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Surface structure in Montague grammar. As the result of the current interest of many linguists in the investigation of Montague grammar as an interesting framework for the semantic description of natural languages, certain fundamental assumptions about what has traditionally been called 'surface structure' have been reexamined. Several analysts have independently demonstrated the possibility of directly 'building up' surface structures which, under previous analyses, had to be transformationally derived from different structures--thus, it has been shown[1] that neither passives, shifted datives, pseudo-cleft sentences, prenominal adjectives, common-noun anaphors, 'equi' sentences, nor 'raising' sentences need be secondarily produced. Such work is evidence of a procedural assumption that is definitely 'in the air' among some if not all Montague grammarians--namely that, in the absence of good evidence to the contrary, no surface construction should be treated as arising secondarily from some putatively antecedent structure.

It is certainly a matter of interest to see how far one can go with such a strong methodological guideline. For example, it suggests that ellipsis constructions should be treated as basic, underived from the corresponding full constructions; that is, it suggests that ellipsis be approached interpretively. What I would like to do here is to discuss the ramifications of this suggestion for the treatment of the familiar brand of verbal ellipsis known as gapping; this discussion will be based on a necessarily schematic interpretive treatment of gapping in a Montague framework.

The interpretive analysis of gapping. Before proceeding, I want to make explicit what I mean by an interpretive analysis of gapping. Under such an analysis, the ellipsis ('gap') itself should not be thought of as a constituent, since (i) it has none of the characteristics of constituency; (ii) ellipses would otherwise have to occur as expressions of a number of different syntactic categories, including a few without independent motivation; and (iii) a treatment of ellipses as phonetically null constituents would violate the well-formedness constraint (see Partee (ms.)).[2] Neither, under what I am calling an interpretive analysis of gapping, may the ellipsis be thought of as a structurally complex stretch of empty phrase structure: this tack, taken by Jackendoff (1972), is meant to allow gappings to undergo NP-moving transformations (e.g. to allow the gapping in 1 to be passivized as 2); it must also be

1. $[_S[_S[_{NP}\text{John}][_{AUX}\text{Pres}][_{VP}[_V\text{find}][_{NP}\text{Mary}]]]$ and $[_S[_{NP}\text{Bill}]$
   $[_{AUX}\Delta][_{VP}[_V\Delta][_{NP}\text{Jane}]]]]$
2. $[_S[_S[_{NP}\text{Mary}][_{AUX}\text{is}][_{VP}[_V\text{found}][\text{by}[_{NP}\text{John}]]]]$ and
   $[_S[_{NP}\text{Jane}][_{AUX}\Delta][_{VP}[_V\Delta][\text{by}[_{NP}\text{Bill}]]]]]$

ruled out for reasons (i) and (iii) (and it would be unmotivated in a system without movement transformations, anyway). In short, what is meant by an interpretive treatment of gapping is one in which the gapped clause, analyzed as consisting only of its two 'remnant constituents' (thus, 1 would be reanalyzed as 3), receives an incomplete interpretation, the remainder of which is derived from the interpretation of the full antecedent clause. It is this fully interpretive conception of gapping

3. $[_t[_t[_T\text{John}][_{IV}[_{TV}\text{finds}][_T\text{Mary}]]]$ and $[_t[_T\text{Bill}][_T\text{Jane}]]]$

which will be explored here.

<u>The syntax of gappings.</u> Evidently, an interpretive analysis of gapping involves a strictly compositional syntax. Gapped clauses are to be built up directly by the concatenation of the preelliptical with the postelliptical remnant constituent. Sag (1976) correctly observes that the remnants of a gapping are both major phrasal constituents--that is, a given remnant might be thought to belong to one of the six major phrasal categories in 4.

4. T - the category t/IV of terms
   A - the category CN/CN of adcommon-nouns (adjectives)
   IV - the basic category of intransitive verb phrases
   AV - the category IV/IV of adverbs
   t - the basic category of declarative sentences
   At - the category t/t of adsentences

Thus, all possible gapped clauses may be produced by a structural operation effecting the concatenation of two major phrasal constituents (at the same time introducing the objective form of a personal pronoun occurring as the second of these, or introducing syncategorematic <u>that</u> if the second of these is a sentence):[3]

5. $F_0([_A\alpha],[_t\phi]) = [_t[_A\alpha]$ that $[_t\phi]]$, where A is a major phrasal category;
$F_0([_A\alpha],[_T he]) = [_t[_A\alpha][_T him]]$, where A is as above;
$F_0([_A\alpha],[_B\beta]) = [_t[_A\alpha][_B\beta]]$, where A,B are major phrasal categories and $[_B\beta]$ isn't as above.

By means of this structural operation, gapped clauses such as 6-8 are produced.

6. $[_t[_T \text{Mary}][_{AV} \text{quickly}]]$
7. $[_t[_{IV} \text{to run}][_A \text{exuberant}]]$
8. $[_t[_{At} \text{daily}]$ that $[_t[_T \text{John}][_{IV} \text{talks}]]]$

Structures like this are conjoined with full structures by the rule 9 of sentence conjunction,[3] the result being sentences like 10-12.

9. $F_1([_t\phi],[_t\psi]) = [_t[_t\phi]$ and $[_t\psi]]$
10. $[_t[_t[_T \text{John}][_{IV}[_{IV} \text{runs}][_{AV} \text{slowly}]]]$ and $[_t[_T \text{Mary}][_{AV} \text{quickly}]]]$
11. $[_t[_t[_{IV} \text{to walk}][_{IV}[_{TV/IV} \text{makes}][_T \text{him}][_{IV}[_{IV/A} \text{feel}][_A \text{content}]]]]$ and $[_t[_{IV} \text{to run}][_A \text{exuberant}]]]$
12. $[_t[_t[_{At} \text{weekly}][_t[_T \text{Bill}][_{IV}[_{IV/t} \text{denies}]$ that $[_t[_T \text{Mary}][_{IV} \text{walks}]]]]]$ and $[_t[_{At} \text{daily}]$ that $[_t[_T \text{John}][_{IV} \text{talks}]]]]$

<u>The interpretive semantics of gappings.</u> The interpretation of structures like 10-12 is to be induced by their translation into intensional logic (IL).[4] In what follows, I shall adopt the IL-translation scheme set forth in Cooper (1975:175-88), whereby possibly ambiguous syntactic expressions translate as sets of sequences of sequences of IL expressions (a setup which allows Cooper to dispense with the disambiguated language and to treat quantification interpretively); the advantage of this framework in the present context is its special suitability for interpretive accounts. I must necessarily assume familiarity with this work.

The key to the interpretive semantics of gappings is the pair of IL-translation rules corresponding to the syntactic rule 5 of gapped clause formation and the rule 9 of sentence conjunction.

The translation rule corresponding to 5 supplies an unbound variable for the missing portion of the translation of a gapped clause. Its statement is as follows (here and henceforth, I follow Cooper's practice of using α' to represent the first member of any one of the sequences (of sequences) in the translation of α; α'' to represent all remaining members of that sequence; and $\{<\beta>\}$ to represent the set of sequences of the form $<\beta>$):

13. If $[_A\alpha],[_B\beta]$ translate as $\{<<\alpha'>,\alpha''>\},\{<<\beta'>,\beta''>\}$ respectively, then $F_0([_A\alpha],[_B\beta])$ translates as
$\{<<v_{0,<s,g((t/A)/B)>}\{\hat{}\beta'\}(\hat{}\alpha')>,\alpha'',\beta''>\}$
where A,B are major phrasal categories.

This rule translates 10–12 as the respective sets 14–16:

14. $\{<v_{0,<s,g((t/T)/AV)>}\{\hat{}quickly'\}(\hat{P}P\{m\})>,<<v_0\{\hat{}quickly'\}(\hat{P}P\{x_n\})>,<\lambda PP\{m\},x_n>>\}$
15. $\{<v_{0,<s,g((t/IV)/A)>}\{\hat{}exuberant'\}(\hat{}run')>\}$
16. $\{<v_{0,<s,g((t/At)/t)>}\{\hat{}[talk'(j)]\}(\hat{}daily')>,$
$<<v_0\{\hat{}[talk'(x_n)]\}(\hat{}daily')>,<\lambda PP\{j\},x_n>>\}$

Now, coordinate clauses introduced by the rule 9 of sentence conjunction will receive their standard translation when F_1 has two full sentences as its arguments; if, however, the second argument of F_1 is a gapped clause α (produced by 5), then the translation of the resulting expression will involve a procedure whereby the free variable introduced in the translation of α (by 13) is bound by part of the translation of the full antecedent clause β. To state this procedure in a precise way, reference will have to be made to the singleton first member of that second order sequence in which the translation of each term phrase in β is stored. This will be the <u>least translation</u> of β: the singleton first member of that second order sequence in the set of second order sequences into which β translates containing the greatest number of member sequences. Thus, for example, the least translation of 8 is 17, as can be inferred from 16.

17. $<v_{0,<s,g((t/At)/t)>}\{\hat{}[talk'(x_n)]\}(\hat{}daily')>$

By making use of this notion, we can state the IL-translation rule corresponding to 9 as follows:

18. If $[_t\phi],[_t\psi]$ translate as $\{<<\phi'>,\phi''>\},\{<<\psi'>,\psi''>\}$ respectively, then
(i) $F_1([_t\phi],[_t\psi])$ translates as $\{<<\phi' \wedge \psi'>,\phi'',\psi''>\}$,
if both $[_t\phi]$ and $[_t\psi]$ contain a finite main verb;
(ii) if $[_t\psi]$ is of the form $[_t[_A\alpha][_B\beta]]$ (where A,B are

major phrasal categories) and contains no finite main verb, then $F_1([_t\phi],[_t\psi])$ translates as $\{\langle\langle\phi' \wedge \lambda v_{0,\langle s,g((t/A)/B)\rangle}\psi'(T)\rangle,\phi'',\psi''\rangle\}$ for each T, where: $[_t\phi]$ has the internal structure $[_t[_A\delta] - X - [_B\gamma] - Y]$ (where X contains the finite main verb of $[_t\phi]$, if such exists, or is otherwise null) and the respective least translations of $[_A\delta],[_B\gamma]$ are $\check{}\Sigma, \check{}\Omega$ and $T\{\Omega\}(\Sigma)$ is logically equivalent to the singleton first member of some translation of $[_t\phi]$.[5]

Clause (ii) of 18 is very complex, and is best illuminated with an example. Consider sentence 19.

19. $[_t[_t[_T\text{John}][_{IV}[_{TV}\text{seeks}][_T[_{DET}\text{a}][_{CN}\text{unicorn}]]]]$ and $[_t[_T\text{Mary}][_T[_{DET}\text{a}][_{CN}\text{centaur}]]]]$

The first coordinate clause of 19 receives 20 as its translation, in accordance with Cooper's IL-translation procedures.

20. $\{\langle\lambda PP\{j\}\,\hat{}(\text{seek}'(\hat{P}\bigvee x[\text{unicorn}'(x) \wedge P\{x\}]))\rangle,$
$\langle\langle\lambda PP\{j\}\,\hat{}(\text{seek}'(\hat{P}P\{x_1\}))\rangle,\langle\lambda P\bigvee x[\text{unicorn}'(x) \wedge P\{x\}],x_1\rangle\rangle,$
$\langle\lambda PP\{j\}(\hat{y}\bigvee x[\text{unicorn}'(x) \wedge \text{seek}'(y, \hat{P}P\{x\})]\rangle,$
$\langle\langle\lambda PP\{x_0\}\,\hat{}(\text{seek}'(\hat{P}\bigvee x[\text{unicorn}'(x) \wedge P\{x\}]))\rangle,\langle\lambda PP\{j\},x_0\rangle\rangle,$
$\langle\langle\lambda PP\{x_0\}\,\hat{}(\text{seek}'(\hat{P}P\{x_1\}))\rangle,\langle\lambda PP\{j\},x_0\rangle,\langle\lambda P\bigvee x[\text{unicorn}'(x)$
$\wedge P\{x\}],x_1\rangle\rangle,$
$\langle\langle\lambda PP\{x_0\}(\hat{y}\bigvee x[\text{unicorn}'(x) \wedge \text{seek}'(y, \hat{P}P\{x\})])\rangle,$
$\langle\lambda PP\{j\},x_0\rangle\rangle,$
$\langle\bigvee x[\text{unicorn}'(x) \wedge \text{seek}'(j, \hat{P}P\{x\})]\rangle\}$

By 13, the second coordinate clause of 19 translates as 21:

21. $\{\langle v_{0,\langle s,g((t/T)/T)\rangle}\{\hat{P}\bigvee x[\text{centaur}'(x) \wedge P\{x\}]\}(\hat{P}P\{m\})\rangle,$
$\langle\langle v_0\{\hat{P}P\{x_2\}\}(\hat{P}P\{m\})\rangle,\langle\lambda P\bigvee x[\text{centaur}'(x) \wedge P\{x\}],x_2\rangle\rangle,$
$\langle\langle v_0\{\hat{P}\bigvee x[\text{centaur}'(x) \wedge P\{x\}]\}(\hat{P}P\{x_3\})\rangle,\langle\lambda PP\{m\},x_3\rangle\rangle,$
$\langle\langle v_0\{\hat{P}P\{x_2\}\}(\hat{P}P\{x_3\})\rangle,\langle\lambda PP\{m\},x_3\rangle,\langle\lambda P\bigvee x[\text{centaur}'(x)$
$\wedge P\{x\}],x_2\rangle\rangle,$
$\langle\bigvee x[\text{centaur}'(x) \wedge v_0\{\hat{P}P\{x\}\}(\hat{P}P\{m\})]\rangle\}$

Given these facts, it can be seen how 18(ii) binds all occurrences of $v_{0,\langle s,g((t/T)/T)\rangle}$ in 21: since the respective least translations of $[_T \text{John}]$ and $[_T [_{DET} \text{a}][_{CN} \text{unicorn}]]$ in 20 are $\lambda PP\{x_0\}$ and $\lambda PP\{x_1\}$, there is clearly only one value for T in 20, namely 22.

22. $\hat{}\lambda\mathcal{Q}\lambda\mathcal{P}\mathcal{P}\{\hat{}(\text{seek}'(\check{}\mathcal{Q}))\}$

Thus, $\{\langle\lambda v_{0,\langle s,g((t/T)/T)\rangle}\psi'(T)\rangle\}$ is 23.

23. $\{\langle\lambda PP\{m\}\hat{}(\text{seek}'(\hat{P}\bigvee x[\text{centaur}'(x) \wedge P\{x\}]))\rangle,$
$\langle\lambda PP\{m\}\hat{}(\text{seek}'(\hat{P}P\{x_2\}))\rangle,$
$\langle\lambda PP\{x_3\}\hat{}(\text{seek}'(\hat{P}\bigvee x[\text{centaur}'(x) \wedge P\{x\}]))\rangle,$
$\langle\lambda PP\{x_3\}\hat{}(\text{seek}'(\hat{P}P\{x_2\}))\rangle,$
$\langle\bigvee x[\text{centaur}'(x) \wedge \lambda PP\{m\}\hat{}(\text{seek}'(\hat{P}P\{x\}))]\rangle\}$

24. $\{\langle\langle\phi' \wedge \lambda v_{0,\langle s,g((t/T)/T)\rangle}\psi'(\hat{}\lambda\mathcal{Q}\lambda\mathcal{P}\mathcal{P}\{\hat{}(\text{seek}'(\check{}\mathcal{Q}))\})\rangle,$
$\phi'', \psi''\rangle\}$

These are the values of $\lambda v_{0,\langle s,g((t/T)/T)\rangle}\psi'(T)$ that will occur in the translation 24 of 19. Note that every distinct reading of the first coordinate clause of 19 has a parallel reading in 23.

This framework is apparently powerful enough to account for most instances of gapping in active coordinate clauses.[6] Note that although a syntax incorporating 5 and 9 would overgenerate, producing all kinds of unlikely gappings (e.g. 25-27), these

25. $[_t [_t [_T \text{John}][_{IV} [_{IV} \text{runs}][_{AV} \text{slowly}]]]$ and $[_t [_T \text{Bill}]$
$[_A \text{exuberant}]]]$

26. $[_t [_t [_{IV} \text{to walk}][_{IV} [_{TV/IV} \text{makes}][_T \text{him}][_{IV} [_{IV/A} \text{feel}]$
$[_A \text{content}]]]]$ and $[_t [_T \text{Mary}][_{AV} \text{quickly}]]]$

27. $[_t [_t [_{At} \text{weekly}][_t [_T \text{Bill}][_{IV} [_{IV/t} \text{denies}]$ that $[_t [_T \text{Mary}]$
$[_{IV} \text{walks}]]]]]$ and $[_t [_{At} \text{sometimes}][_{At} \text{on Thursday}]]]$

would, of course, be completely uninterpretable in the semantics.

I shall now discuss the advantages and disadvantages of this interpretive approach to gapping.

Discussion. Among the advantages of the interpretive approach just discussed are a few formal ones. First, it allows stacked gappings (as in 28) to be treated exactly like single gappings.

28. John likes Mary, Bill Jane, and Harry Susan.

That is, the IL translations assigned to the syntactic derivation 29 by 18 are well-formed. No proposed deletion for-

29. $F_1([_t[_T\text{John}][_{IV}[_{TV}\text{likes}][_T\text{Mary}]]], F_1([_t[_T\text{Bill}][_T\text{Jane}]], [_t[_T\text{Harry}][_T\text{Susan}]]))$

mulation can account for gappings like 28 without some kind of ad hoc assumption as to how rules apply.

Also, if, as Ross (1970) originally suggested, gapping is to be stated once for all in the theory of grammar, then the approach outlined here affords a more elegant account of the apparent correlation of a language's word order typology to the order of a gapped clause with respect to its antecedent clause in that language. We could, for example, stipulate that in VO languages, the structural operation F_1 is as in 9, but that in OV languages, $F_1([_t\phi],[_t\psi]) = [_t[_t\psi]$ and $[_t\phi]]$; no change whatever would then be necessary in the statement of 18. This would reduce the difference between gappings in VO languages and those in OV languages to the most shallow possible level--a difference in the order of constituents. No deletion formulation of gapping can be so simply treated as expressing a near-universal fact about this type of verbal ellipsis without recourse to such theoretically doubtful devices as mirror-image rules, etc.

Thirdly, deletion analyses of gapping have always required the possibility of two deletion sites, so as to account for gappings such as 30. Thus, the deletion treatment of gapping

30. John eats a cake with a fork, and Bill ∅ a pie ∅.

must be formulated so as to allow an optional second deletion site--that is, as a conflation of two separate structural operations. The nontransformational approach discussed here affords a truly unitary account of both continuous and discontinuous gaps, since, as can be simply verified, it produces sentences such as 30 exactly as it produces any other gapping.

A more substantive advantage of the interpretive approach to gapping is its superior account of sloppy identity. Consider sentence 31.

31. John shaves his brother quickly, and Bill, slowly.

This sentence has one reading in which John and Bill are understood to shave different individuals, namely the sloppy identity reading in which each shaves his own brother. In the interpretive framework I have sketched, the assignment of this sloppy reading to the gapped clause in 31 proceeds exactly like the assignment of any other kind of reading: the first clause of 31 will receive, among others, the following translations:

32. a. $<<\lambda PP\{x_0\}(\hat{x}[\text{quickly}'(\hat{}\text{shave}'(x, \hat{P}P\{y\})) \wedge$

$brother'_*(y,x)]\})>, <\lambda PP\{j\}, x_0>>$

b. $<<\lambda PP\{x_0\}(\hat{x}[quickly'(\hat{}shave'(x, \hat{P}P\{y\})) \wedge brother'_*(y,x_0)])>, <\lambda PP\{j\}, x_0>>$

The gapped clause in 31, before its conjunction with its antecedent clause, receives 33 as one of its translations:

33. $<v_{0,<s,g((t/T)/AV)>}\{\hat{}slowly'\}(\hat{P}P\{b\})>$

Since $\lambda PP\{x_0\}$ and quickly' are the respective least translations of $[_T John]$ and $[_{AV} quickly]$, translations 32a and b will supply the respective expressions 34a and b for the binding of v_0 in 33 by 18 once conjunction has taken place. That is, once the

34. a. $\hat{}\lambda v_{<s,g(AV)>}\lambda\mathcal{P}\mathcal{P}\{\hat{x}[v\{\hat{}shave'(x, \hat{P}P\{y\})\} \wedge brother'_*(y,x)]\}$

b. $\hat{}\lambda v_{<s,g(AV)>}\lambda\mathcal{P}\mathcal{P}\{\hat{x}[v\{\hat{}shave'(x, \hat{P}P\{y\})\} \wedge brother'_*(y,x_0)]\}$

gapped clause in 31 has been conjoined with the full antecedent clause, it gains the translations in 35 (among others):

35. a. $<\lambda PP\{b\}(\hat{x}[slowly'(\hat{}shave'(x, \hat{P}P\{y\})) \wedge brother'(y,x)])>$

b. $<\lambda PP\{b\}(\hat{x}[slowly'(\hat{}shave'(x, \hat{P}P\{y\})) \wedge brother'(y,x_0)])>$

35a is the basis for the sloppy identity reading of 31.

Now, in a deletion approach to gapping, the fact that there is a reading of 31 in which John and Bill are asserted to shave different individuals must be provided for in the identity condition on deletion. The problem is that a precise syntactic characterization of sloppy identity appears to be much less than simple. Thus, sloppy readings of gapped clauses are automatically provided for in the present framework, whereas they must be accounted for with very complex, ad hoc restrictions on deletion if gapping is to be treated as a deletion transformation.

There are, nevertheless, some outstanding problems with the interpretive approach. First, one of the best arguments against any nondeletion approach to gapping is Hankamer's (1973) observation that, for example, in the gapped clause of a sentence such as 36, the occurrence of the preposition on (as opposed to some other) cannot be guaranteed without recourse to some ad hoc device above and beyond mere strict subcategorization, if the gap in 36 is basic. We might stipulate that the IL

36. Bill depends on Harry and Harry on Bill.

translation of depend is defined only for arguments of the form on'($\mathcal{P}$); but this would be begging the question of whether depend on shouldn't be analyzed as a constituent, and depends on the conclusion that it shouldn't. Available evidence, however, suggests that depend on (agree with, decide on, etc.) is an idiom, and should therefore be treated as a constituent--which makes Hankamer's argument look very strong indeed.

But an even more serious problem with this approach to gapping is the power of 18(ii): in translating $F_1([_t\phi],[_t\psi])$, it must mention the independent IL translations of two different constituents of $[_t\phi]$; thus, it is too powerful to fit Montague's (1970:226) definition of a derived syntactic rule of IL or Cooper's (1975:181) adaptation of this definition to his own semantics. Now, Montague (1970:232) requires that the relation between two languages determined by the translation base from one into the other be homomorphic; the relation required by Cooper (1975:184) isn't homomorphism, but is an 'adjustment' of this notion to his own semantics, in which expressions of the syntax translate as second order sequences of IL expressions, and in which syntactic rules correspond to sets of derived syntactic rules of IL. Evidently, 18(ii) would entail a more complex kind of relation between English syntax and intensional logic than mere homomorphism or the corresponding relation defined by Cooper. What's worse, the need for rules of this character appears to be endemic to the interpretive treatment of all ellipsis constructions but those that are 'right-peripheral'.[7]

Conclusion. It can be concluded from this admittedly sketchy glance at the subject that interpretive gapping isn't possible within the Universal Grammar semantic framework, nor within the interpretively-oriented variant presented by Cooper. Whether this is to be taken as a sign of descriptive deficiency in these frameworks or, more likely, as evidence favoring a deletion analysis of gapping is an empirical question, the final answer to which will bear significantly on the broader question of how widely-needed transformations are for the description of English surface structure.

Footnotes

I would like to thank David Dowty for his discussion of earlier versions of this paper. All errors of fact or judgement are mine.

1. See, for example, Dowty (ms.), Thomason (1976), Partee (ms.) and Stump (1978) for nontransformational treatments of the constructions listed.

2. I have investigated the possibility of treating gaps as basic syntactic variables, bound in much the same way as personal pronouns in PTQ: thus, an expression like John $\emptyset_0$ Mary

and Bill $\emptyset_0$ Jane is bound by an expression like try to kiss to yield John tries to kiss Mary and Bill $\emptyset$ Jane. In addition to (i)-(iii), the approach is subject to the further difficulty that (iv) the binding expression must be a nonconstituent. A variant of this approach in which the syntactic gap-variables ('$\emptyset_0$') are traded for a procedure for parsing out the first gap and filling it in with the binding expression is subject to objection (iv) only. Neither interpretive gapping nor deletion gapping is subject to any of (i)-(iv).

3. Note that since this structural operation is defined for bracketed expressions, it also subsumes the role of syntactic rule.

4. For simplicity's sake, I shall assume a translation base that is unsorted (in Cooper's sense).

5. Those instances in which T contains vacuous lambda-abstractions being somehow ruled out.

6. It can also be made to account for passive gappings (John was kicked by Mary and Bill by Jane) by adapting Thomason's (ms.) nontransformational treatment of passives into Cooper's semantic framework and by analyzing by-phrases as major phrasal constituents.

7. Nontransformational analyses of gapping that aren't purely interpretive aren't necessarily susceptible to this formal problem in the semantics. The variable-binding approaches mentioned in footnote 2 aren't, despite their syntactic problems.

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