Prediction**: The sloppy identity reading is not impossible in the *do the same thing* counterpart of (56); see (55c).

(59) The policeman who arrested $John_1$ read him_1 his_1 rights, and the one who arrested $Bill_2$ **did the same thing**.

✓ **The Prediction Confirmed.**

✧ **Prediction**: The across-the-board sloppy reading in (56) is not impossible without a linguistic antecedent; cf. (55a).

(60) [Observing a policeman who arrested $John_1$ read him_1 his_1 rights]
The policemen who arrested Bill did the same thing.
<read Bill Bill's rights>

✓ **The Prediction Confirmed.**

8.4. The c-command condition and Mix readings

(45) **Hypothesis**
The possibility of Mix readings is contingent upon the establishment of FDs.

(20) The three necessary conditions for an FD(A, B), where A and B are in argument positions:
a. THE LEXICAL REQUIREMENT: B is [+β].
b. THE C-COMMAND REQUIREMENT: A c-commands B.
c. THE ANTI-LOCALITY REQUIREMENT: A is not in the local domain of B.

✧ **Prediction**: Examples like (56), in which the c-command requirement is not satisfied, fail to give rise to Mix readings; cf. (55e).

(61) a. The policeman who arrested $John_1$ said that he_1 had hit his_1 roommate, and the one who arrested Bill did, too.
b. The policeman who arrested $John_1$ said that his_1 roommate had hit_1 him, and the one who arrested Bill did, too.

The across-the-board strict identity reading and the across-the-board sloppy identity reading are possible but not the Mix readings.

✓ **The Prediction Confirmed.**

8.5. English VPE (VP ellipsis) as an instance of deep anaphora
So it seems English VPE (VP ellipsis) can be an instance of deep anaphora, after all.

➢ **Prediction:** The sloppy identity reading in VPE is not always impossible in the local context; see (55d).

(62) I voted for me; I am sure you did too.

Even these speakers however detect the local disjointness effects in (36) fairly clearly.

(36) I voted for me, and I wanted you to [$_{VP}$ *ec*] (too).
(i) <vote for me> (strict)
(ii) *<vote for you> (sloppy)

✧ **Prediction**: The distribution of sloppy identity reading in such (deep anaphora) instances of VPE in English may not be affected by the use of a [-β] category in the way it is in the case of surface anaphora.

Some speakers have in fact pointed out to me that the strict/sloppy ambiguity is detectable not only in (63) but also in (64), although it is more difficult in (64) than in (63).

(63) John$_1$ [$_{VP}$ voted for his$_1$ father];
(I am pretty sure that) Bill did [$_{VP}$ *ec*] too.
(i) <voted for John's father> (strict)
(ii) <voted for Bill's father> (sloppy)
(64) John$_1$ [$_{VP}$ voted for John$_1$'s father];
(I am pretty sure that) Bill did [$_{VP}$ *ec*] too.
(i) <voted for John's father> (strict)
(ii) ??/?<voted for Bill's father> (sloppy)

Even those speakers who accept the sloppy identity reading in (64) seem to find the sloppy identity reading significantly more difficult in (31), repeated here, suggesting again that the VPE in (63) and (64) can be analyzed as an instance of deep anaphora more easily than the VPE in (31).

(31) John will [$_{VP}$ vote for John's father];
I want Bill to [$_{VP}$ *ec*] too.
(i) <vote for John's father> (strict)
(ii) *<vote for Bill's father> (sloppy)

✓ **Prediction Seems Confirmed.**

The forms of VPE as in (31) should be used, rather than those as in (63) and (64), as instances of surface anaphora in our experiments intended to probe into the properties of surface anaphora—and that is precisely what we have done.

The most reliable way to identify an instance of surface anaphora at this point is the Mix reading test. By imposing a Mix reading on a structure that tends to be analyzed as an instance of surface anaphora but can be (marginally) analyzed as an instance of deep anaphora, we have succeeded in forcing it to be an instance of surface anaphora unequivocally. Once we have done so, the effects of each of the three conditions on FD in (20) are clearly observed.

(20) The three necessary conditions for an FD(A, B), where A and B are in argument positions:
a. THE LEXICAL REQUIREMENT: B is [+β].
b. THE C-COMMAND REQUIREMENT: A c-commands B.
c. THE ANTI-LOCALITY REQUIREMENT: A is not in the local domain of B.

9. Concluding Remarks

Some general remarks on:
- The importance of distinguishing grammatical and non-grammatical contributions to our linguistic intuitions, (Also, BVA and Scope, as discussed in Ueyama 1998, a series of works by J.-R, Hayashishita, and Hoji 2003.)
- The crucial role this distinction plays in a generative grammatical study of a language that does not (seem to) have any formal agreement features (in the context of trying to demonstrate the autonomous existence of the language faculty.).
- Implications of the research results from such study for a generative study of a language with formal agreement features, and ultimately, for the discovery of the properties of the language faculty, i.e., UG.

Some specific remarks on:
- The nature of sloppy identity readings in deep anaphora. ('Concept formation')
- Conceptual as well as empirical problems with (55e). It is not impossible to get Mix readings in deep anaphora. What is crucial is that the Mix readings 'patterns' do not obtain in deep anaphora, unlike in surface anaphora.
- The ultimate test to determine something to be an instance of surface anaphora is whether it exhibits a clustering of properties expected of surface anaphora.

- Positive and negative propositions deduced from hypotheses, and positive and negative predictions.
- What underlies the sloppy identity reading. The preference principle of some sort?

The success of our theory of grammar hinges most crucially upon the identification and characterization of the grammatical aspects of our linguistic intuitions. The success of our search for the grammatical, in contrast to non-grammatical, aspects of our linguistic intuitions is in turn measured crucially by the criterion of repeatability. It thus follows that our theory of grammar can be considered successful only to the extent that we can attain a high degree of repeatability in regard to the empirical generalizations proposed and predictions made. The preceding discussion indicates that in some cases the relevant repeatability can be attained only when we consider a correlation of judgments, e.g., correlations among the judgments having to do with Mix reading pattern, the linguistic antecedent requirement, the lexical requirement, the c-command requirement and local disjointness effects. Given that a formal property of grammar, and the theory thereof, expresses the connection between the sense experiences as reflections of the language faculty, this is not a particularly surprising result.

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