Bound and Referential Pronouns and Ellipsis

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Chapter 9

9.1 Referential pronouns as free variables

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns

- In traditional grammar, a pronoun is said to be used *deictically* when it receives its reference from the extra-linguistic context, and it is used *anaphorically* when it "picks up its reference" from another phrase in the surrounding text.

- Paradigm cases of the deictic use are demonstrative uses–those accompanied by a pointing gesture, but even in the absence of pointing an extralinguistic referent that is sufficiently salient can suffice, as in (1):

(1) I am glad he is gone.

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns (cont.)

- It isn't clear whether the distinction between deictic and anaphoric uses has any role to play in linguistic theory.

- Anaphora may often be viewed as reference to a contextually salient individual as well. It seems to differ from deixis only insofar as the *cause* of the referent's salience is concerned.

- For instance when **he** in an utterance of (2) refers to Smith, this may be attributed to the fact that Smith has just been made salient by being referred to in the previous sentence.

(2) I don't think anybody here is interested in Smith's work. He should not be invited.

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns (cont.)

- In both anaphora and deixis, the pronoun refers to an individual, which, for whatever reason, is highly salient at the moment when the pronoun is processed, whether this is due to an act of pointing, to previous mention, or some other reason.

- Let us assume, then, that all deicitc and many anaphoric pronouns are interpreted by the same general strategy: listeners assign reference to the most salient individual that allows them to make sense of the utterance.

- If the most salient individual is not an appropriate referent, it will be passed over in favor of the next most salient individual until a plausible referent is found.

- How this is done is a matter for psycholinguistic research. As semanticists we abstract away from the strategies of reference resolution and the conditions they require to succeed.

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns (cont.)

- Can *all* examples of anaphoric pronouns be subsumed under this characterization?

- No. Some pronouns don't refer to individuals at all, e.g. pronouns that occur in **such that** clauses or are bound by quantifiers, as (3):

(3) Every man put a screen in front of him.

- This means that it is coindexed with QR trace of its antecedent and interpreted by the following rule:

(4) *Pronouns and Traces Rule*
    If α is a pronoun or trace, i is an index, and g is a variable assignment whose domain includes i, then $[\![\alpha]\!]^g = g(i)$.

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns (cont.)

- Would it be possible to treat *all* anaphoric pronouns as bound variables?

- For (2), we'd have to raise the DP **Smith** high enough to c-command the entire two-sentence text.

- We assume such LFs can't be generated due to constraints on movement. Similarly, some intrasentential cases would involve moving out of islands, which is prohibited, as in (5).

(5) Most accidents that Mary reported were caused by her cat.

- We conclude that at least some "anaphoric" pronouns are best analyzed as referring pronouns, just like "deicitc" pronouns.

9.1.1 Deictic versus anaphoric, referential versus bound-variable pronouns (cont.)

- We use the term "co-reference" in opposition to "variable binding", and we always mean it in this technical sense.

- We will use the term "anaphora" (and "antecedent") as a general term to cover both cases.

- Two expressions (or occurrences of expressions) *co-refer* iff they refer to the same individual. If two expressions co-refer, then each of them refers to something. Bound variable pronouns cannot co-refer with any expression.

- Thus we distinguish two cases of pronoun uses: *bound-variable* uses and *(co)-referring* uses. We don't need a distinction between "anaphora" and "deixis".

9.1.2 Utterance contexts and variable assignments

- To handle referring pronouns, the simplest assumption is that they are interpreted in the same way as bound pronouns. It is just that they are free variables. They will be interpreted by our existing Pronouns and Traces rule, and the assignment function.

- We will no longer assume that an LF whose truth value varies from one assignment to another is not a felicitous, complete utterance. We will think of assignments as representing the contribution of the utterance situation.

- If you utter (6), it has a representation such as (7). The utterance situation fixes a certain partial function from indices to individuals. In the case of (7), the variable assignment must include 1 and 2 in its domain.

(6) She is taller than she.
(7) She$_1$ is taller than she$_2$.

9.1.2 Utterance contexts and variable assignments (cont.)

- Let "c" stand for utterance situation or utterance context, and let "g_c" stand for the variable assignment determined by c. We then formulate the following conditions for LFs with free pronouns:

(8) *Appropriateness Condition*
A context c is *appropriate* for an LF ϕ only if c determines a variable assignment g_c whose domain includes every index which has a free occurrence in ϕ.

(9) *Truth and Falsity Conditions for Utterances*
if ϕ is uttered in c and c is appropriate for ϕ, then the utterance of ϕ in c is *true* if $[\![\phi]\!]^{g_c} = 1$ and *false* if $[\![\phi]\!]^{g_c} = 0$.

9.1.2 Utterance contexts and variable assignments (cont.)

- If (6) with LF (7) is uttered in a situation c_1, which furnishes the assignment g_{c_1}, then c_1 is appropriate for (7), and thus this is a true utterance if Kim is taller than Sally, and false if she isn't.

$$g_{c_1} = \begin{bmatrix} 1 \to \text{Kim} \\ 2 \to \text{Sandy} \end{bmatrix}$$

- What about gender, number and person features of referential pronouns? if Kim or Sandy is male, then the context c_1 is not appropriate.

- In section 5.5 we proposed a presuppositional account of gender features for bound pronouns. We can adopt that here.

9.1.2 Utterance contexts and variable assignments (cont.)

- Suppose that features are nodes of their own, adjoined to the DP. The lowest DP node is interpreted by the Pronouns and Traces rule and the higher nodes by FA. Each feature has a suitable lexical entry like(10).

DP
(third.person)   DP
                 (feminine)   DP
                              (singular)   DP
                                             she$_1$
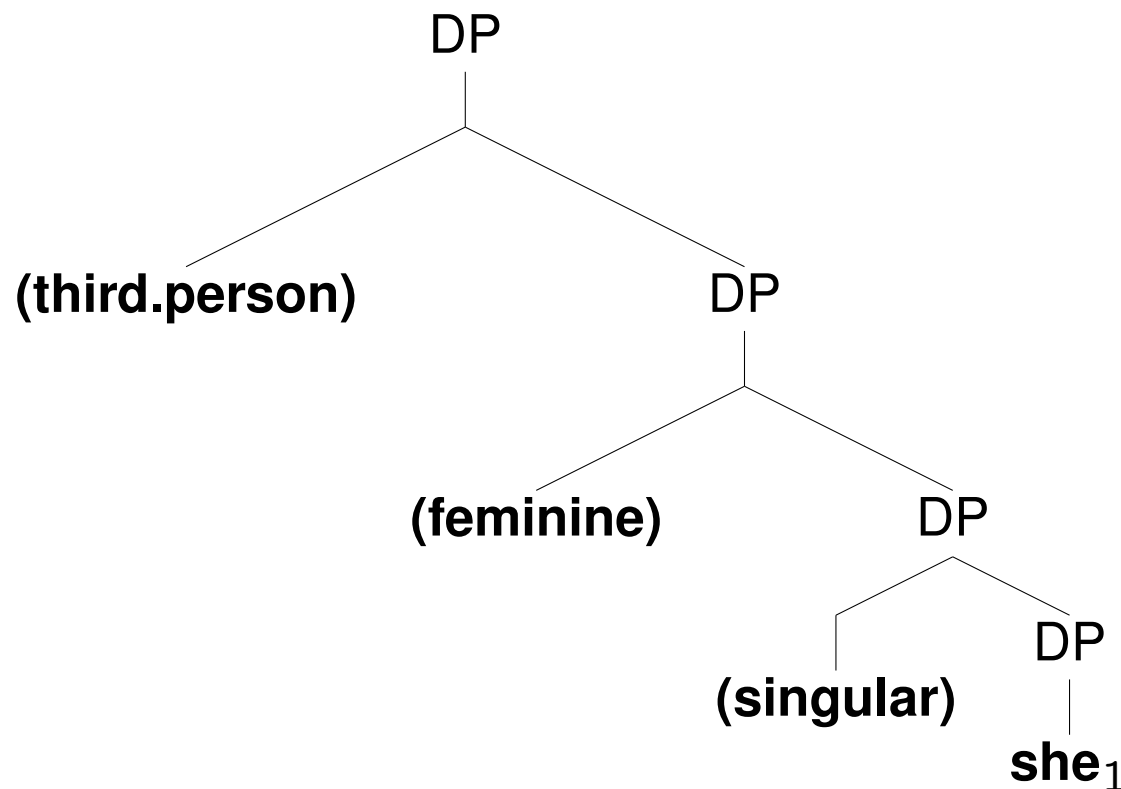
(10) $[\![\textbf{feminine}]\!] = \lambda x : x$ is female . x

- So a feature denotes a *partial* identity function. If the feature gets a denotation at all, it will be the one of the lower DP. But if the lower DP''s denotation fails to have the appropriate property, the one above gets no value.

- If c_2 maps index 1 to a man, the DP will fail to be in the domain of $[\![\quad]\!]^{g\,c_2}$ due to (10). Likewise the whole sentence will fail to be in the domain of $[\![\quad]\!]^{g\,c_2}$, and (7) would be neither true nor false. The result is a presupposition failure.

- If the discourse participants mistakenly believe a male referent to be female, or if they are willing to pretend that they do, then an occurrence of **she** can refer to a man, without any violation of principles of grammar.

- An analogous account can be given for person and number features.

9.2 Co-reference or binding?

- Anaphoric pronouns with quantifier antecedents are the paradigm cases of bound-variable pronouns, but they are by no means the only instances of bound-variable pronouns that we find in natural languages.

- It is easy to see that our theory predicts them to have a much wider distribution; and we will argue that this prediction is welcome and supported by empirical evidence.

- When the antecedent of a pronoun is in a separate sentence or deeply embedded in an island, we have to interpret the pronoun as co-referring with its antecedent. But this leaves us with many cases where anaphora to a referring antecedent *can* be analyzed as variable binding. Consider (1):

(1) John hates his father.

- Nothing prevents us from generating the following LF for (1).

- (2) is true iff John is a member of the set $\{x : x$ hates x's father$\}$.

(2)

```
                      S
              ┌───────┴───────┐
            DP              
            │       1         S
          John            ┌───┴───┐
                         t₁      VP
                              ┌───┴───┐
                              V       DP
                              │    ┌───┴───┐
                            hates the     NP
                                       ┌──┴──┐
                                      DP     N
                                      │      │
                                     he₁   father
```
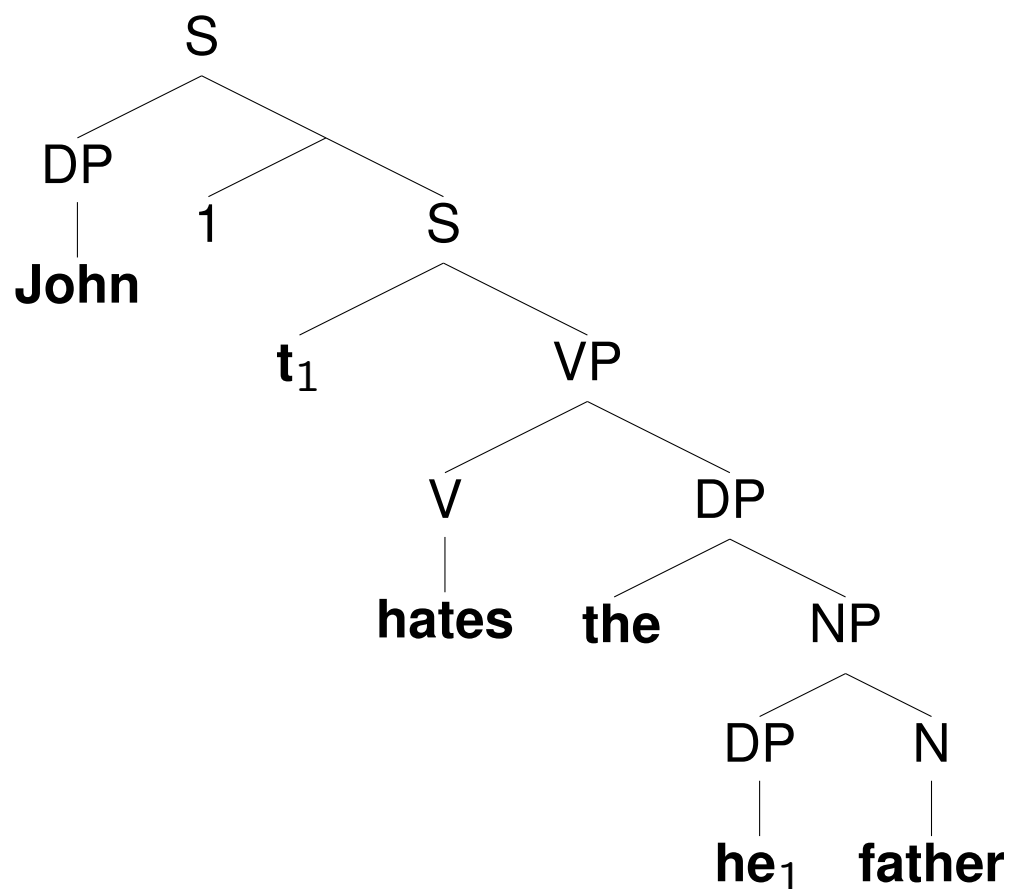
9.2 Co-reference or binding? (cont.)

- It is just as easy to generate LFs in which the pronoun is free, either by not QR'ing John at all, as in (3); or by giving its trace an index different from the pronoun's, as in (4).

(3)

```
                        S
                 ┌──────┴──────┐
                DP            VP
                │        ┌─────┴─────┐
              John       V          DP
                         │      ┌────┴────┐
                       hates   the       NP
                                     ┌────┴────┐
                                    DP         N
                                     │         │
                                    he₁     father
```
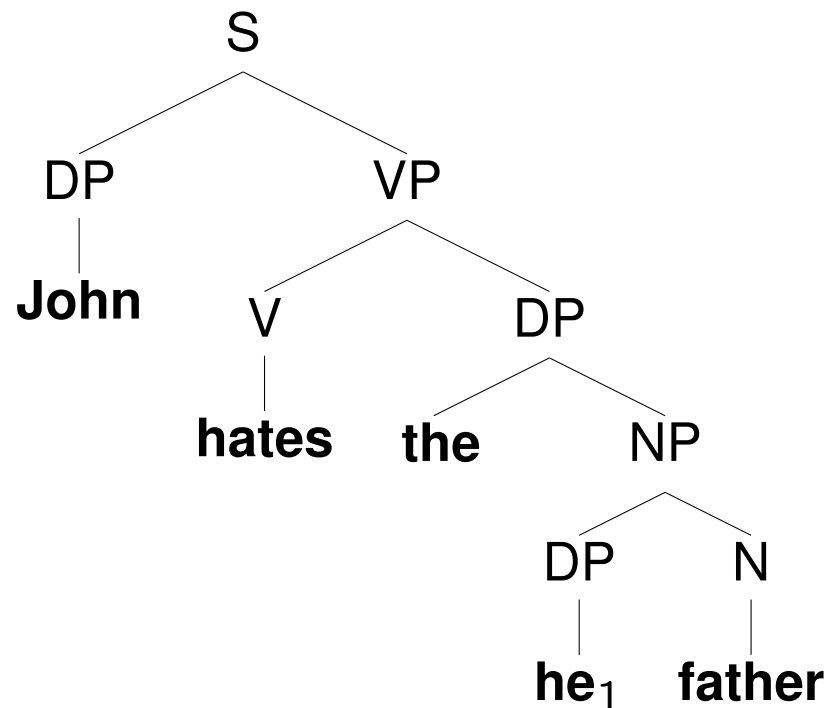
(4)
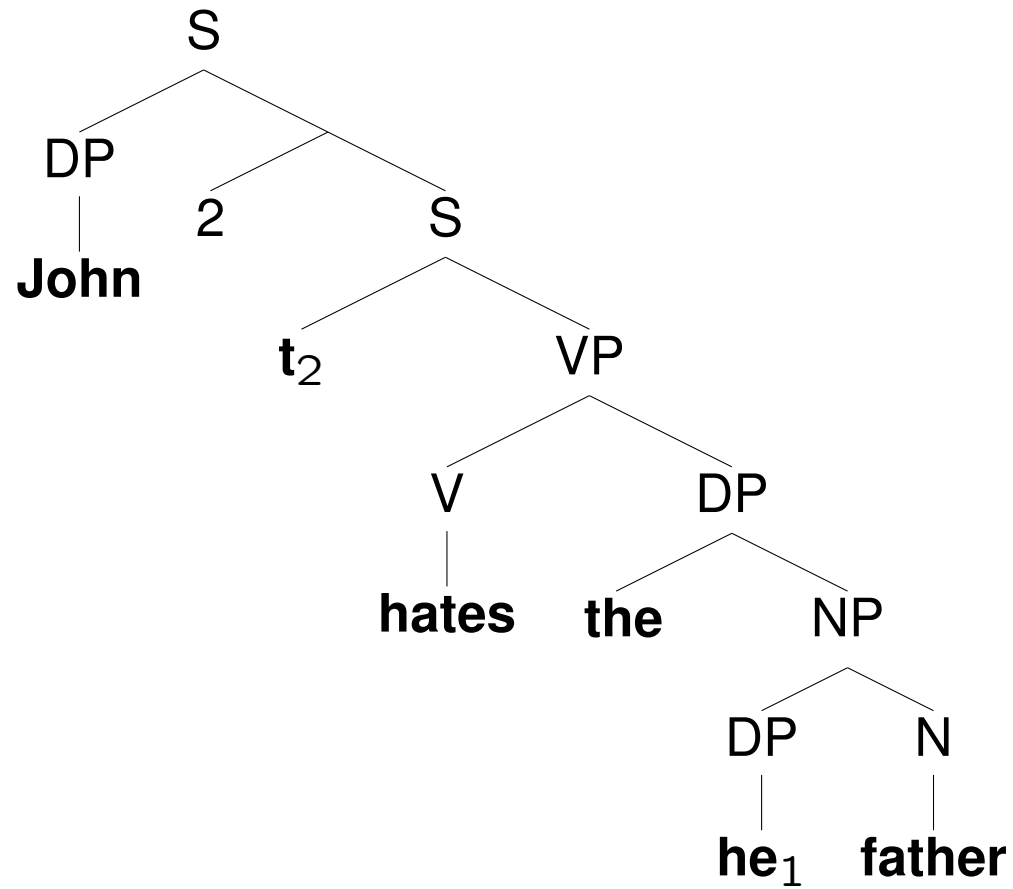
9.2 Co-reference or binding? (cont.)

- In (3) and (4), **he**$_1$ is free. By the Appropriateness Condition, these LFs thus require an utterance context which assigns a referent to index 1.

- Among the candidates are contexts like c_1 such that g_{c_1} = [1 → Fred], or c_2 such that g_{c_2} = [1 → Bill], or c_3 such that g_{c_3} = [1 → John].

- If it is c_3 that prevails, then the utterance will be true if John hates John's father.

- We have shown that LF (3) or (4) uttered in context c_3 has precisely the same truth and falsity conditions as LF (2) (uttered in any context).

9.2 Co-reference or binding? (cont.)

- Our current theory thus predicts a lot of "invisible" ambiguity.

- We hypothesize that both analyses are indeed grammatical, but it seems to be impossible in principle to obtain empirical evidence for the hypothesis that we need both such derivations.

- However a number of authors (including Partee, Keenan, Lasnik, Sag, Williams, and Reinhart) have argued that there is truth-conditional evidence for this "invisible" ambiguity after all.

- But we must look to elliptical sentences to see this.

9.3 Pronouns in the theory of ellipsis

9.3.1 Background: the LF Identity Condition on ellipsis

- " VP ellipsis:"

(1) He smokes. He shouldn't.
(2) Laura took a nap, and Lena did too.

- "Stripping" or "bare argument ellipsis":

(3) Some people smoke, but not many.
(4) Laura left Texas, and Lena as well.
(5) Laura drank the milk last night, or perhaps the juice.

- In VP ellipsis, a VP is deleted on the way from SS to PF. In bare argument ellipsis, an S is deleted, and the "remnant" has been topicalized, adjoined to S before deletion.

9.3.1 Background: the LF Identity Condition on ellipsis (cont.)

- Since these sentences have the interpretation of complete sentences, they are intact at LF.

- The material that is deleted must be identical to material that is present overtly in the antecedent discourse.

- The relevant identity condition applies at the level of LF. Note that the deleted material must match the antecedent in scope:
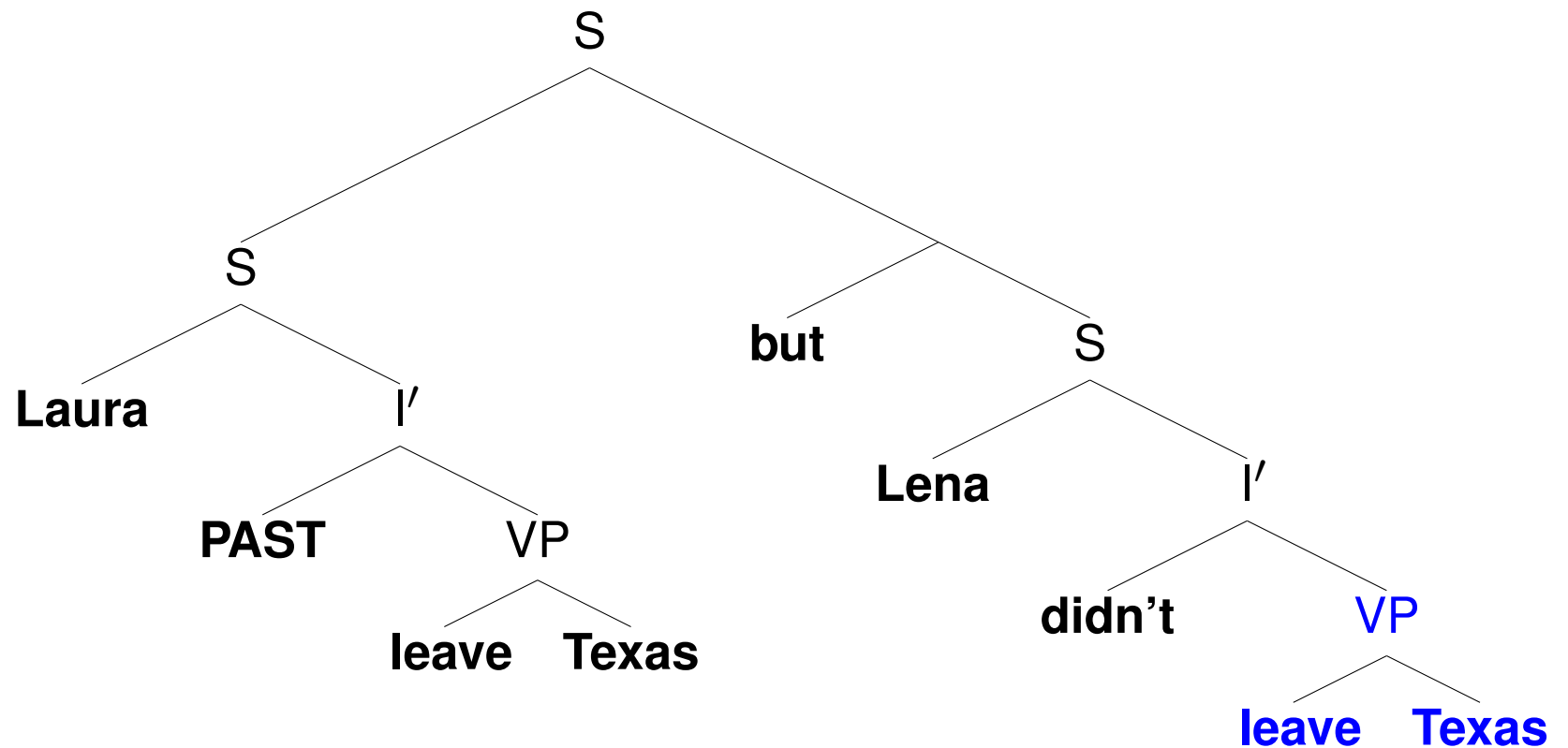
(7) Laura showed a drawing to every teacher, but Lena didn't.

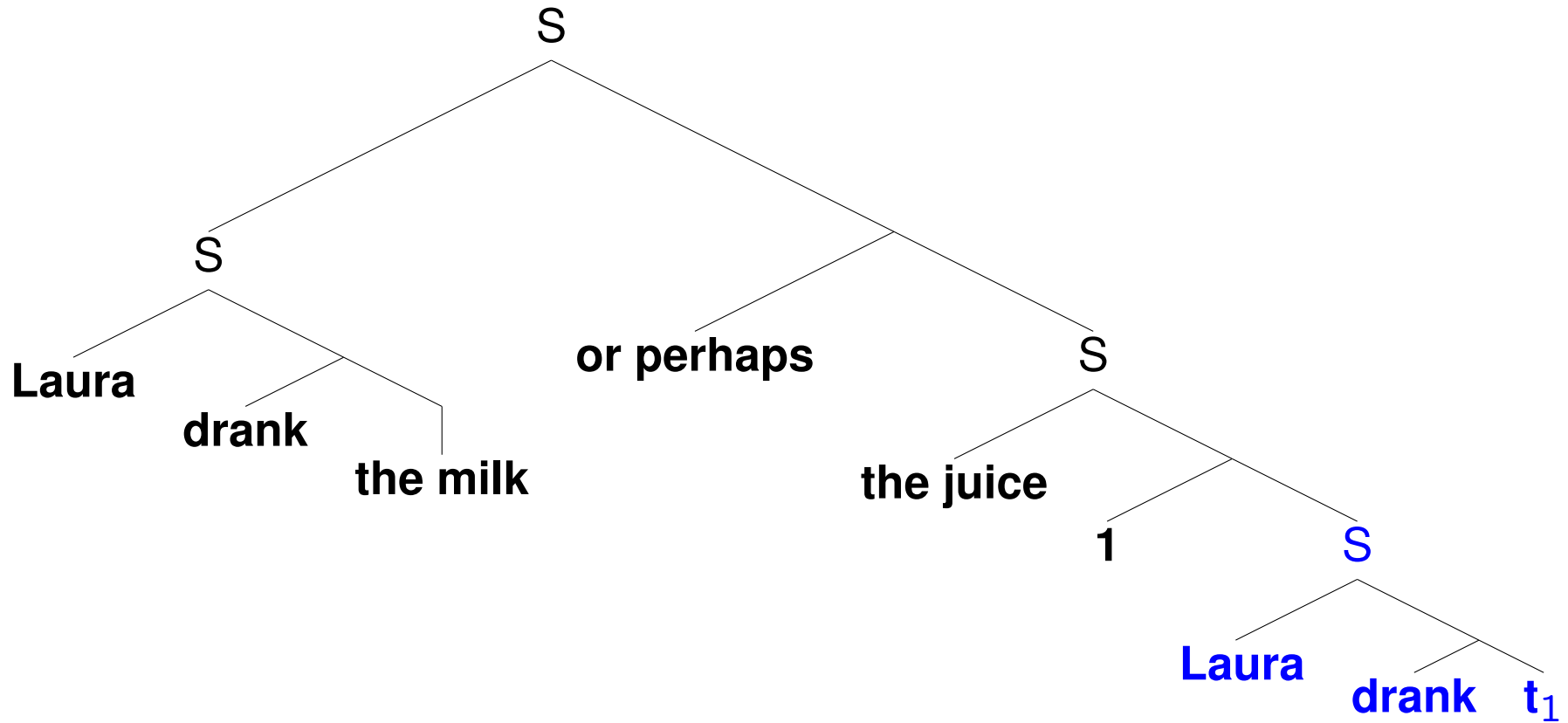(8) *LF Identity Condition on Ellipsis*
   A constituent may be deleted at PF only if it is a copy of another constituent at LF.

- Some sample derivations follow. The material to be deleted is shown in blue.

(9) SS:

(10) SS for (5):

```
                                    S
                      _____
                     /                           \
                    S                             S
                 __/|                      _____/ _____
                /   |                     /               \
            Laura   |              or perhaps              S
                   _|___                              ____/ \
                  /     \                            /       \
              drank      \                      the juice     \
                          \                               ____/ \____
                       the milk                          /           \
                                                        1             S
                                                              _____/ \
                                                             /          \
                                                         Laura           \
                                                                    _____/ \
                                                                   /        \
                                                               drank        t₁
```

Laura drank the milk

or perhaps the juice 1

Laura drank t$_1$

24

(11) LF for (5):

```
                                    S
                   _____
                  /                                      \
                 S                                        \
          _____/_____                      _____/_____
         /              \                     /                     \
    the milk             \              or perhaps                   S
                   _____/_____                            _____/_____
                  /              \                          /              \
                 1               S                     the juice            \
                          _____/_____                            _____/_____
                         /              \                          /              \
                     Laura               \                        1               S
                                  _____/_____                           _____/_____
                                 /              \                         /              \
                             drank              t_1                   Laura               \
                                                                                  _____/_____
                                                                                 /              \
                                                                             drank              t_1
```
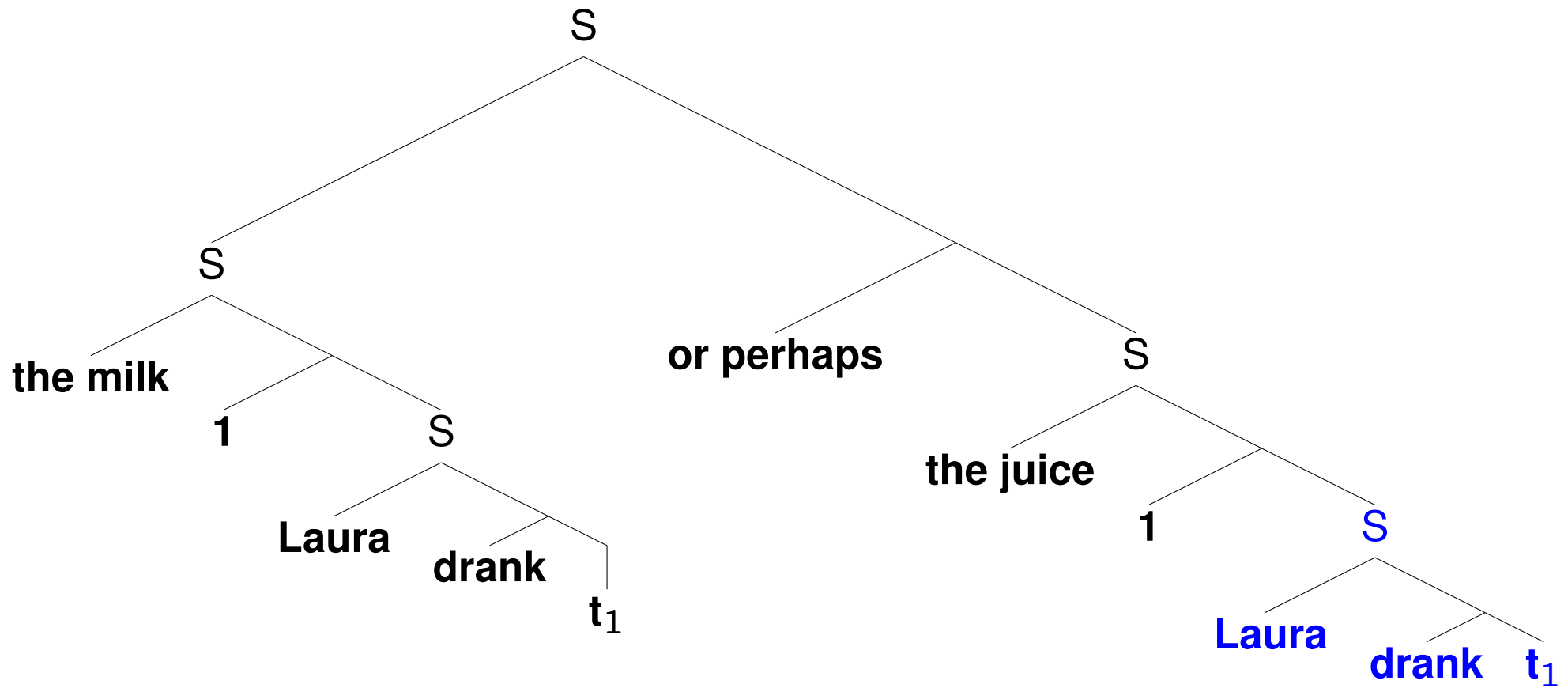
the milk

1

Laura

drank t_1

or perhaps

the juice

1

Laura

drank t_1
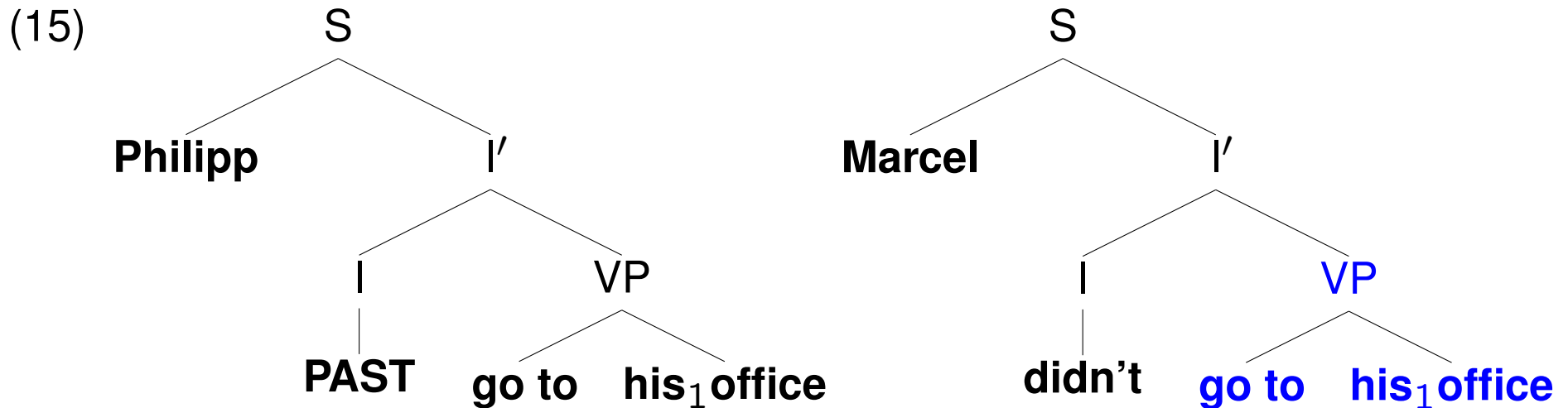
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9.3.2 Referential pronouns and ellipsis

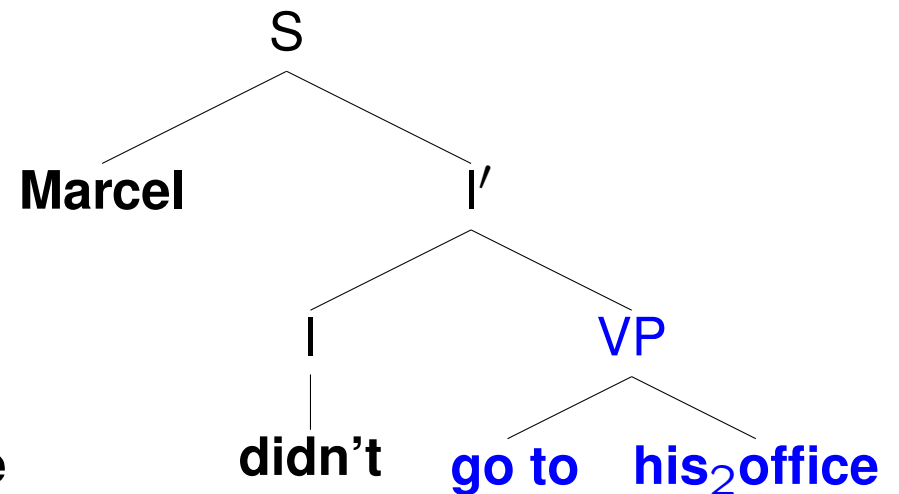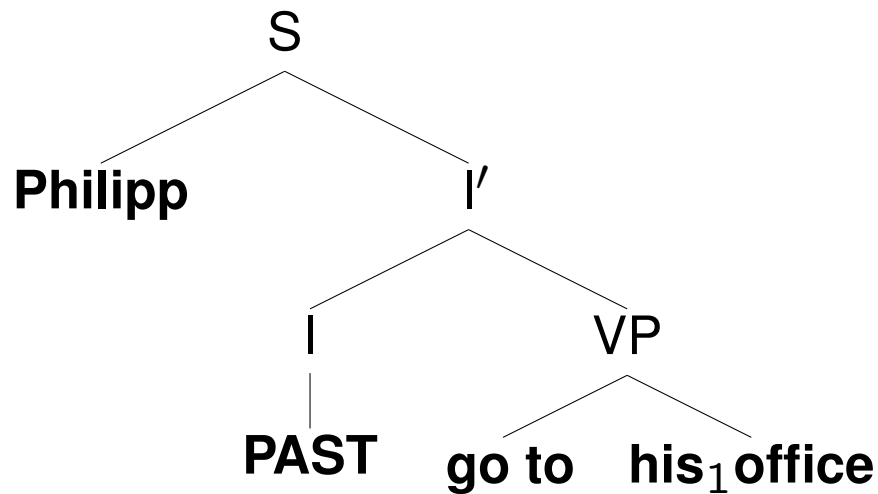(13) (On Roman's birthday), Philipp went to his office. Marcel didn't.

- If we understand the pronoun in the first sentence as referring to Roman, we also must understand the deleted pronoun as referring to Roman, no matter how salient another referent might be.

(15)

9.3.2 Referential pronouns and ellipsis (cont.)

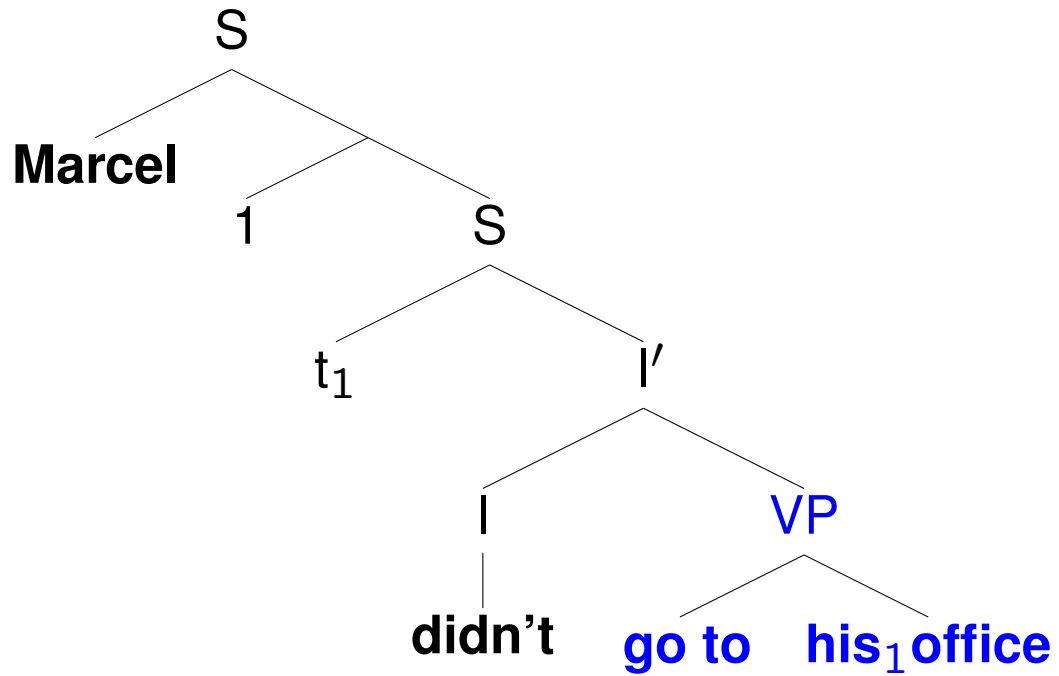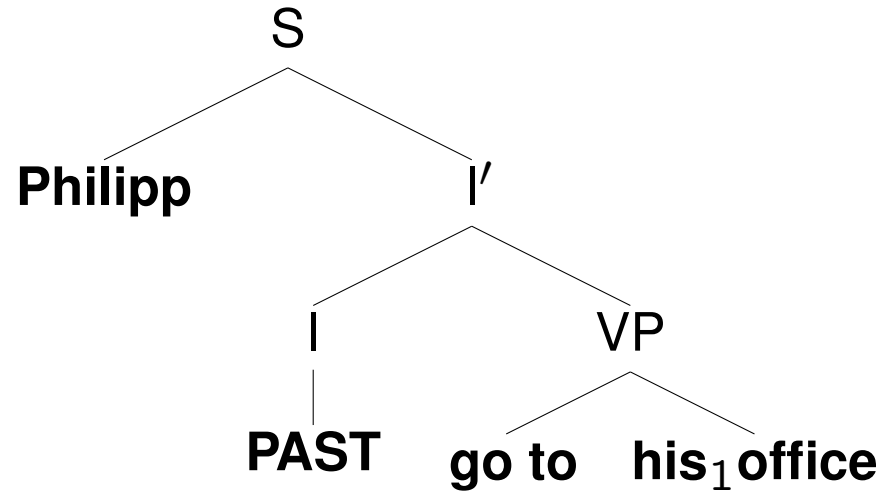- (16) is ungrammatical, and the LF Identity condition excludes it.

(16)*

9.3.2 Referential pronouns and ellipsis (cont.)

- Unfortunately, there is another LF, shown in (17), that is not excluded and which also expresses one of the unavailable readings.

- Here the first tree says that Philipp went to Roman's office, but the second tree says that Marcel went to *Marcel's* office.

- We need to close this loophole. The problem seems to be that the first pronoun is free, whereas the second variable is bound. Maybe we should rewrite the LF Identity Condition to be sensitive to this difference.

- Or we can add a general prohibition against LFs in which a given index has both bound and free occurrences.

(18) No LF representation (for a sentence or multisentential text) can contain both bound occurrences and free occurrences of the same index.

(17)

S
├── **Philipp**
└── I′
    ├── I
    │   └── **PAST**
    └── VP
        ├── **go to**
        └── **his$_1$ office**

S
├── **Marcel**
└── 1
    └── S
        ├── t$_1$
        └── I′
            ├── I
            │   └── **didn't**
            └── VP
                ├── **go to**
                └── **his$_1$ office**

9.3.2 Referential pronouns and ellipsis (cont.)
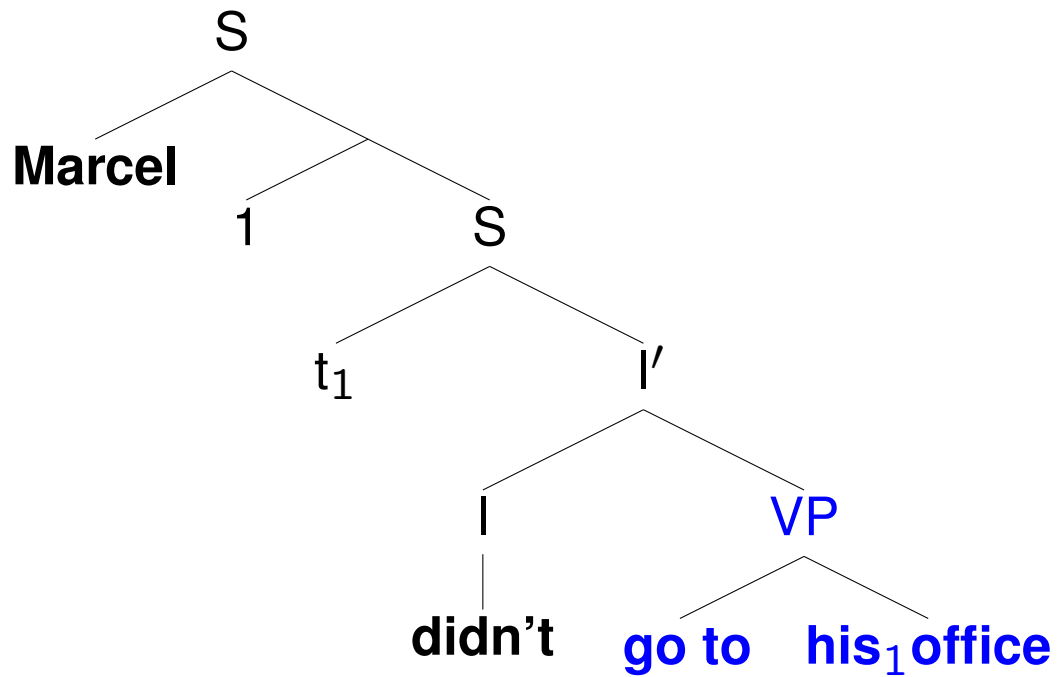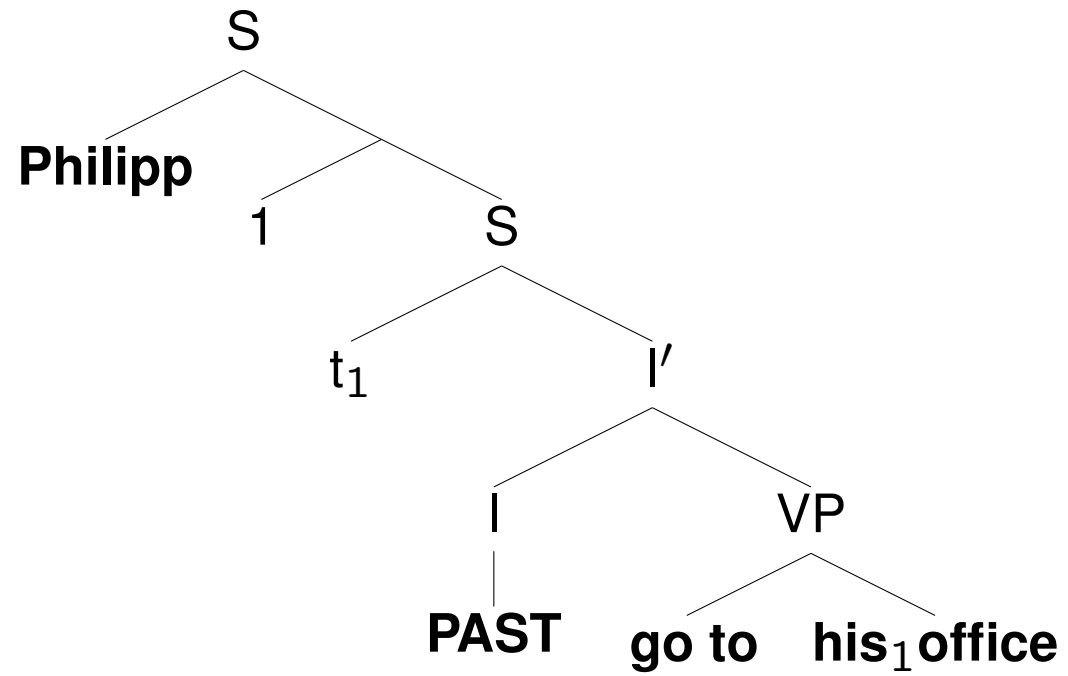
- We now predict that whenever a pronoun in the antecedent phrase refers to an individual x, then the pronoun's counterpart in the deleted phrase must refer to x as well.

- Referential pronouns keep their reference under ellipsis.

9.3.3 The "sloppy identity" puzzle and its solution

(13) (On Roman's birthday,) Philipp went to his office. Marcel didn't.

- There is another interpretation of (13), the "sloppy identity" reading, whereby Philipp went to his own office (Philipp's), and Marcel went to *his* own office (Marcel's)

- Doesn't this constitute a blatant counterexample to the law we have just seen?

- This puzzle persists only as long as we take it for granted that the overt pronoun has to be referential.

- We can interpret this pronoun as a bound-variable pronoun.

- Here is an LF, where both pronouns are construed as bound-variable pronouns. The subjects in both cases were QR'd and the same indices were chosen.

(19)

S
├── **Philipp**
└── 1 ── S
    ├── t$_1$
    └── I′
        ├── I ── **PAST**
        └── VP ── **go to** **his$_1$ office**

S
├── **Marcel**
└── 1 ── S
    ├── t$_1$
    └── I′
        ├── I ── **didn't**
        └── VP ── **go to** **his$_1$ office**

9.3.3 The "sloppy identity" puzzle and its solution (cont.)

- (19) meets the LF Identity Condition on ellipsis, since the two VPs are identical.

- And it is not in violation of sipulation (18), since all occurrences of index 1 are bound in the overall representation.

- We have solved the sloppy identity puzzle and vindicated our assumptions about ellipsis.

- in doing so, we have found an indirect, yet compelling, argument for the coexistence of bound-variable readings and referential readings in anaphoric pronouns with referring antecedents.

- We'd want to explore further and make sure that our theory predicts the distribution of "strict " and "sloppy" readings in all sorts of examples. See text for some discussion.