PRONOUNS OF LAZINESS

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This paper is devoted to the syntactic analysis of pronouns of laziness, and the phenomenon that it is responsible for, sloppy identity. With a restatement of the definition of a bound pronoun, that is to say, a restatement of the way a bound pronoun is interpreted, we will explain how sloppy identity derives from the syntactic representation of pronouns of laziness proposed here and at the same time why sloppy identity arises only in coordinate structures. In other words, sloppy identity will be shown to be a consequence of the syntactic analysis of pronouns of laziness, combined with the new, but natural, rule of interpretation of bound pronouns.

1. Pronouns of laziness Pronouns of laziness are those which have an antecedent, without necessarily having the same referent(s) as the antecedent. This situation arises when the antecedent contains a pronoun with sloppy identity, or when it contains an indefinite NP, where the indefinite may be understood as having different referents with respect to the antecedent and the pronoun. Such cases are illustrated below, with (1), Karttunen's (1969) paycheck-sentence, slightly modified:

(1) The man who gave his paycheck to his sister was wiser than the man who gave it to his brother

(2) John called his brother and Peter did [e] too

(3) The man who read a book about a spy was happier than the man who had just written one

(4) John read a mystery novel and Peter did [e] too

These sentences display sloppy readings with VP anaphora and NP anaphora. These are often treated as separate phenomena in the literature, but the claim here is that they are the same, that is to say, we analyze both anaphoric elements, the empty VP and the overt NP, as pronouns of laziness. Also, let us note that these are not the only possible pronouns of laziness. As well as pronouns may have as antecedents all major categories, pronouns of laziness exist for all these categories:

(5) The man who thinks that someone is reading his mail is more nervous than the man who does not believe it

(6) John is bored in his office, but Tom is happy there

(7) Mary was a student when she was 20/in her twenties, and Emily was a comedian then

This is our first conclusion: sloppy readings are possible with anaphora of all syntactic categories, and they should be obtained in the same way for all these categories. In this paper, we will leave aside the question of the interpretation of indefinites, which should be identical to their interpretation in overt extraction across-the-board, as in (8), and will only deal with sloppy identity:

(8) What book by a foreign author does Mary like and Tom dislike?

For the moment, let us consider the rule needed to make a pronoun behave as if it was interpreted as a copy of its antecedent. For the case of VP-deletion, Williams (1977) proposes a replacement analysis, whereby the anaphoric VP is replaced by its antecedent.[1] We could adopt this idea and propose that all pronouns of laziness, which are exemplified in (1)-(7), are interpreted at a level at which they are replaced by their antecedents. But this means that we need to postulate a copying rule as part of Universal Grammar, which may not be necessary. There is a way to obtain a representation which is identical, from the interpretive point of view, to a representation with a copied element in place of the pronominal, without any cost. This is when the antecedent of the pronoun of laziness forms an A'-chain with it, with the pronoun of laziness identical to a resumptive pronoun. Now, in order to create this chain, the antecedent has to move to an A'-position c-commanding the pronoun of

laziness. In such a case, the antecedent heads a double-A'-chain, whose variables (tails of this double chain) are, first, the trace obtained by this movement, and second, the pronoun of laziness itself.[2] In other words, a pronoun of laziness may be analyzed at LF as one of two (or more) variables bound across-the-board (henceforth ATB), in a way similar to overt ATB wh-extraction.[3] Schematically, the anaphoric representation in the sentences with pronouns of laziness of (1)-(7) is the following (we assume that anaphoric VPs are non-structured empty VPs):

(9) a. called his brother$_i$ — t_i / $[e]_i$

b. a book about a spy$_i$ — t_i / one_i

c. his paycheck$_i$ — t_i / it_i

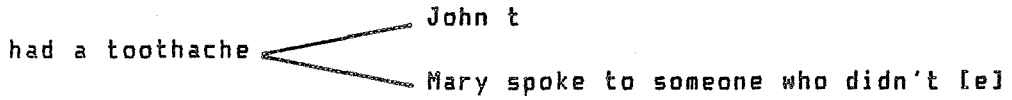
d. in his office$_i$ — t_i / $there_i$

etc...

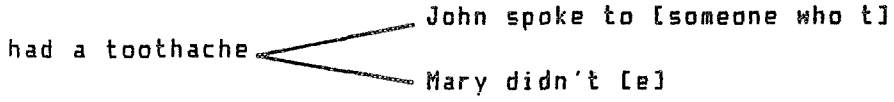
In this case, as is attested with overt ATB-extraction, the two variables may be assigned different values (the laziness effect), so long as each of them is interpreted as a variable bound by the quantified expression head of the A'-chain.

To obtain such an ATB representation, the only things which have to happen are already part of the grammar: the antecedent is assigned scope, as all quantified expressions can be, and it forms a chain simultaneously with two variables,[4] provided that other conditions and principles are respected. For example, between the moved VP and its trace, subjacency must be respected. Concerning the relation between the moved VP and the pronoun of laziness that it binds, subjacency seems not to be required:

(10)a. John [had a toothache] and Mary spoke to someone who didn't [e]



b. *John spoke to someone who [had a toothache] and Mary didn't [e]



(10)b is excluded because the moved VP is separated from its trace by a complex NP. However, this complex NP is not a problem for the relation between the VP and the empty VP [e], as shown by (10)a. Let us now consider how sloppy identity is obtained.

2. Sloppy identity We saw that sloppy identity arises when the antecedent contains a pronoun bound by its antecedent. Going back to Williams (1977)'s analysis or Sag (1976)'s, this pronoun can be made to behave like a variable by translating the VP as a λ-expression, with λ-abstraction of the binder, as in the following representation of (2):

(11) John = x, λx(called x's brother) and Peter did too [e] [e]
copying of the λ-expression, up to alaphabetic variance
John = x, λx(called x's brother) and Peter = y, λy(called y's brother)

As we claim in section 1, the phenomenon of sloppy identity covers all categories, it is not confined to VPs. And if λ-abstraction is the way to obtain the variable behavior of a sloppy pronoun for the VP case, then, for reasons of simplicity, λ-abstraction should also account for the NP (and other) cases, as in the paycheck-sentence. However, as Williams shows for other types of NP-cases, copying of an antecedent smaller than the VP yields an ungrammatical result. Williams'case is the following, where the sloppy reading is unavailable, as has been pointed out in Bach, Bresnan and Wasow (1974):

(12) John likes more of his children than Bill hates [e]$_{NP}$

The sloppy reading is excluded on the grounds that the variable x becomes unduly free in the copied material, given that the λ-operator is too far from the NP to be copied along with it:

(13) John = x λx(likes more of x's children) than Bill hates [e]
copying of the antecedent NP:
John = x λx(likes more of x's children) than Bill = y λy(hates Q of x's children)

Given that the replacement analysis cannot yield sloppy readings in the wh-NP case, for structural reasons, it follows that sloppy identity should not be possible with overt NP-pronominals of the sort found in the paycheck-sentence, and for the same reason, namely, the occurrence of a free variable after copying. So, the pronoun it of that sentence should not be able to be understood as the second man's paycheck, contrary to fact.

The problem is thus that, in order to make the sloppy pronoun behave like a variable, one has to make the binder of the pronoun a variable too. This is made possible by λ-abstraction of the binder. However, when the pronoun of laziness does not have as antecedent a full λ-expression, but a constituent smaller than it, copying of that pronoun of laziness yields an ill-formed result with respect to the sloppy pronoun, which becomes an unbound variable. To solve this problem, let us consider a different way of obtaining a variable behavior of a pronoun than having it bound by a quantifier necessarily. If it is not necessary that the binder be a variable, then it is not necessary to translate the VP antecedent (or containing the antecedent) as a λ-expression. In that case, the problem noted will disappear, since there will no longer be the creation of an open expression too big for the pronoun of laziness.

Following Chomsky (1981), bound pronouns do not need to be translated as variables in the logical formula, if the bound interpretation means that they pick whatever value their antecedent is assigned. They may remain anaphoric elements, whose interpretive function is to pick whatever value is assigned to some linguistic antecedent. So, if the antecedent is a variable itself, then the pronoun will be

variable-like, and if the antecedent has a fixed value, then the pronoun will have a fixed value too. In the case of sloppy identity, we want to say that the pronoun behaves like a variable, not because its binder is a variable, but rather because it is bound as many times as there are elements to bind it: if there are two coordinates, then the pronoun will be assigned two values (or two sets of values, if the sloppy binders are distributed plurals). If there are three, then three, etc. So, to get the variable effect of the binder without implying that the binder is in fact a variable bound by a quantifier, we assume, first, the following definition:

(14) interpretation of bound elements
If an anaphoric element X is interpreted as bound by a constituent Y, it is interpreted as the identity function of the address occupied by Y: its value is that assigned to the element occupying that address.

Following Vergnaud (1983), an address is a number attached on a node which unambiguously identifies that node on the tree. So, no two nodes may have the same address. The definition above yields the variable behavior of a bound pronoun, when the antecedent is a distributed plurality or a quantifier, as in:

(15)a. Nobody2 [likes [their$_2$ job]4]3
translation: $\neg$ x (x2 likes f(2)'s job), f the identity function.

b. [Peter and John]2 [like [their$_2$ job]4]3
$\forall$x in (Peter, John) (x2 likes^2 f(2)'s job), f the identity function.

In other words, address annotations replace and play a similar role to referential indices: the pronoun looks for an address for its interpretation, and not a referential index, and it is assigned the value of the category occupying that address. One crucial difference between addresses and indices comes into light with sloppy identity.[5] First, we have said that no two nodes may have the same address, as is natural, since this means that no two spacially distinct nodes occupy the same position. This is natural within a single sentence. However, addresses may be seen as classes of equivalence, in a way similar to grammatical functions, like subject, object, etc. In that case, nothing troubling happens if we suppose that two separate sentences may have

corresponding nodes, that is to say, nodes with the same address assigned to them. Now, such classes are defined below:

(16) Same address: definition
Two nodes in separate structures may have the same address only if the structure dominating them is the same.

We define separate structures as structures which are not sentence-related (i.e. not dominated by some common categorial node), or conjuncts in coordinate structures. For example, by (16), the underlined direct objects of the two coordinate sentences may have the same address in (17)a, but the two indirect objects may not, in (17)b, because Peter and Bill do not have the same degree of embedding, even if they have the same grammatical function:

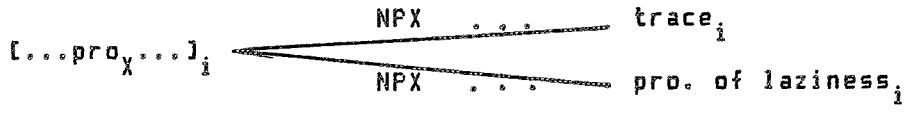
(17)a. John saw Tom and Mary met her sister
b. John watched someone that Mary introduced to Peter and Tom gave a book to Bill

Now, sloppy identity basically obtains in the circumstance under which two distinct binders have the same address. For example, in John likes his sister and Tom does too, given that the two sentences are in a coordinate structure, they occur in separate structures, which allows them to have corresponding nodes, and in particular, the two subjects. Now, the sloppy reading of his is obtained if it is interpreted as the identity function of address X, where this address is that of the two subjects (we will shortly consider how this works, at the LF representation with double A'-chains, using the notion of "reconstruction".) To conclude, what the appeal to addresses does is that it allows the variable behavior of a pronoun to be due to two independent reasons. The first one is the usual one: the binder is interpreted distributively, and the pronoun picks the values of the variable (in the relevant address) thus created. The second one is special to sloppy identity: a pronoun is bound by a single address, but this address is realized more than once.

3. Sloppy binding by reconstruction Binding of a sloppy pronoun occurs in configurations in which the antecedent of the pronoun of laziness is the head of a double-chain, as in (18)(X is NP's address, and subscripting X to the pronoun

indicates that the pronoun has the bound reading with respect to NPX)):

(18)



As we see, the sloppy pronoun, pro$_X$, should be interpreted as bound by NPX in the first conjunct and NPX in the second conjunct. This is the same problem as having it bound in a single sentence, as in:

(19) [What person who likes him$_X$] does [everyone]X talk to t

In the spirit of Higginbotham (1983)'s notion of variable-chains, which allows for a transitive way of binding a variable by a quantifier, through the traces left by movement, and adopting something similar to notions in Barss (1984), let us consider that c-command can be defined not only directly, as usual (we take Aoun and Sportiche's (1983) definition), but also via traces, as in:

(20) C-command

a. X c-commands Y iff all maximal projections which dominate X also dominate Y or some member of an A'-chain containing Y.

b. If X c-commands Y, X c-commands everything Y contains.

Given that, structurally, binding is dependent on the condition of c-command alone, such a definition allows what can be called binding by reconstruction, without effectively reconstructing the fronted element into the position of the trace, as is also Barss's claim. So, in the case of a single sentence, as in (19), a bound pronoun inside the A'-binder is interpreted as bound by a single antecedent, whereas in a coordinate structure, such as in (18), a pronoun inside the A'-binder may be interpreted as bound by two antecedents. So far for the theoretical apparatus. As we have seen, it only requires a natural change in the definition of bound pronouns. Other things follows from the hypothesis, first, that the antecedent of a pronoun of laziness gives rise to a double-chain, which is made possible by LF-movement; second, that binding is allowed inside a fronted element, which is made possible by something equivalent to reconstruction; and third, that nodes may have the same address if they belong to separate structures, which is made possible if we define addresses as classes.

This analysis allows us to generalize the classification of pronouns of laziness to all categories, and not simply NPs. It helps characterize VP-deletion as the presence of a VP-pronoun of laziness, allowing us to get rid of replacement-rules.[6] Let us now turn to empirical issues.

4. S-structure and LF-coordinates So far, our analysis claims that sloppy identity and sloppy readings of indefinites are properties of coordinate structures, or discourse-related sentences, since only then may two structures be separate. However, a look at the possibilities of occurrence of sloppy pronouns shows that this is verified for NP-pronouns of laziness -- which stand for an NP or an S' -- but not for VPs or APs, i.e. for predicates:

(21)a. John had his coffee black and Peter drank it with milk
b.??John made his coffee black more often than Peter drank it with milk

(22)a. Elsa thinks [someone is spying on her] and Mary believes it too
b. *Elsa thought [someone was spying on her] before Mary believed it

(23)a. Mary is sick with her job and Martha looks it
b. Mary is sick with her job less often than Martha looks it

(24)a. Mary looked through her window and Martha did too
b. Mary looked through her window because Martha did

Let us first consider how sloppy identity is possible in the VP case, and then, we will see why it is not possible in the NP case.

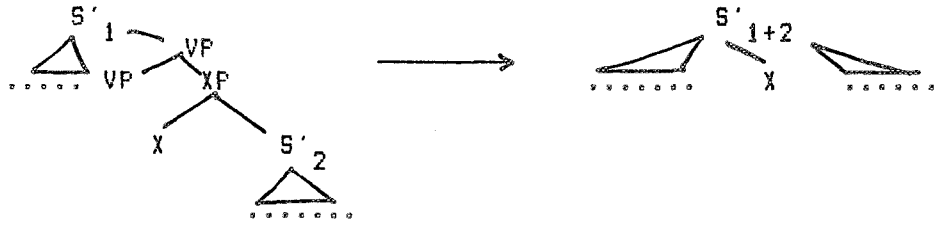
So far, our analysis of sloppy identity entails that, for example in (24)b, Mary and Martha cannot be sloppy binders, since they do not have the same address. Our claim is that the notion of a coordinate structure can be taken in a strict syntactic sense. A coordinate structure may be base-generated, in which case it is interpreted as a coordination of some sort, whose connectives are and, or and but, and maybe others (see Goodall (1984) for discussion). However, certain structures involving certain types of relations may become syntactic coordinate structures at LF. The formation of a coordinate structure at LF allows two

clauses to be represented as coordinates, even though they are not related with the usual connectives. McCawley (forthcoming) notes that comparative constructions behave like coordinations for some syntactic phenomena, and relative clauses may be analyzed as coordinates with the main clause (see Kuroda (1969) for discussion). So, let us assume that, inside a clause, two constituents which are not in a complement relation may be represented as coordinate structures at LF. For example, the main clause, Mary met the person, and the relative clause, the person works at the library at night, in (25)a, may be represented as coordinates, but not the main clause, Mary knows x, and the complement clause, [that this person works at night]$_x$ in (25)b:[7]

(25)a. Mary met the person who works at the library at night
b. Mary knows that this person works at the library at night

Also, adjuncts and subjects, which are not in a complement relation with respect to the predicate of the main clause, may be represented as conjuncts with the main clause. So, in the adjunct case, LF formation of coordinate structures has the effect that syntactic subordinators at S-structure become similar to coordinators, structurally speaking. Schematically, this is obtained by movement of the subordinate clause in the following manner:

(26)



For example, in a because-clause, which may hang from VP, because is X. It is moved to S at LF, whereas its complement extraposes and merges with the matrix S' to form a coordinate structure with it: following Goodall (1984), coordinate structures are represented on distinct planes, with their common nodes analyzed as belonging to each of them. The whole structure is thus a union of phrase-markers. We assume that LF formation of coordinate structures involves the merging of the topmost node of each conjunct. (But see Speas (1985), who argues that adjunction is enough to define a coordinate structure.) Given the presence of traces, this is

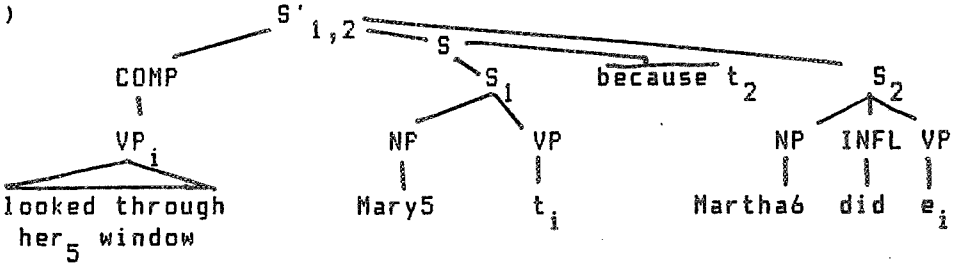
a syntactic change which should not affect the interpretation: S_2 is still understood as the cause of S_1, in a <u>because</u>-clause, and so on.

Now, we assume that the movement of the VP reflects overt VP fronting by moving into COMP by wh movement, instead of adjoining to S.[8] Since the COMP node is common between the two coordinates, we get a representation in which the VP ATB-binds two variables, as is the case with base-generated coordinate structures:

(27) looked through her$_5$ window < Mary5 t / Martha6 did [e] > because

Structural representation of (27)

(28)



However, this representation is not enough to yield the sloppy reading of the pronoun <u>her</u>, since the two subjects still do not have the same address. We thus have to postulate the following principle:

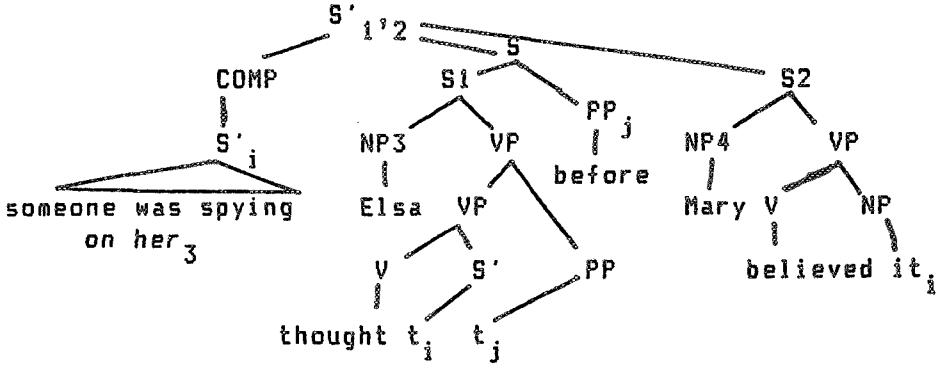
(29) If a predicate has a single address, its subject may have a single address too.

This convention is meant to allow rewriting the address of distinct subjects when the predicate happens to be common to them, as in (28). And this is what allows sloppy identity, in the case when VP or AP is the pronoun of laziness.

Now, given that this convention is due to the predication relation, it will not be possible to rewrite the address of two NPs when the antecedent is not a predicate. This is why, when the pronoun of laziness is not a predicate but an argument, as in (21)-(22)b, sloppy identity is impossible. Consider, for example, the LF of (22)b (there should be a comparative operator binding a variable ranging

over times, but we leave this out for clarity):

(30)



Even though a coordinate structure is formed, with the antecedent S' binding two variables ATB, it is not possible to get a sloppy interpretation of her, because the addresses of the potential binders are distinct. They must be distinct, since addresses are assigned as soon as D-structure, and addresses in a single clause may not be the same. So, unless some special convention applies later on in order to allow rewriting (as is the case with subjects, by convention (29)), the addresses will be different at LF in non-base-generated coordinate structures.

Now, we have to explain why sloppy identity is possible in paycheck-sentences, since these are not base-generated coordinates.

4. Paycheck-sentences Consider (1) again:

(31) The man who gave his paycheck to his sister was wiser than the man who gave it to his brother

The main idea here is that the relevant coordinate structure is formed with the two relative clauses, and that the number of nodes in the two conjuncts which can merge is very great because the structures of the two conjuncts are identical, in some sense of 'identical'. In other words, it is possible to claim that, when two relative clauses are analyzed as coordinate structures, most of the structure containing the clauses may be common to the two conjuncts, and in particular, the two subject binders will be allowed to merge into one single node, hence assigning it a single position in the tree, hence a single address.

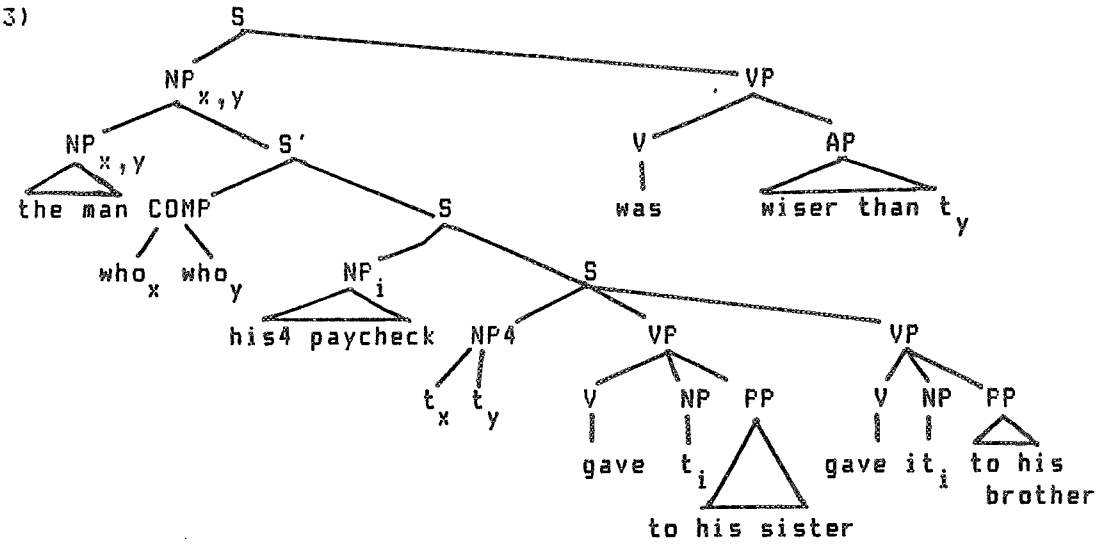
As we saw in (30) above, an LF-coordinate structure is one in which the topmost node becomes common to the two conjuncts. Since this is done at LF, the process responsible for it is a special merging process. We assume that merging two separate nodes can apply only once. With this rule, two independent structures, say, two S's, get joined a their topmost node, in this case, COMP. COMP then dominates the union of the material dominated by the two original COMPs. However, this merging process may iterate down the structure if the nodes to be merged are projections of a head dominating lexically similar material. It cannot iterate if the nodes are different in this sense.

So, let us assume that the following holds: the merging process may iterate downward, until it puts together two nodes which are projections of non similar lexical material. Turning to the paycheck-sentence, we see that the two relative clauses are composed of similar nodes: a head NP, an operator in COMP, a variable in subject position, a VP, etc., all of which -- and at least the first three -- dominate lexically similar material. This means that the merging process can iterate down the tree. So, let us assume that the LF derivation of (31) involves merging of the head NP, COMP, S and the subject, yielding the following:[9]

(32)

the man who [[his$_4$ paycheck]$_i$ [t4 < gave t_i to his sister / gave it$_i$ to his brother > was wiser than

(33)



The two relative clauses could have been represented with all the non-terminal nodes merged, since they all dominate the same type of lexical material. Different terminals do not merge, so two terminals may be dominated by the same non-terminal, which is well-formed, so long as the two terminals belong to different conjuncts, which is obtained by representing them on different planes.

In (33), only the relevant nodes have merged, and especially the subject NPs, which merge onto the node of address 4. So, NP of address 4 dominates two distinct terminals, t_x and t_y. This structure means that NP of address 4 is interpreted with the value of t_x in the first conjunct (the first relative clause) and the value of t_y in the second conjunct (the second relative clause). This is the desired result to get the sloppy reading of his_4, which is assigned the value of t_x, when 'reconstructed' in the first conjunct and the value of t_y when 'reconstructed' in the second conjunct.

One question arises, now. Since we have made it possible for reconstruction to apply inside an NP in a non-base-generated coordinate structure, by making use of the parallelism of structure between the two LF conjuncts, are we not allowing this consequence of parallelism to take effect in sentences where sloppy identity is in fact not

possible, as in adjuncts, as in (21)-(22)b (e.g. ??John made his coffee black more often than Peter drank it with milk)? The question is whether there is a difference of structure between two LF-conjuncts formed with two relative clauses, as in paycheck-sentences, and between the matrix clause and the adjunct-clause, as in a sentence like (21)b. The difference is the following: non-lexical categories like COMP are not identical in main clauses and in adjuncts. The COMP of a main clause may be considered to be missing, whereas that of an adjunct like a clause governed by because may be analyzed as an empty category. This is enough to make these COMPs non similar categories. Now, recall that, when two nodes are not similar, the merging process may not iterate down. This means that the most embedded common node in an LF-coordination between a main clause and an adjunct-clause is COMP, it cannot be lower than COMP. This prevents the subjects from merging, in a sentence like (21)b. So, it is the condition on the iteration of merging which makes a distinction between paycheck-sentences, where sloppy identity is possible, and pronouns in adjuncts, where sloppy identity is impossible.

To conclude, this paper has presented a general line of research concerning pronouns of laziness. These are variables ATB-bound by their antecedent in a coordinate structure. This coordinate structure may be base-generated or formed at LF. Sloppy identity arises when the ATB-binder contains a pronoun which gets bound by reconstruction into the positions of the ATB-variables. This is made possible because bound pronouns are interpreted as the identity function of the address of their antecedents, rather than their referential index. Moreover, the wider possibility of sloppy identity with VP- (or predicates in general) pronouns of laziness than with NPs (or arguments in general) is that the addresses of subjects can be rewritten as equal when their predicate has the same address. Sometimes, the formation of coordinate structures can merge more structure than the topmost node only, when the structures are projections of lexically similar material, as with two relative clauses. In such a case, merging allows two binders to be dominated by the same node, and hence to have the same address, which is what happens in the paycheck-sentence. This merging, however, does not apply between main clauses and adjuncts. The result is that sloppy identity with NP-pronouns of laziness is possible either in base-generated

coordinate structures, or in LF-coordinate structures which are parallel structures in a strong sense.

As a last point, I have left open the problem of the absence of sloppy identity in Williams's sentence, (12) here. This problem is similar to the problem of the absence of a sloppy reading with parasitic gaps (which are analyzed as ATB-variables at LF, in Haïk 1985) or in sentences like (21)b. The reason why sloppy identity is impossible in Williams'sentence, or in parasitic gap constructions is that the gaps in question, i.e. the pronouns of laziness, are of the NP-type, and that they occur in adjuncts. Our analysis of NP-pronouns of laziness accounts for this case in the same way that it accounts for it in (21)-(22)b. That is to say, the addresses of the potential binders are different at D-structure, and they cannot become the same, neither by rewriting nor by merging.

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1. See also Sag (1976), who proposes a deletion analysis of VP-deletion under a condition of material identity. However, note that a deletion analysis makes it impossible to give the same account of sloppy identity with overt NP-pronouns of laziness, unless we postulate that the derivation involves deletion, and then insertion of an overt pronoun in place of the deleted site.

2. This paper is a shortened version of a section in Haïk (1985), sometimes modified. There, I consider that the replacement rule cannot be dispensed with, because of a minimal pair of sentences involving antecedent-contained VP-deletion. Obviously, the desired result is to avoid relying on the replacement rule and still find a direct explanation of this pair, in order to gain in overall simplicity (thanks to Dominique Sportiche for a discussion on this question). Then, it has come to my attention, in Sells (1985), that the account of the contrast cannot straightforwardly extend to Sells' same contrast, which does not involve antecedent-contained deletion and does not seem to rely on the copying rule. This suggests that the contrast should be accounted for without using the replacement rule.

3. This account is similar, notationally, to Partee and Bach (1984) or Rooth (1981), where the antecedent VP ATB-binds two

variables at the interpretive level. The difference between the two types of accounts is the classic one: the theory which postulates that the ATB-representation is done in syntax makes the claim that syntactic conditions which apply to overt ATB-representations also apply to LF-ATB-representations, and it makes the claim that LF has to be in an ATB-format for pronouns of laziness to be interpreted. Alternatively, in the theory where scope is assigned via the functioning of the interpretive rules themselves, ATB-representations and conditions on them should also be carried over at the interpretive level.

4. An expression is quantificational if it contains an operator. As argued in Haïk (1985), bound pronouns behave like operators in this respect. Hence, an NP like "his paycheck" may be assigned scope, since the pronoun "his" is interpreted as bound. Moreover, note that all maximal projections may be assigned scope, so there is no problem for assigning scope to a PP or an S' or a VP.

5. In the paper, I continue to use referential indices for the relation between a moved quantifier and the variable that it forms a chain with. Ultimately, referential indices should disappear, either completely, or at least for obtaining binding relations in general.

6. The claim that a 'deleted' VP always is a pronoun of laziness should be discussed in more detail, but we leave it for further research.

7. Speas (1985) has independently come to the conclusion that relative clauses are to be represented as coordinate structures with the main clause. She explains striking facts about the distribution of relativized NPs in Navajo on the grounds of constraints on coordinate structures. See also Haïk (1985) for an account of parasitic gaps making the same claim.

8. Cf: "John wanted to leave his office and leave his office you told everybody that he did [e]" vs. ??"John wanted to leave his office and leave his office you asked everybody whether he did", which shows that long-distance movement is possible, but not out of islands.

9. Note that the lexical items do not have to be identical, so

long as they are lexically similar, like the person vs the man, allowing the merging of the heads of the relative clauses in (i), thus obtaining a sloppy reading:

(i) The man who gave his paycheck to his sister was wiser than the person who gave it to his brother

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