Parentheticals and Discontinuous Constituent Structure
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Source: *Linguistic Inquiry*, Vol. 13, No. 1 (Winter, 1982), pp. 91-106
Published by: The MIT Press
Stable URL: http://www.jstor.org/stable/4178261
Accessed: 04/01/2010 08:08

James D. McCawley

Parentheticals and Discontinuous Constituent Structure

Discontinuous constituents figured fairly prominently in the syntactic analyses offered by descriptivist linguists. For example, Wells (1947, §§55–62) argued for the following constituent structures:

(1) a.

a better movie than I expected

b.

an easy book to read

c.

his father according to John is the richest man in Scarsdale

d.

wake your friend up

In each case the circled node is a discontinuous constituent: it dominates items without dominating everything that is between them. For instance, the circled node in (1a) dominates *better* and *than I expected* but not *movie*.

Such structures have been uniformly rejected within transformational grammar, though for reasons which (in the rare instances in which any reasons have been offered) are of little substance. The case against discontinuous structure was given in its entirety in a brief passage in Postal (1964, 69–70), where the following two arguments were made. First, in all cases such as (1a–d), a transformational analysis is available in which the construction is derived from a continuous underlying structure, as in (2); thus, the unity of the combination that is treated in (1) as discontinuous can be expressed without resort to discontinuous structure:[1]

An earlier version of this article was read at the 1980 summer meeting of the Linguistic Society of America at the University of New Mexico, Albuquerque. I wish to thank Frederick J. Newmeyer, Paul M. Postal, Evelyn Ransom, and two anonymous *LI* referees for valuable comments on earlier drafts of this article.

[1] To maximize comparability among the analyses discussed in this article, I have in every case labeled the nodes of trees in accordance with my present conception of syntactic category, for details of which the reader is referred to McCawley (1981). It shares with "X-bar syntax" the identification of the lexical category of the head of an item as an independent factor in the item's syntactic behavior, while rejecting the conception of base rules accepted in orthodox X-bar syntax.

Linguistic Inquiry, Volume 13, Number 1, Winter 1982
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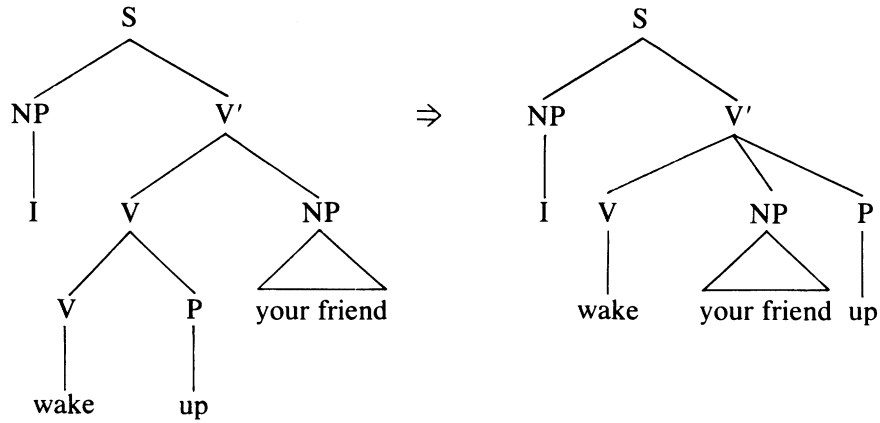
(2)



Second, Postal argued that proponents of discontinuous structures could not derive such structures through any algorithm for "assigning constituent structure" to strings in a rewriting rule derivation such as Postal and Chomsky assumed to be responsible for the (continuous) constituent structure that figured in their "base structures".

The first argument is an argument from ignorance. The claim that the *surface* constituent structure of *I woke your friend up* can be continuous was not supported by any survey of linguistic phenomena where it might make any difference whether *woke up* is a surface constituent of that sentence. The second argument rests on an assumption that is commonly assented to by transformational grammarians but which is in fact independent of most of the claims of transformational grammar, namely the assumption that strings are more basic than trees and that trees are available only as a side-product of derivations that operate in terms of strings. As best I can determine, the prevalence of that belief resulted only from the historical accident that early transformational grammarians knew some automata theory but no graph theory; that is, they had the mathematical prerequisites for talking with some precision about sets of strings but not about sets of trees. This deficiency has long since been rectified, e.g. in McCawley (1968) and Wall (1972, 144–152). The notion of tree is in fact available as a linguistic primitive for anyone who wishes to take it as such; and phrase structure rules and transformations can be formulated directly in tree terms, that is, in terms of nodes, the constituency and ordering relations among nodes, and the assignment of nodes to categories, where a tree is understood as a set N (the nodes), with two binary relations ρ 'directly dominates' and λ 'is to the left of' on N and a function α from N into a set of "labels", satisfying the following axioms:[2]

[2] These axioms are adapted from those in McCawley (1968) and incorporate the correction of an error called to my attention by Robert Rodman (personal communication), namely, that while I had intended my 1968 axioms to allow for the possibility of discontinuous trees, I inadvertently formulated one of the axioms in a way that excluded discontinuity. Specifically, the 1968 counterpart of axiom (3f) said that any two distinct nodes stand in either an order relation or a domination relation but not both. Rodman has pointed out that assuming a tree to be discontinuous would then lead to a contradiction: if x_1 dominates x_2 and x_4 but not x_3, with $x_2 \lambda x_3 \lambda x_4$, then by the 1968 axioms either $x_1 \lambda x_3$ or $x_3 \lambda x_1$, which by the transitivity of λ implies that respectively $x_1 \lambda x_4$ or $x_2 \lambda x_1$, and thus x_1 would stand in an order relationship to a node that it dominates, contrary to what the axiom required.

(3) a. There is an $x_0 \in N$ such that for every $x \in N$, $x_0 \rho^* x$ (that is, the tree has a root; ρ^* is the minimal reflexive and transitive relation containing ρ; thus, $x \rho^* y$ can be read 'x dominates or is identical to y').

b. For every $x \in N$, $x_0 \rho^* x$ (that is, the tree is connected).

c. For every $x_1 \in N$, there is at most one $x_2 \in N$ such that $x_2 \rho x_1$ (that is, the tree has no loops).

d. λ is transitive and antisymmetric (that is, λ is a partial ordering).

e. If x_1 and x_2 are two distinct terminal nodes (a node x is terminal if there is no $y \in N$ such that $x \rho y$), then either $x_1 \lambda x_2$ or $x_2 \lambda x_1$ (that is, the terminal nodes are totally ordered).

f. For any $x_1, x_2 \in N$, if $x_1 \rho^* x_2$, then neither $x_1 \lambda x_2$ nor $x_2 \lambda x_1$ (that is, a node has no order relationship to nodes that it dominates).

g. For any $x_1, x_2 \in N$, $x_1 \lambda x_2$ if and only if for all terminal x_1', x_2' such that $x_1 \rho^* x_1'$ and $x_2 \rho^* x_2'$, $x_1' \lambda x_2'$ (that is, nonterminal nodes stand in an ordering relationship if and only if all their descendents stand in the same relationship).

These axioms allow for the possibility of discontinuity; that is, they do not rule out the possibility of a node x_1 dominating nodes x_2 and x_4 without dominating a node x_3, where $x_2 \lambda x_3$ and $x_3 \lambda x_4$.

Continuous trees have the convenient property of being translatable into labeled bracketings; for example, the first tree in (2) can be represented as $[_S[_{NP}$ I$]$ $[_{V'}[_V[_V$ wake$]$ $[_P$ up$]]$ $[_{NP}$ your friend$]]]$. Discontinuous trees cannot be so represented. The fact that continuous trees can be rendered directly in the form of a string of linguistic units and auxiliary symbols allowed early transformational grammarians to indulge their preference for strings over trees by identifying trees with labeled bracketings, provided that they excluded discontinuous trees from consideration, and much transformational metatheory has in fact been formulated in terms of labeled bracketings. The question remains, however, of whether this preference was indulged at the expense of descriptive adequacy, and I will argue in the remainder of this article that it in fact was. To accomplish the reexamination of largely familiar syntactic phenomena that will provide the basis for an answer to this question, I must adopt a conception of transformations that is neutral with regard to whether or not syntactic structures must be continuous. I will in fact treat transformations as mappings from a class of trees to a class of trees, under conditions formulated in terms of ρ, λ, α, and labels. "Structural changes" will be stateable in terms of ρ and/or λ, and there will be no presupposition that a change in one of the two relations need be accompanied by a change in the other. Thus, for example, there will be no presupposition that a transformation changing λ so that a relative clause is rightmost (i.e. Relative Clause Extraposition) will cause the relative clause to cease to be a constituent of its NP. In the application of the transformation, not only will those changes in ρ and/or λ be made that its "structural change" calls for, but also any additional changes that are needed to make the resulting ρ and λ conform to the axioms (3a–g). For example, if a "Raising-to-Object" transformation applies to make an NP

node x_1 a daughter of a higher V′ node x_2, then not only is (x_2, x_1) added to ρ, but also (x_3, x_1) is deleted from ρ, where x_3 is the S node that x_1 had hitherto been a daughter of, since axiom (3c) plus the proposition that $(x_2, x_1) \in \rho$ implies that $(x, x_1) \notin \rho$ for all $x \neq x_2$.

I will assume that the deepest relevant syntactic structures are ordered continuous trees[3] and will investigate the possibility of discontinuity arising in the course of derivations through movement transformations that alter left-to-right ordering without altering constituency (as in the version of Relative Clause Extraposition in which the relative clause remains a constituent of its NP while ceasing to be adjacent to the rest of the NP).

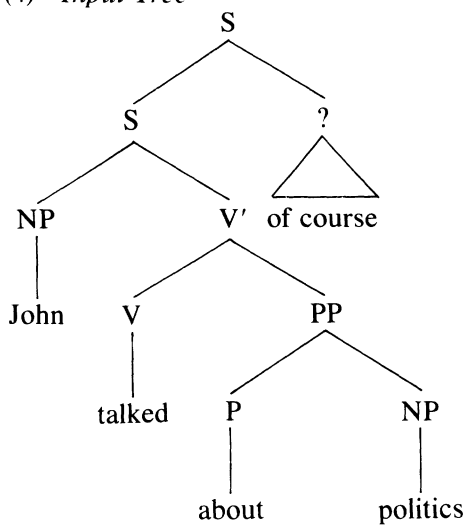
The facts presented below provide grounds for distinguishing two essentially different types of transformation that hitherto have been classed together under the single name of *movement transformations:* transformations that change syntactic relations (not only "grammatical relations" such as "subject of" and "object of", but also relations such as what Pullum (1980) calls "query of", which an item can manifest through its occurrence in some position of syntactic focus), and transformations whose *sole* syntactic function is to change constituent order. The former class, *relation-changing* transformations, involves a change in constituent structure that in many cases is accompanied by a predictable concomitant change in constituent order; whether there is in fact any order change will depend on the word order rules of the given language. The second class, *order-changing* transformations, involves no change in constituency, as I will argue below, and thus gives rise to discontinuous structures when nonsisters are permuted. This latter class includes Parenthetical Placement (including placement of nonrestrictive clauses), Scrambling, Relative Clause Extraposition, Heavy NP Shift, and Right Node Raising.[4] I will give particular attention below to Parenthetical Placement, since it provides the clearest evidence that I know of for the discontinuous surface structure that order-changing transformations give rise to. In the process, I will offer arguments against both of the best-known rules for positioning parentheticals, namely that of Ross (1973), in which the parenthetical is moved into the middle of an expression and becomes one of its constituents (4a), and that of Emonds (1976; 1979), in which

[3] This assumption should not be taken as implying any prejudice on my part against discontinuity in deep syntactic structures or against unordered or incompletely ordered underlying structures. See McCawley (1979) for criticism of the gratuitous assumption that all syntactic structures are fully ordered and for a restatement in terms of unordered underlying structures of an analysis (Koster's treatment of Dutch word order) that is generally regarded as requiring a specific deep structure word order. I am quite certain, however, that the discontinuities discussed below arise through order changes applied to fully ordered continuous structures, and I take no position on whether those structures might in turn be derived from unordered structures by steps that include the imposition of order, as in relational grammar.

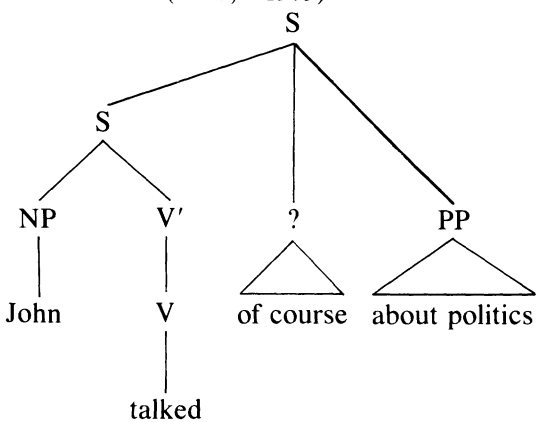
[4] I exclude from the class of order-changing transformations such rules as Affix Hopping, in which the change in constituent order is governed by morphological rather than syntactic conditions. Affix Hopping involves a change in order only because English morphology requires the various affixes to be suffixes of the verbs to which they are attached. See McCawley (1981, 172–173, 188) for an argument that affixation rules should specify only that the affix is adjoined to its host word, leaving the morphology to determine whether it appears as a suffix, a prefix, an infix, or an internal modification on that word.

material is extracted from the end of a constituent and placed after the parenthetical (4b):[5]

(4) *Input Tree*

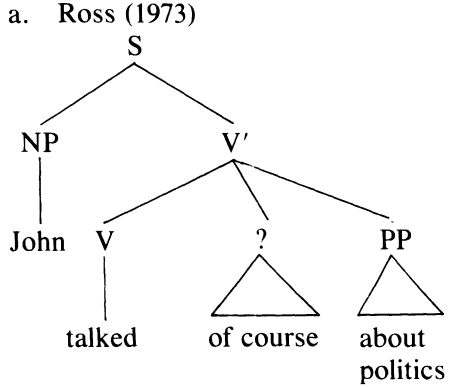


b. Emonds (1976; 1979)

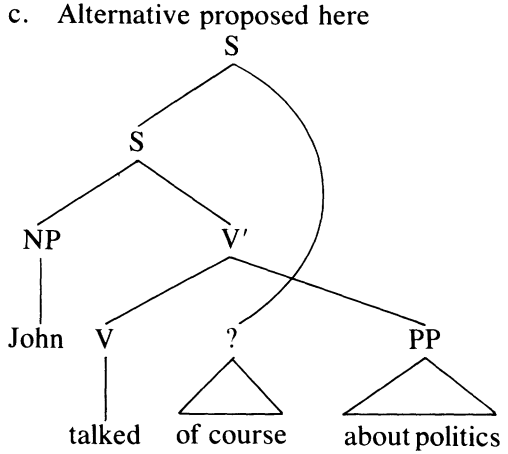


Output Trees

a. Ross (1973)



c. Alternative proposed here



A third possibility, corresponding closely to the structure proposed by Wells (see (1c) above), is illustrated in (4c), where parentheticals are placed by a transformation that changes word order without changing constituent structure, thus giving rise to

[5] The input tree in (4) is not assumed to be a deep structure. The alternatives considered here can be combined with analyses in which parenthetical structures are derived through detachment of a complement clause from a superordinate sentence, as in Ross's (1973) "Slifting" analysis, where the derivation of *Sam has eft, I think* involves a step in which the complement clause of *I think Sam has left* is detached and adjoined o the original main clause.

discontinuous structure in cases where, as here, the parenthetical is permuted with a nonsister element. The three analyses differ with regard to the composition of the V′ in surface structure: for Ross, the V′ acquires extra material; for Emonds, it loses material; in the alternative proposed here, it is unchanged. I will argue that all grammatical phenomena to which the constituency of the V′ is relevant behave as if the parenthetical were not there; that is, they presuppose the V′ that we find in (4c), which has neither gained nor lost material through the placement of the parenthetical.

Consider which V′s can serve as the controller for V′ Deletion. According to Emonds's analysis, *talk* in (4) should be a possible controller but *talk, of course, about politics* should not be. For Ross, the reverse should be the case: *talk, of course, about politics* should be a possible controller, but *talk* should not be. Under the third alternative, only *talk about politics* should be a possible controller. Consider, then, the sentences in (5):

(5) a. John talked, of course, about politics, and Mary did too. (= Mary talked about politics too; ≠ Mary talked too; ≠ Mary talked, of course, about politics too)

b. *John talked, of course, about politics, and Mary did, you'll be surprised to hear, about baseball. (by deletion of *talk*)

c. John talked, of course, about politics, and Mary, you'll be surprised to hear, did too. (= and Mary, you'll be surprised to hear, talked about politics too; ≠ and Mary, you'll be surprised to hear, talked, of course, about politics too)

In every case the interpretation of the zero V′ is *talk about politics*, not *talk, of course, about politics*, nor just *talk*. The facts are entirely parallel for sentences whose V′s involve a nonrestrictive clause:[6]

(6) a. John sold Mary, who had offered him $600 an ounce, a pound of gold, but Arthur refused to. (= refused to sell Mary a pound of gold; ≠ refused to sell Mary, who had offered him $600 an ounce, a pound of gold; ≠ refused to sell Mary)

b. *John sold Mary, who had offered him $600 an ounce, a pound of gold, but Arthur refused to, who had asked him for a quantity discount, ten pounds of silver. (by deletion of *sell Mary*)

Similarly, demonstrative and relative pronouns with a V′ as antecedent behave as though

[6] Emonds's (1979, 220) treatment of nonrestrictive clauses provides an alternative explanation of the unacceptability of (6b): under his analysis, the semantic interpretation for the relative pronoun in nonrestrictive clauses requires that the relative pronoun immediately follow the constituent with which it is to be specified as coreferential, thus predicting the unacceptability of structures like (6b), in which the presumable antecedent has been deleted, as well as that of structures involving extraposed nonrestrictive clauses. Note, though, that that explanation of the oddity of (6b) requires that the understood V′ actually be deleted rather than figure in surface structure as a complex of empty nodes, as in Jackendoff (1972, 265–272). See McCawley (1976) for critical discussion of Jackendoff's proposal.

the parenthetical were not there: the parenthetical does not count as part of the antecedent, but the constituent after the parenthetical does.

(7) a. John talked to us, of course, about politics, which Mary did too.
b. *John talked to us, of course, about politics, which Mary did, as you might have guessed, about baroque music.
c. John talked to us, of course, about politics, but Mary would never do that. (= would never talk to us about politics; ≠ would never talk to us, of course, about politics; ≠ would never talk to us)
d. *John talked to us, of course, about politics, which Mary would never do, I imagine, about baroque music. (by Pronominalization of *talk to us*)

(8) a. Alice put the violin, which a collector wants to buy, in the hall closet, which George would never have done. (= put the violin in the hall closet; ≠ put the violin, which a collector wants to buy, in the hall closet)[7]
b. *Alice put the violin, which a collector wants to buy, in the hall closet, which George would never have done, which Alice would prefer to keep, on the mantelpiece. (by Pronominalization of *put the violin*)

Other tests for constituency of which I am aware—for example, the possibility of topicalizing an expression—provide less information about the constituent structure of sentences containing parentheticals, though the results are consistent with the position that placement of parentheticals changes only order but not constituent structure:

(9) a. George denies that Alice put the violin in the hall closet, but put the violin, which a collector wants to buy, in the hall closet, I'm sure she did.
b. *George denies that Alice put the violin in the hall closet, but put the violin, I'm sure she wouldn't, which a collector wants to buy, in the hall closet. (by Topicalization of *put the violin*)
b′. *George denies that Alice put the violin in the hall closet, but put the violin, which a collector wants to buy, I'm sure she wouldn't in the hall closet.

(9a) could be derived equally well by topicalization of a V′ that contains a parenthetical (consistent only with Ross's analysis) or by insertion of a parenthetical in an already topicalized V′ (probably consistent with all three analyses, though this depends on details of the nonrestrictive clause's exact location in the input to Topicalization). (9b, b′) show the impossibility of topicalizing the V′ that results from Emonds's version of Parenthetical Placement.

In summary, all tests for constituency with which I am familiar yield results that are consistent with placement of parentheticals by a rule that involves no change of constituent structure, and the tests based on V′ Deletion and Pronominalization of V′s yield results consistent only with such an analysis.

[7] Under Emonds's treatment, *put the violin in the closet* in (8a) is not even a surface constituent and thus is not available as a possible antecedent for *which*.

The assumption that transformations that serve solely to change constituent order cause no change in constituent structure provides a solution to the puzzle raised by Ross (1966), namely, why material cannot be extracted from extraposed relative clauses though extraction is possible from extraposed complement Ss:

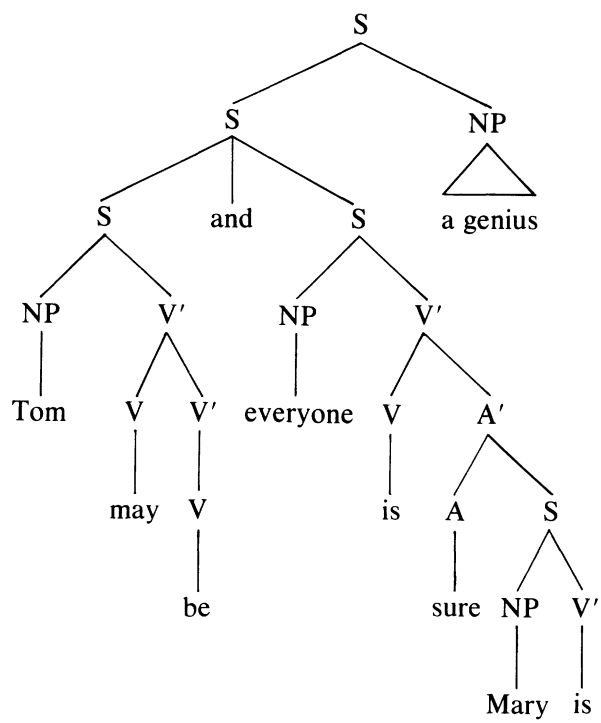
(10) a. It is unlikely that Tom will go to Paraguay.
a′. Which country is it unlikely that Tom will go to?
b. A man entered who was wearing a black suit.
b′. *What kind of clothing did a man enter who was wearing?

If Relative Clause Extraposition changes word order but not constituent structure, then in (10b) the relative clause is still part of a complex NP and thus Ross's Complex NP Constraint still prohibits any extraction from it.[8]

There is also evidence that Right Node Raising (RNR), as in (11a), alters word order without altering constituent structure, thus yielding not the sort of surface structure usually assumed (11b), but rather a discontinuous structure such as (11c):

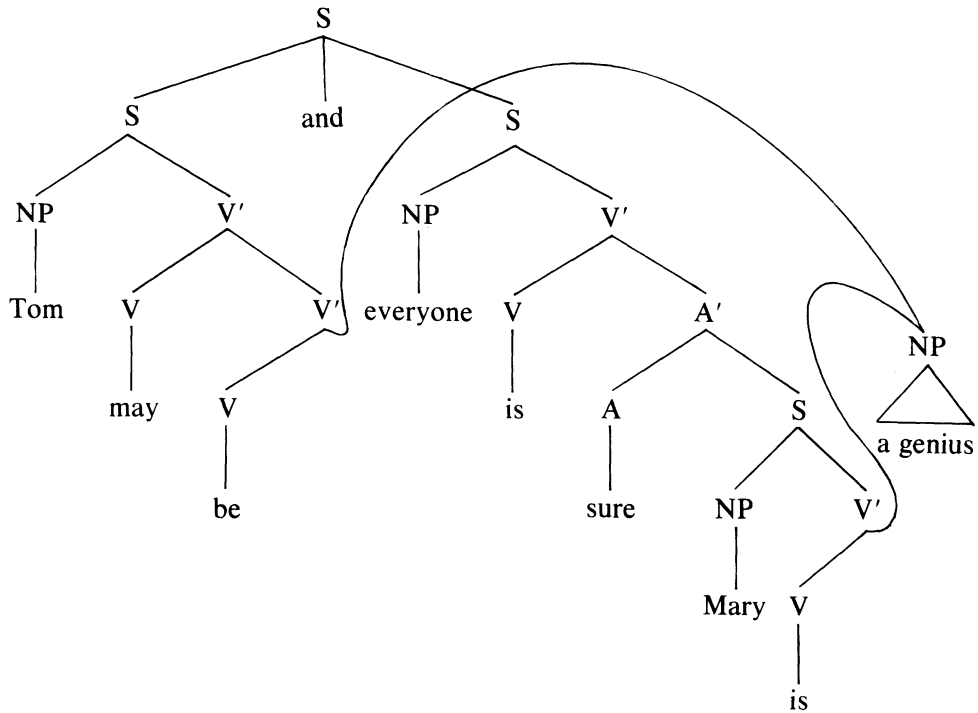
(11) a. Tom may be, and everyone is sure that Mary is, a genius.

b.



[8] The same explanation of the oddity of (10b′) is available even if one accepts not Ross's CNPC but rather Chomsky's (1973, 248–249) reduction of the CNPC to the Subjacency Condition (that is, extraction from [a man [who was wearing $X]_S]_{NP}$ is excluded because the NP has no COMP position and thus material could leave the NP only by crossing two cyclic-domain boundaries at a time, violating Subjacency). If extraposition of the relative clause removed the S from the NP, there would then be only one cyclic-domain

c.



RNR is most commonly taken (Ross (1967), Bresnan (1974)) to apply to a coordinate structure whose conjuncts end in identical constituents, right-Chomsky-adjoining a copy of that constituent to the whole coordinate structure and deleting the originals. In the alternative proposed here, the identical constituents are coalesced into a single constituent that retains all the constituency relations of the items from which it is derived and the order relationships of the last of these items; that is, it is at the extreme right end of the coordinate structure. (The proposed surface structure is thus not a tree, since the affected constituent has more than one mother.[9]) One piece of evidence for (11c) rather

boundary separating the material to be extracted from the outside world and thus Subjacency would not preclude the extraction.

Reinhart (1980) provides several arguments that extraposed relative clauses are outside the V′ whereas extraposed complement Ss are inside it. While she considers that her arguments support a surface structure [s[s NP V′] S] for extraposed relative clauses, the facts that she adduces appear to be consistent with the conclusion of this article that the extraposed relative remains dominated by its NP node. Karol Todrys (in preparation) observes that only relative clauses extraposed from *subject* NPs can be shown by arguments like Reinhart's to be outside the V′; those extraposed from object NPs behave in all respects like constituents of the V′. This, as Todrys notes, is an immediate consequence of the proposition that Relative Clause Extraposition changes word order but not constituent structure.

[9] The principle that ρ and λ are adjusted in the minimum way that brings them into conformity with the axioms (3a–g) is taken here to be inapplicable to the violation of axiom (3c) that RNR gives rise to, since there is no unique alteration of ρ that removes the violation; for RNR on an n-term coordinate structure, any of the n ways of removing $n - 1$ of the upward connections of the "raised" node would eliminate the violation.

than (11b) as the surface constituent structure is the possibility of deleting or pronominalizing a V′ that includes the item to which RNR applies:[10]

(12) a. Tom admires, and is sure that everyone else admires, Adolf Hitler, but of course you and I don't. (= admire Adolf Hitler)
b. Tom admires, and is sure that everyone else admires, Adolf Hitler, which of course hardly anyone does.
c. Tom talked, and is sure that everyone else talked, about politics, but of course you and I didn't. (= talk about politics; ≠ talk)

The rules in question thus apply to a structure that contains the constituent *admire Adolf Hitler* or *talk about politics*, which is destroyed by RNR in the usual analysis but remains intact under the alternative advanced here. A second piece of evidence for the derived structure in (11c) is that when a relative clause is Right-Node-Raised, extraction from it remains impossible. This suggests that the relative clause remains part of a complex NP, rather than being detached from its NP, as in the standard version of RNR:

(13) a. Tom bought a can-opener and Alice bought a dictionary that were once owned by Leonard Bloomfield.
b. *Which linguist did Tom buy a can-opener and Alice buy a dictionary that were once owned by?

An anonymous *LI* referee has called to my attention the argument by Wexler and Culicover (1980, 299–303) that a constituent raised by RNR "always behaves, vis-à-vis all constraints on analyzability, just as it would if it were in its original position"; they point out that while RNR can move a constituent "out of" an island, that constituent remains as immune to extraction as if it remained within the island:

(14) a. Mary buys, and Bill knows a man who sells, pictures of Elvis Presley.
b. *Who does Mary buy, and Bill know a man who sells, pictures of?

The conception of RNR in which its output has the structure (11c) predicts exactly this:

[10] I would like to be able to claim that Topicalization *does* change constituent structure and am reassured in that wish by such sentences as (i), in which evidently the derived V′ *admire* and not the underlying V′ *admire Benjamin Franklin* has been deleted, though this feeling of reassurance is weakened by examples like (ii), in which a V′ evidently has been deleted, along with a topicalized object NP:

(i) Benjamin Franklin I admire, but Abraham Lincoln I don't.
(ii) Benjamin Franklin I admire very much, but Alice doesn't. (= admire Benjamin Franklin)

To reconcile these facts with the typology of transformations for which I am arguing here, I may be forced to accept the unappealing proposition that Topicalization applies both in the cycle, as in (i), and postcyclically, as in (ii).

the constituent in question is not moved "out of" anything and thus remains within the same islands that contained it in the input to RNR.[11]

Other rules that change word order but not syntactic relations and thus (according to my conjectured typology of rules) ought not to change constituent structure include Scrambling, Particle Separation, and Heavy NP Shift. In Heavy NP Shift, an NP or a PP moves only over its sisters and thus cannot give rise to discontinuity. While I know of no very convincing arguments regarding the particular constituent structure that results from Particle Separation, I note here that an argument for a discontinuous derived structure can be based on a generalization that is widely accepted (though I find the case for it not fully convincing; cf. McCawley (1975, 247–252)), namely Chomsky's (1971) claim that the focus of questions must be a surface constituent containing the primary stress. Ross (personal communication) has disputed this generalization on the grounds that a verb–particle combination can be the focus even when the particle is separated from the verb, as in (15):

(15) Did you look the report over?

This is a counterexample to Chomsky's generalization only if Particle Separation detaches the particle from the verb, as in the version of the transformation that Ross assumed; however, if Particle Separation changes only word order and not constituent structure, then (15) is consistent with Chomsky's claim.

The assumption that Scrambling involves no change of constituent structure yields a significant advantage over the treatment by Ross (1967), in which scrambled word order results from successive permutations of adjacent terms, with severing of branches to maintain continuous constituent structure. Under Ross's treatment, the same sentence can have any of several different surface structures, depending on which sequence of permutations one considers it to have arisen from, as in the incomplete sample of

[11] The fact that RNR itself does not respect the Complex NP Constraint may reflect a general fact about unbounded transformations that affect order but not constituent structure, since Parenthetical Placement behaves similarly:

(i) Mary sold the painting to a man who, as we could have expected, is an op-art freak.
(ii) You shouldn't believe the rumor that Fred, who I deeply respect, is shipping guns to the IRA.

While the whole conjoined structure to which RNR applies is an island, the Coordinate Structure Constraint (CSC) does not rule out extraction from the constituent that RNR "raises", since that extraction is technically an "across-the-board" rule application: the rule application affects all the conjuncts equally, as in (iii), taken from Wexler and Culicover (1980):

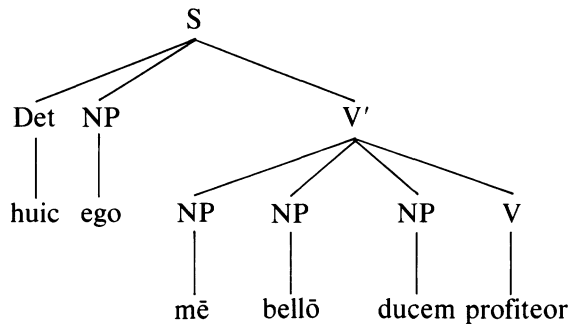
(iii) Who does Mary buy and Bill sell pictures of?

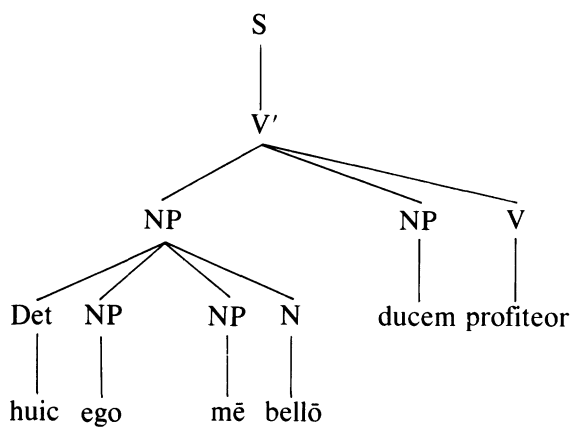
The CSC does, however, rule out applying RNR to material that is in coordinate constituents of the conjuncts of a coordinate structure:

(iv) Tom is writing an article on Aristotle and Freud, and Elaine has just published a monograph on Mesmer and Freud. $\not\rightarrow$
*Tom is writing an article on Aristotle, and Elaine has just published a monograph on Mesmer, and Freud.
*Tom is writing an article on Aristotle and, and Elaine has just published a monograph on Mesmer and, Freud.

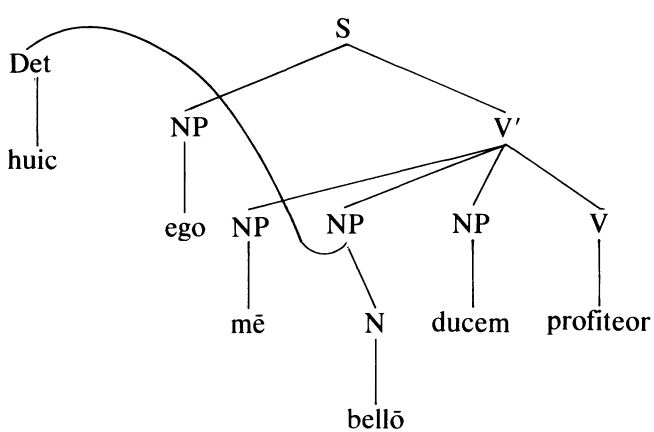
alternative structures for *Huic ego mē bellō ducem profiteor* 'For this war I announce myself as leader' given in (16a):

(16) a.





b.



Under the alternative proposed here, only (16b) would be a possible surface structure of the given sentence. More generally, this proposal—that transformations whose function is basically to change word order leave constituent structure unchanged—drastically reduces the range of possible surface syntactic configurations in a language. For example, it excludes any way of deriving surface structures involving the [$_S$ Det NP V′] of the first tree of (16a) or the [$_S$ S PP PP] of (4b).

While this article has involved much criticism of Emonds's (1979) treatment of parenthetical expressions and nonrestrictive clauses, it has in a sense vindicated what I take to be the essential features of Emonds's analysis. Emonds's reason for proposing the derivational step that yields (4b) is that his typology of transformations requires that the rule placing parenthetical expressions be a root transformation and hence that the affected constituent end up as a daughter of a topmost S node. Moreover, Emonds maintains that the parenthetical may precede only a single constituent of the host clause (see (17)), which means that the rule must be a movement rule involving the end of the host clause:

(17) a. He was sent the money, $\left\{\begin{array}{l}\text{*I want to emphasize}\\ \text{*which I worked hard for}\end{array}\right\}$,
for new furniture by my brother.

b. He was sent that money for new furniture, $\left\{\begin{array}{l}\text{I want to emphasize}\\ \text{which he badly needs}\end{array}\right\}$,
by my brother.

Given Emonds's additional assumption that derived constituent structure must be continuous, there is then only one possibility for the transformation: it must move a final constituent of the host clause rightward over the parenthetical and attach it to the higher S node. If that assumption is given up, however, the rule can be considered to permute the parenthetical with a final constituent of the host clause without altering constituent structure. This formulation is consistent with Emonds's typology of transformations in that the parenthetical can be taken to be the affected constituent and yet remain a daughter of a root S node, as it must if the rule is to be a root transformation. The proposal sketched here thus allows one to enjoy all the advantages that Emonds derives from his analysis of parenthetical expressions without having to pay the price of the bizarre surface constituent structures that his specific proposal committed him to.

In this article, I have explored all the ways that I can think of in which a change in constituent structure brought about by parenthetical placement or the other transformations under discussion might be manifested. In no case have I found evidence for any change in constituent structure: the constituents affected by these transformations show no sign of gaining or losing any material in the process. I have proposed an account of this fact whereby the transformations in question change constituent order without changing constituent structure, thus giving rise to discontinuous structures in cases where nonsisters are involved in the change of order. Two alternative analyses are

available. In the first, the transformations in question are extrinsically ordered after V′ Deletion and the other transformations that would apply differently if they applied to the continuous structures generally held to result from Parenthetical Placement, etc. I find this alternative implausible in view of the questionable nature of extrinsic rule ordering in syntax and in view of its apparent implication that dialect or idiolect variation ought to be possible with regard to, say, whether Parenthetical Placement can affect the range of possible antecedents for V′ Deletion.[12] A second and to me less implausible alternative is that Parenthetical Placement, etc., are taken in virtue of their function to belong to a separate component of a grammar, for which the name *stylistic component* has been proposed, to whose outputs no syntactic rules proper would be applicable. The merits of that alternative cannot be judged until it has been put into a concrete enough form to allow one to determine whether, under an appropriate characterization of "stylistic rule", they can be segregated from the rest of the grammar in a way that would justify taking them to comprise a separate "component". I note, however, that not all of the rules that I am taking to change only constituent order meet the criteria of "stylistic rule" advanced by Banfield (quoted in Emonds (1976, 9)). Nonrestrictive Clause Placement is obligatory, as is Particle Separation when the object NP is a personal pronoun; RNR can affect agreement (note the plural verb in the relative clause that has undergone RNR in (13a)); and while the outputs of RNR, Relative Clause Extraposition, and certain cases of Parenthetical Placement are genuinely "stylistically marked", the outputs of Nonrestrictive Clause Placement and Particle Separation are not. Much of the rationale

[12] See Pullum (1976) for a detailed case against extrinsic rule ordering in syntax. The following observations can serve as the basis of arguments that RNR cannot be made to apply after all relation-changing transformations; I relegate the arguments to this footnote because of the controversial nature of their premises and my less than full confidence in my understanding of the facts. First, if *Wh* Movement is to apply before RNR, something like the following derivation of *Who does John buy and Mary sell portraits of?* will be necessary (give or take the traces, which are included for the sake of readers who find them helpful):

(i) WH [[John buy portraits of who] and [Mary sell portraits of who]] →
who$_i$ [[John buy portraits of t$_i$] and [Mary sell portraits of t$_i$]] →
who$_i$ [[[[John buy t$_j$] and [Mary sell t$_j$]] [portraits of t$_i$]$_j$]]

However, this violates the version of strict cyclicity given in Williams (1974), according to which RNR—since it involves only the conjoined S and not the complementizer—would have to apply to the conjoined S before any transformations applied to the S′ in which it was contained. Second, when the "raised" constituent is a quantified NP, the sentence allows an interpretation in which the quantifier has the whole conjoined structure as scope, as well as one in which there are multiple occurrences of the quantified NP in logical structure, each with one conjunct as its scope:

(ii) a. Karsh took photographs and Wyeth painted portraits of many famous persons.
b. (Many: famous person x) (Karsh took a photograph of x and Wyeth painted a portrait of x)
c. ((Many: famous person x) (Karsh took a photograph of x) and (Many: famous person y) (Wyeth painted a portrait of y))

The exact implications of this observation depend on what conception of the relationship between surface syntactic structure and logical form one combines it with. Within a framework that describes that relationship in terms of a quantifier-lowering transformation, the possibility of (iib) as an interpretation of (iia) implies that RNR can apply before the cyclic transformation of Quantifier Lowering, that it is hence itself cyclic, and that it therefore cannot be made to apply after all relation-changing transformations. A similar argument can undoubtedly be constructed that assumes semantic interpretation rules that apply to surface structures containing traces, and I leave its construction to the interested reader.

for having semantic interpretation rules apply to a "surface structure" that has not undergone "stylistic rules" (as in the "core grammar" of recent work by Chomsky) appears to be simply the observation that, under the standard assumption of continuous constituent structure, some stylistic transformations would destroy information relevant to semantic interpretation;[13] considering the movement rules in question to leave constituent structure unchanged would thus eliminate that reason for the segregation of these rules into a separate component. It is doubtful that the segregation can in fact be maintained, in view of Banfield's observation (quoted by Emonds (1976, 9)) that Fronting of Negated Constituents (which on other grounds is "stylistic") feeds obligatory Inversion (*Not once did he talk to me*). I know of no correct implications of the segregation that do not also follow from the assumption that "stylistic" rules leave constituent structure unchanged.

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[13] Actually, if Scrambling and other "stylistic" movement transformations leave traces of the moved items, as a strict interpretation of trace theory appears to demand, no information would be lost. The alternative proposed in this article involves a more restricted conception of surface structure than one involving continuous constituents plus traces, since the latter surface structures express not only what the constituent structure was prior to "stylistic" transformations but also what the constituent order was, whereas this last information is absent from the surface structures of the approach advanced here.

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