Review of Fiengo and May's *Indices and Identity*

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*Indices and Identity* is perhaps the most thoroughly worked out syntactic analysis to date of the relations that hold between quantified expressions, pronouns, R-expressions and anaphors and their interaction with ellipsis. Focusing on the question of when two bits of syntactic structure can be said to be identical, this book brings together an impressive range of data which has remained problematic for past analyses, and offers a unified treatment which at the same time is complex enough to deal with the intricacies of interpretation found in VP ellipsis environments and yet conceptually straightforward. It is written in a clear and accessible style, simultaneously providing an introduction to the basic concepts involved, a concise presentation of the data which must be accounted for, problems these data pose for previous analyses, and a formally precise account of the data. This book is thus of great value to all linguists, ranging from the novice first delving into problems of identity to the specialist interested in the role that syntax plays in linguistic explanation.

*Indices and Identity* is organized into six chapters. Chapter 1 (*Reference, Coreference, Not-Coreference*) examines the relation between indices and indexical identity relations on the
one hand and reference and referential identity relations on the other. Chapter 2 (Dependency Theory) develops a theory of indexical (syntactic) and referential (semantic) dependency. Chapter 3 (Identity of Dependencies) addresses the question of when two indexed expressions qualify as identical for the purpose of ellipsis, and develops a notion of identity (called reconstruction) applicable to non-coindexed expressions involved in dependency relations as well as to coindexed expressions. Chapter 4 (Eliminative Puzzles of Ellipsis) poses three puzzles that an adequate theory of VP ellipsis must explain, and shows how they can all three be solved within the framework outlined in Chapters 1 through 3. Chapter 5 (On Reconstruction) gives a more generalized analysis of reconstruction which allows pronouns, anaphors, names and variables to reconstruct (i.e. be treated as syntactically identical to) one another, a phenomenon referred to as vehicle change. Finally, Chapter 6 (Logical Form and Reconstruction) argues that the level at which reconstruction is applicable in constraining processes such as VP deletion is the syntactic level of Logical Form (LF).

Various authors, including Lasnik, Chomsky and Reinhart among others, have employed indices for the purpose of indicating relations of coreference and/or disjoint reference. Under an early view of Lasnik’s, coindexation was taken to indicate coreference, and counter-indexation disjoint reference. This view came under fairly heavy attack from Evans, among
others, who argued that questions of reference (what individual in the world is actually referred to on a given occasion by a given expression) be kept separate from questions of grammar. Unless such a separation is maintained, a sentence such as *He put on John’s coat* will be analyzed as ungrammatical if *he* happens to refer to *John*, regardless of how this reference comes about. This gives the intuitively undesirable result that if a speaker were to utter this sentence referring with *he* to an individual he sees across the room but whose identity he is unaware of, the sentence would be ungrammatical if the person seen happened to turn out to be *John*, but grammatical otherwise, regardless of whether the speaker were ever apprised of this fact.

While Fiengo and May avoid many of the unwanted consequences of equating syntactic identity with referential identity, their analysis still takes it as a fundamental premise that indices are involved both in determining reference and in Binding Theory constraints. Thus, their analysis shares with the majority of its predecessors the assumption that Binding Theory restricts relations of coreference. To get around problems of the type indicated in the previous paragraph, they propose a clear split between syntactic indices and the semantic values associated with such indices. Indices, on their analysis, are associated with individuals through a formal sequence of individuals $\sigma$. For any $i$, the individual referred
to by $\text{NP}_i$ is $\sigma(i)$, the individual associated with the $i^{\text{th}}$ position in $\sigma$. Since each position in a sequence is associated with at most a single, unique individual, identity of indices will necessarily determine identity of referents. However, nothing prohibits two distinct positions in a sequence from both being associated with the same individual. Thus NP’s bearing distinct indices need not refer to distinct individuals. This way of separating syntactic indices from their semantic content makes it possible to formally distinguish between grammatically determined coreference (resulting from coindexing) and a notion of “accidental” coreference (resulting from non-coindexing), representations of the latter type of relation being syntactically indistinguishable from representations of non-coreference. To refer to the semantic relation that holds between non-coindexed expressions, Fiengo and May coin the term not-coreference.

The resulting theory still faces one major hurdle, that of accounting for examples like the following from Evans (1980).

(1) If everyone likes Oscar, then he likes Oscar

Intuitively, it is clearly possible to utter this sentence intending both the two occurrences of Oscar and the pronoun he to corefer. If intended coreference is to be reduced to syntactic identity (i.e. to coindexing), then it follows that the sentence in (1) must on the intended reading have a representation non-distinct from (2).
(2) If everyone likes Oscar₁, then he₁ likes Oscar₁

This representation clearly violates Condition C of the Binding Theory, however, since the second occurrence of the R-expression Oscar is coindexed with and c-commanded by the pronoun he. Fiengo and May get around this problem by making a highly unsatisfying stipulation -- that (2) is acceptable because it belongs to a mathematical metafragment of the language, in which Binding Theory (or at least Principle C) is inoperative. The acceptability of (3) indicates that the same stipulation must carry over to pronouns, and that Binding Condition B must be inoperative in the metafragment as well.

(3) a. If everyone likes Oscar₁, then he₁ likes him₁
b. If everyone likes Oscar₁, then Oscar₁ (himself) likes him₁

Unfortunately, they do not give any criteria for determining when a sentence belongs to this metafragment, and without such criteria this stipulation makes the theory itself vacuous. Revising their analysis in such a way that the acceptability of the sentences in (2) and (3) falls out as a consequence would require accepting Evans’ lesson in its entirety and proposing a clear division between Binding Theory and intended coreference. Such a move, however, would force a reworking of the entire theory developed in the succeeding chapters, and so accepting Evans’ lesson is not an open option.

Where Chapter 1 can be seen as a partial cleaning up of the current state of linguistic theory with respect to the role that
indices play in determining reference, Chapter 2 is devoted to showing that there is more to the relation between indexed NPs than the mere (non-)identity of their indices. Here Fiengo and May argue that in addition to relations of referential identity, the grammar further syntactically encodes two different ways of assigning a semantic value to an NP -- dependent valuation and independent valuation. An expression is dependently valuated if it "picks up" its semantic value (e.g. a referent) indirectly, from some other expression within the same sentence. Expressions which are directly assigned a semantic value are independently valuated. Associated with these two types of valuation are two distinct types of occurrences of indices -- $\beta$-occurrences (dependent) and $\alpha$-occurrences (independent).

Part of the motivation behind distinguishing between two types of indices is to be able to exclude circular dependence in sentences such as that given in (4).

(4) [His$_1$ wife]$_2$ loves [her$_2$ husband]$_1$

As was noticed by Higginbotham (1983), in a sentence like (4) it is not possible for the pronouns his and her to simultaneously depend upon the NPs her husband and his wife respectively for their interpretation. However, the indexing indicated in (4) is impeccable from the point of view of Binding Theory, and the sentence is perfectly interpretable provided an independent interpretation can be provided for one of the pronouns. Higginbotham uses examples like this to argue that a properly
formulated Binding Theory should take as its primitive notion that of dependency, not mere syntactic identity. Fiengo and May on the other hand use such examples to draw a distinct conclusion -- that Binding Theory must be supplemented with a theory of dependency. Since dependency relations on their view are distinct from and exist in addition to relations of indexical identity, representing such relations requires some additional mechanism. For this, they choose to employ the distinction in indexical types mentioned above.

The key to understanding the example in (4) for Fiengo and May lies in Dependency Theory. According to their formulation, this theory consists of a single principle: every \( \beta \)-occurrence of an index must be resolved. Simplifying somewhat, a \( \beta \)-occurrence of an index is resolved in a derivation which constitutes part of a phrase marker \( P \) (as defined by Chomsky (1955)) just in case there is some factorization (in (6) and (7) below, one of the lines numbered i-v) of that derivation containing both the expression bearing the \( \beta \)-occurrence of the index and an expression bearing an \( \alpha \)-occurrence of that same index. The impossibility of treating both pronouns in (4) as dependent thus reduces to the impossibility of resolving dependencies in the following structure:

\[
(5) \quad [\text{His}_1^{\beta} \text{wife}]_2^{\alpha} \text{ loves } [\text{her}_2^{\beta} \text{ husband}]_1^{\alpha}
\]

That these dependencies cannot be resolved can be seen by considering the following two derivations of (5).
In the first derivation, the occurrence of $\text{NP}_1^\beta$ is resolved in line (iv) because of the occurrence of $\text{NP}_1^\alpha$ in that same line. The occurrence of $\text{NP}_2^\beta$, however, is not resolved since no line contains both an occurrence of $\text{NP}_2^\beta$ and an occurrence of $\text{NP}_2^\alpha$. In the derivation in (7), the opposite situation obtains -- $\text{NP}_2^\beta$ is resolved, but $\text{NP}_1^\beta$ is not. Since there is no single derivation in the phrase marker of the sentence represented in (5) in which both $\beta$-occurrences are resolved, it follows that this representation is ill-formed with respect to Dependency Theory.

Having established Dependency Theory as a sub-theory of syntax, Fiengo and May take the odd step of trying to partially mimic the effects of syntactic dependency in the semantics. This is done by directly assigning a semantic value only to NPs bearing an $\alpha$-occurrence of an index. An NP bearing a $\beta$-occurrence of an index only receives a semantic value if there is an NP bearing an $\alpha$-occurrence of the same index from which it can pick up a value. The oddness of this move lies in the fact
that first it is unnecessary for excluding the unwanted interpretations it excludes. Any time there is an NP bearing a \( \beta \)-occurrence of an index and no other NP in the relevant context bearing an \( \alpha \)-occurrence of that same index, the sentence will already be ruled ungrammatical by Dependency Theory. Denying a sentence a semantic interpretation as Fiengo and May do only makes the sentence redundantly unacceptable.

In addition to being unnecessary, the semantics developed is furthermore insufficient for explaining the data it is intended to explain. The motivation behind the semantics of dependency is presumably to account for the intuition that it is impossible to ever determine whether a sentence such as (4) above or one such as (8) below is true with the pronouns interpreted as dependent upon the NPs they are coindexed with.

\[(8) \text{John saw [a picture of it]}_{1}\]

However, Fiengo and May’s semantic explanation of these intuitions is incomplete. For the sentence in (4) indexed as in (5), it is indeed impossible to derive a well-formed semantic interpretation within the semantics they provide. The same holds true for (8) under the assumption that the pronoun \( \text{it} \) in this example bears a \( \beta \)-occurrence of the index 1 and that the NP \( \text{a picture of it} \) bears an \( \alpha \)-occurrence of this same index. However, the sentences become no more readily interpretable simply by substituting pronouns bearing \( \alpha \)-occurrences in place of those bearing \( \beta \)-occurrences throughout. For (4), the identity
of the two people in question would still be equally inaccessible in the absence of an additional deixis, and the fact that he = her husband and she = his wife would be of equally little value in determining what the sentence means. The inability to understand this sentence in the desired fashion thus does not depend on the pronouns’ bearing β-occurrences of their indices -- an explanation is equally required of why the same sentence is not understandable with α-occurrences throughout. Once such an explanation is given, however, there is no reason in principle why the same explanation cannot be carried over to the case with β-occurrences. The situation is even worse for sentences like (8), where even if there is a separate way of determining the reference of the pronoun, the same inability to assign a coherent meaning to the sentence surfaces with the pronoun bearing an α-occurrence of the index as it did with the pronoun bearing a β-occurrence. This indicates once again that the impossibility of understanding the sentence in the intended manner is independent of the semantics of dependency. Thus, while the syntactic analysis of circular dependency is well-motivated, the accompanying semantics is superfluous at best.

The significance of syntactically separating coindexing relations from dependency relations goes beyond the ability to exclude circular dependencies. In Chapter 3, Fiengo and May show how this distinction can be used to generate strict and
sloppy identity readings for standard cases of VP ellipsis. An elided VP must, it is assumed, be identical with an antecedent VP. Where indexed expressions are concerned, however, identity can come in two forms. Two indexed expressions can either be identical because they share indexical values, or they can be identical because they each enter into identical dependency relations. The former type of identity gives rise to standard strict identity readings, and the latter to standard sloppy identity readings.

To illustrate how this works, consider the sentences in (9) below.

(9) a. Max saw his mother, and Oscar did, too.
    b. Max saw his mother, and Oscar thinks Mary did, too.

As has been commonly noted in the literature since Sag (1976) and Williams (1977), the VP deletion sentence in (9a) has two distinct interpretations -- a strict interpretation under which Oscar saw Max’s mother, and a sloppy interpretation under which Oscar saw his own mother. (9b) differs from (9a), however, in not allowing the elided pronoun to refer sloppily to Oscar. That is, this sentence does not have an interpretation under which Oscar thinks that Mary saw Oscar’s mother. Accounting for the strict readings of these sentences can be accomplished by assuming that the overt pronoun *his* in each case bears an \(\alpha\)-occurrence coindexed with *Max*. Assuming the elided VP to be identical to its antecedent VP will then lead to the following
representations, each of which will yield a strict interpretation of the elided pronoun.

(10) a. Max$_1^\alpha$ saw his$_1^\alpha$ mother and Oscar$_2^\alpha$ saw his$_1^\alpha$ mother

b. Max$_1^\alpha$ saw his$_1^\alpha$ mother and Oscar$_2^\alpha$ thinks Sue saw his$_1^\alpha$ mother

If an elided VP were required to be identical to its antecedent VP, then generating a sloppy interpretation of the elided pronoun would be impossible, since the pronoun’s index would have to remain unchanged. Fiengo and May get around this problem by requiring instead that an elided VP merely be a reconstruction of its antecedent. For non-indexed expressions, reconstruction comes to the same thing as identity. For indexed expressions, however, reconstruction requires identity of indexical type ($\alpha$ or $\beta$). Further, if the expressions bear $\alpha$-occurrences, then their indexical values must be identical as well. If the expressions bear $\beta$-occurrences, on the other hand, then they must be included in identical dependency relations, though the actual value of their indices can differ. This makes it possible to generate a sloppy interpretation for the sentence in (9a) by assuming the structure for the sentence given in (11).

(11) Max$_1^\alpha$ saw his$_1^\beta$ mother and Oscar$_2^\alpha$ saw his$_2^\beta$ mother

The elided VP in (11) is a reconstruction of the overt VP since the pronouns in each are dependent and their structural relations to their antecedents are identical. Formally, in each
case the dependency is resolved within a factorization of a phrase marker by a string of the form $<\text{NP}, V, \text{NP}>$.

In addition to capturing the sloppy identity reading of (9a), this analysis also explains the absence of the relevant sloppy reading of (9b). In order for such a reading to be possible, it would be necessary to reconstruct a VP containing a pronoun with a $\beta$-occurrence coindexed with $Oscar$. The only representation which meets this requirement is that in (12).

(12) $\text{Max}_1^\alpha$ saw $\text{his}_1^\beta$ mother and $\text{Oscar}_2^\alpha$ thinks $\text{Sue}$ [saw $\text{his}_2^\beta$ mother]

While this representation has the desired interpretation, the bolded VP is not a reconstruction of its antecedent, since the two pronouns’ $\beta$-occurrences are resolved in distinct dependencies, and thus this structure is not a possible representation of the original VP deletion sentence. For the antecedent, the dependency is resolved in a string of the form $<\text{NP}, V, \text{NP}>$, while for the elided pronoun it is resolved in a string of the form $<\text{NP}, V, \text{NP}, V, \text{NP}>$.

At this point, it is necessary to address the question of when it is necessary for one expression to be a reconstruction of another. From the above discussion it is clear that this is necessary in VP deletion environments. However, there is one further class of examples in which it is also claimed to be required -- cases in which some expression is down-stressed. This requirement is imposed by Fiengo and May for the simple
reason that in all of the examples considered above, the readings available remain unchanged if the boldened material is down-stressed rather than deleted. However, this assumption—that down-stressed material must be a reconstruction of something else—leads to an insuperable problem for their analysis. To see why, consider the following example, in which \textit{small italics} is used to indicate downstress.

(13) John thinks Mary likes \textit{him}. Bill does too.

The problem this example poses comes from the down-stressed pronoun in the first sentence. By assumption, this pronoun will need to be a reconstruction of some other expression, the only available candidate being \textit{John}. This means that the pronoun will have to bear an index of the same type as \textit{John}. Since R-expressions can only bear \(\alpha\)-occurrences of an index, it follows that the pronoun too will have to bear an \(\alpha\)-occurrence of the same index in order for the down-stressing to be acceptable. If this is the case, however, then it follows that in the reconstructed VP in the second sentence in this example, the pronoun will again have to bear an \(\alpha\)-occurrence of that same index. That is, the full LF representation of this example is predicted to be the following.

(14) \(\text{John}_1^{\alpha}\) thinks Mary likes \(\text{him}_1^{\alpha}\).

\(\text{Bill}_2^{\alpha}\) [\text{thinks Mary likes } \text{him}_1^{\alpha}] too.

Thus, the second sentence is predicted to allow only a strict interpretation of the pronoun, counter to fact. This problem
for their analysis arises from insufficient consideration having been paid to the interaction between focus structure and binding, an oversight which has the potential to bring down the entire analysis.

Whereas the first three chapters primarily lay down the foundations of Fiengo and May's treatment of binding and dependency and their interaction with ellipsis, it is in Chapter 4 that the main empirical motivation for the theory is found. Chapter 4 presents three puzzles which any theory of ellipsis must be able to solve if it is to be adequate. Each of the three puzzles is shown to be eliminative: in each one, an elided VP has only a subset of the interpretations available for a non-elided VP in the same context. Ellipsis thus has the effect of eliminating certain interpretations. What is significant about these three puzzles is that no prior single theory of ellipsis resolution can simultaneously solve all three, as Fiengo and May demonstrate at length. The fact that their analysis can account for them all is thus a significant point in its favor over other current rivals.

The three puzzles each arise from considering data slightly more complex than that considered in (9). In the many pronouns puzzle, this is accomplished by adding a second pronoun to the antecedent VP, as in (15).

(15) Max said he saw his mother, and Oscar did, too
As noted by Dahl (1974), who first discovered the puzzle, keeping the overt pronouns anaphorically related to Max, the elided VP has three possible interpretations: Oscar said Max saw Max’s mother, Oscar said Oscar saw Oscar’s mother, and Oscar said Oscar saw Max’s mother. Missing is a fourth logical possibility -- Oscar said Max saw Oscar’s mother. Accounting for the available readings is formally accomplished with the following structures.

\[
\begin{align*}
\text{(16) a. } & \text{Max}_1^\alpha \text{ said } \text{he}_1^\alpha \text{ saw his}_1^\alpha \text{ mother and } \\
& \quad \text{Oscar}_2^\alpha \text{ [said he}_1^\alpha \text{ saw his}_1^\alpha \text{ mother]} \\
\text{b. } & \text{Max}_1^\alpha \text{ said } \text{he}_1^\beta \text{ saw his}_1^\beta \text{ mother and } \\
& \quad \text{Oscar}_2^\alpha \text{ [said he}_2^\beta \text{ saw his}_1^\beta \text{ mother]} \\
\text{c. } & \text{Max}_1^\alpha \text{ said } \text{he}_1^\beta \text{ saw his}_1^\alpha \text{ mother and } \\
& \quad \text{Oscar}_2^\alpha \text{ [said he}_2^\beta \text{ saw his}_1^\alpha \text{ mother]}
\end{align*}
\]

The elided VP in (16b) counts as a reconstruction of its antecedent since the $\beta$-occurrences of the pronouns in each VP are resolved in structurally identical dependencies, having the form $\langle \text{NP, V, NP, V, NP} \rangle$. Likewise, the relevant dependencies in (16c) are identical, resolved in strings of the form $\langle \text{NP, V, NP} \rangle$. However, in the following representation, necessary for producing the illicit fourth interpretation, the elided VP is not a reconstruction of its antecedent.

\[
\begin{align*}
\text{(17) } & \text{Max}_1^\alpha \text{ said he}_1^\alpha \text{ saw his}_1^\beta \text{ mother and } \\
& \quad \text{Oscar}_2^\alpha \text{ [said he}_1^\alpha \text{ saw his}_1^\beta \text{ mother]}
\end{align*}
\]

The reason for this is that the $\beta$-occurrence in the antecedent is resolved in a dependency of the form $\langle \text{NP, V, NP} \rangle$, whereas that in the elided VP is resolved in a dependency of the form $\langle \text{NP, V,}$
NP, V, NP>. It is of course critical to this explanation of the data that the pronoun bearing the $\beta$-occurrence in the antecedent not be resolvable in a dependency having Max as its antecedent. This is ensured under Fiengo and May’s analysis by defining dependencies in such a way that there can only be one expression bearing an $\alpha$-occurrence of the variable in the dependency. If the pronoun were taken to depend on Max, then the dependency would illicitly contain two $\alpha$-occurrence -- Max and he.

The second of the eliminative puzzles posed by Fiengo and May involves adding extra clauses containing an elided VP, and is thus labeled the many clauses puzzle. This puzzle is illustrated in (18).

(18) Max saw his mother, Oscar did too, but Sam didn’t. Fiengo and May observe that with the overt pronoun understood as anaphoric to Max, examples of this sort can be understood in an across-the-board strict manner (Oscar saw Max’s mother but Sam didn’t see Max’s mother) or in an across the board sloppy manner (Oscar saw Oscar’s mother but Sam didn’t see Sam’s mother), but do not permit of mixed readings. This puzzle falls out as a direct consequence of their analysis, since whichever type of index appears on the overt pronoun will also have to appear on each of the elided pronouns. Thus, the only two representations in which his is coindexed with Max and each elided VP reconstructs the overt VP will be the following.

(19) a. Max$_1$$^\alpha$ saw his$_1$$^\alpha$ mother, Oscar$_2$$^\alpha$ [saw his$_1$$^\alpha$ mother],
but Sam\(_3^{\alpha}\) [didn’t see his\(_1^{\alpha}\) mother]

b. Max\(_1^{\alpha}\) saw his\(_1^{\beta}\) mother, Oscar\(_2^{\alpha}\) [saw his\(_2^{\beta}\) mother], but Sam\(_3^{\alpha}\) [didn’t see his\(_3^{\beta}\) mother]

The final puzzle Fiengo and May consider is a variation of the many clauses puzzle posed by Dahl (1973), illustrated in (20).

(20) Max thinks he is strong, Oscar does, too, but his father doesn’t.

In addition to across-the-board strict and across-the-board sloppy readings, this sentence also permits a reading in which the second clause is read sloppily (Oscar thinks Oscar is strong) but the third is read strict relative to the second (Oscar’s father doesn’t think Oscar is strong). As Fiengo and May note, this third reading is only possible if the pronoun his in the third clause is taken as referring to Oscar. They account for this puzzle by allowing a \(\beta\)-occurrence of a pronoun to be reconstructed without changing its index, provided that the reconstructed pronoun is properly resolvable in its own dependency. Thus, the third “Dahl” reading will be accounted for with the following representation.

(21) Max\(_1^{\alpha}\) thinks he\(_1^{\beta}\) is strong, Oscar\(_2^{\alpha}\) [thinks he\(_2^{\beta}\) is strong], [his\(_2^{\alpha}\) father]\(_3^{\alpha}\) [doesn’t think he\(_2^{\beta}\) is strong]

In this representation, the second VP reconstructs the first since the \(\beta\)-occurrences of the pronouns are resolved in identical dependencies. The third VP furthermore reconstructs the second since it is identical to the second. The fact that the two
\( \beta \)-occurrences in these two VPs enter into distinct dependencies is irrelevant since they each bear an occurrence of the same index. Since the reconstructed \( \beta \)-occurrence of the pronoun in the third clause is resolved in a dependency with the pronoun \( \text{his}_2^a \) in that clause, it satisfies Dependency Theory, and the sentence is correctly predicted to be acceptable with a "Dahl" interpretation.

The final two chapters are concerned with the precise characterization of when a given expression qualifies as a reconstruction of another expression, and where the notion of reconstruction is checked. While often obscured by the inherent asymmetry involved in ellipsis, reconstruction as a measure of syntactic identity is a symmetrical relation — if \( x \) reconstructs \( y \), then \( y \) also reconstructs \( x \). In the preceding chapters, the question of when two expressions are reconstructions of one another was examined in the context of ellipsis of a VP whose antecedent contains a pronoun. There it was tacitly assumed that the elided VP was identical to the antecedent VP in also containing a pronoun, and the two pronouns were shown to be reconstructions of one another just in case they either shared the same indexical value or entered into identical syntactic dependencies. The last two chapters sharpen the notion of reconstruction by considering VP deletion in larger discourse contexts, ellipsis of VPs whose antecedents
contain anaphors and names, and antecedent contained deletion among other phenomena.

The most important conclusion drawn in these final chapters is that indexed expressions differing in features unrelated to indices can reconstruct one another. In fact, the only conditions which need to be met for two indexed expressions to count as reconstructions of one another are the conditions laid out above restricting the indices themselves. This leaves open the possibility of a pronoun reconstructing an anaphor, a name reconstructing a variable, etc. The phenomenon of one indexed expression reconstructions another, lexically distinct indexed expression is referred to as vehicle change, and is illustrated in each of the following examples, where the bracketed expressions represent material that is either inaudible or down-stressed, and the vehicle changed expressions are in italics.

(22) a. Bush$_1$ voted for him$_1$"self, but Barbara didn’t [vote for him$_1$]"b.
    b. Mary believes him$_1$ to be heroic, and Max$_1$ does [believe him$_1$"self to be heroic] too
    c. Dulles suspected Philby$_1$, who Angleton did [suspect e$_1$] too
    d. Max didn’t talk to anyone, but Oscar did [talk to someone]
    e. Mary loves John$_1$, and he$_1$ thinks Sally does [love him$_1$] too
    f. I shaved John$_1$ because he$_1$ wouldn’t [shave him$_1$"self]
While appeal to the notion of vehicle change makes it possible to account for examples like those given in (22) above, allowing for this possibility within the syntax opens the floodgates for constructing novel representations for sentences containing ellipses. Indeed, one begins to wonder if there will remain any elliptical sentences determined by the grammar to be unacceptable if vehicle change is left unconstrained. To give an idea of the kinds of analyses which vehicle change opens up, consider again the many clauses puzzle, illustrated earlier with the sentence *Max saw his mother, Oscar did, but Sam didn’t*. By allowing for vehicle change, it now becomes possible for the underlying structure of the ellipses to be as in (23).

(23) a. $\text{Max}_1^\alpha$ saw $[\text{his}_1^\beta \text{mother}]_2^\alpha$, Oscar saw $\text{her}_2^\alpha$, but $\text{Sam}_3^\alpha$ didn’t see $\text{his}_3^\beta \text{mother}$

b. $\text{Max}_1^\alpha$ saw $\text{his}_1^\beta \text{mother}$, $\text{Oscar}_4^\alpha$ saw $[\text{his}_4^\beta \text{mother}]_2^\alpha$, but $\text{Sam}$ didn’t see $\text{her}_2^\alpha$

In these structures, the full NP *his mother* is vehicle changed to the pronoun *her*, preserving both indexical type and value, and thus the resulting elided VP counts as a reconstruction of the overt VP. Yet the readings associated with these structures are just the readings that are claimed in Chapter 4 to be unavailable in the many clauses puzzle — mixed strict and sloppy readings.

Further discrepancies arise throughout these last two chapters as the mechanisms developed start to become more and more powerful and interactions between them more and more
complex. A particular instance in which this complexity works against Fiengo and May relates to the following example (their (85), p.271).

(24) Mary introduced him to everyone that he did

This sentence is claimed to be unacceptable on a coreferential interpretation of the pronouns *him* and *he*. That is, it cannot mean that for some male person *x*, Mary introduced *x* to everyone that *x* introduced *x* to. However, by piecing together parts of their analysis argued for in different parts throughout the book, it is possible to derive a well-formed LF representation which has just this interpretation. The relevant LF structure is given in (25), where the quantified phrase has been adjoined to the matrix IP via QR, and the reconstructed VP is shown in bold.

(25) everyone that he\(^{1}\) did [introduce him\(^{1}\)\_\_self to e] [Mary introduced him\(^{1}\)\_\_to e]

In this representation, the overt pronoun *him* bears a \(\beta\)-occurrence of the index 1, resolvable by the \(\alpha\)-occurrence of *he*. *Him* is then vehicle changed to the anaphor *himself* in the elided VP. While the two \(\beta\)-occurrences are resolved in non-identical dependencies, they still count as reconstructions of one another since the value of the index has not been changed (cf. the solution to the Dahl puzzle above). The example is thus predicted to have exactly the interpretation it is claimed not to have.
Despite the shortcomings one finds in *Indices and Identity*, the book should be praised for its clarity of presentation as well as for its depth and breadth of empirical coverage. Throughout the book, Fiengo and May present their theory in precise terms, making clear what their predictions are and following up on an impressive number of those predictions. Indeed, the limited scope of this review does not do proper justice to the full range of data addressed and the full theoretical scope of the book. The areas I have left out of this review for reasons of space are extensive -- plural anaphora, *de re* and *de se* belief, control, antecedent contained deletion, Discourse Representation Theory, E-type pronouns, parasitic gaps, crossover, predication and quantification are just some of the areas addressed and related to their analysis at various points. Their review of the literature is also thorough and to the point, clearing away several previous misconceptions regarding the interrelations between indexing, binding, dependency, and ellipsis. It thus simultaneously provides a look at where the theory has been, and a position from which the theory can continue to advance. For anyone interested in the kinds of problems addressed in this book, *Indices and Identity* is essential reading.
Bibliography


