

**MODERN STUDIES
IN ENGLISH**

Readings in Transformational Grammar

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(204) *Try and catch me.*(205) *Do me a favor and sit down.*

The intonation contour for such sentences seems quite different from that associated with conjoined $X-C-X$. If that is so, such occurrences can be treated much like modal verbs, the *and* being classified as similar to infinitival *to*. Evidence for the oddity of this use, beyond the difference in intonation contour, is its un-systematic nature: (a) where affixes are required on the verb forms, this usage is avoided (e.g. *They try and get it*; but **He tries and get it*; *He tries to get it*); and (b) iteration is not uniformly allowable (e.g. *Do me a favor and run and get it*; but ?*Run and do me a favor and get it*.)

2. "AND" AS AN INTENSIFIER. (xxvi) disallows the conjunction of identical constituents, because (xxiv) does not mark them. However, we often find *and* between identical words and phrases without contrastive stress (e.g. *We went around and around*, *She hit him and hit him*). Such repetitions have the effect of suggesting continuous or repeated or increasing action. They are not allowable on all constituents conjoinable by (xxvi) (e.g. **He had a green and green apple*). Therefore they must in any case be treated specially. The rule that describes them is presumed to be iterative, but deletion of the repeated *and* is excluded:

(lxxxvi) $(X) - Y - (Z) \rightarrow (X) - \bar{Y} - \text{and} - Y - (Z)$ (optional)
where $Y = A + \text{comparative}$; some P ; V ; VP ; some Adv

3. IDIOMATIC EXPRESSIONS. Many pairs of nouns (or what appear to be nouns) are idiomatic with respect to this grammar, e.g.

(206) *We fought hammer and tongs.*(207) *She kept the house spic and span.*(208) *The horses ran neck and neck.*

SYMBOLS

<i>S</i>	Sentence	<i>V</i>	Verb
<i>C</i>	Conjunction	<i>P</i>	Preposition
<i>C_o</i>	Coordinating conjunction	<i>Adv</i>	Adverb
<i>NP</i>	Noun phrase	<i>Sg</i>	Singular
<i>VP</i>	Verb phrase	<i>Pl</i>	Plural
<i>Pos</i>	Positive	$+X$	The suffix X
<i>Neg</i>	Negative	$X+$	The prefix X
\emptyset	Zero	σ	Sign (Pos/Neg)
<i>T</i>	Article	<i>Aux</i>	Auxiliary
<i>T₁</i>	<i>a</i>	<i>M</i>	<i>can, will, shall, may, do</i>
<i>T₂</i>	<i>the</i>	<i>Gen</i>	Genitive
<i>N</i>	Noun	<i>Acc</i>	Accusative
<i>PreN</i>	Prenominal	<i>Nom</i>	Nominative
<i>A</i>	Adjective	<i>Mod</i>	Modal verb

Phrasal Conjunction
and Symmetric Predicates

GEORGE LAKOFF and STANLEY PETERS

It has long been observed that there are at least two types of conjunction, sentence conjunction and phrasal conjunction:¹

(1) *John and Mary are erudite.*(2) *John and Mary are alike.*

Sentence (1) embodies a conjunction of two assertions:

(1') *John is erudite and Mary is erudite.*

Sentence (2) cannot be interpreted in this way.

(2') **John is alike and Mary is alike.*

Cases like (1) have been treated essentially correctly within the framework of transformational grammar since the inception of such studies; that is, (1) has been derived from the structure underlying (1'). Cases like (2) have only recently been dealt with in a transformational framework. Peters (1966) has pointed out that phrasal conjunction cannot be transformationally derived from sentence conjunction as some transformational grammarians had hoped it would turn out to be. The clearest suggestion that phrasal conjunction be derived from sentence conjunction can be found in Gleitman (1965). Many other transformational grammarians have hoped that some scheme of derivation such as that presented by

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¹For example Curme stated in his *Syntax* (p. 162) that "sentences containing coordinating conjunctions, however, are often not an abridgement of two or more sentences, but a simple sentence with elements of equal rank, connected by a conjunction: 'The King and Queen are an amiable pair.' 'She mixed wine and oil together.'"

Gleitman would solve the problem of phrasal conjunction. Later in this paper we give some of the evidence which shows why any such scheme is impossible. At least in the case of noun phrases, conjunction must occur in the base component. That is, there must be a rule schema of the form

(3) $NP \rightarrow \text{and } (NP)^n, n \geq 2$

We will refer to an *NP* which has been expanded this way as an NP^* .² The following are among the crucial examples which constitute evidence for this position:

(4)(a) *John, Bill, and Harry met in Vienna.*

(b) **John met in Vienna, Bill met in Vienna, and Harry met in Vienna.*

(5)(a) *The old man left all his money to Bill and Tom.*

is not a paraphrase of

(5)(b) *The old man left all his money to Bill and the old man left all his money to Tom.*

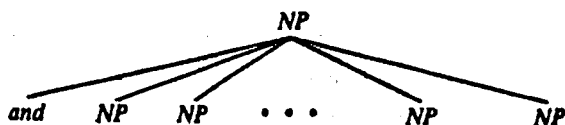
(6)(a) *John, Bill, and Harry wrote the book together.*

is not a paraphrase of

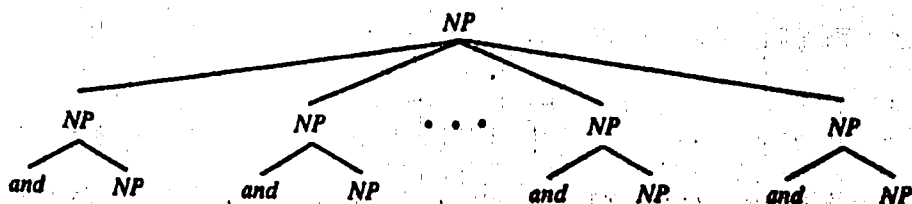
(6)(b) *John wrote the book, Bill wrote the book, and Harry wrote the book.*

In each case, (a) may not be derived from the structure underlying (b).

²The reader should consult Peters (1966) for justification of this statement of the rule. Here we will merely describe the manner in which the rule is to be interpreted. Schema (3) represents an infinite collection of rules, namely all rules of the form $NP \rightarrow \text{and } NP \ NP \ \dots \ NP \ NP$ where the number of occurrences of *NP* to the right of the arrow is finite and is greater than or equal to two. These rules generate base structures of the form



There is a universal principle which converts structures of this form to



as the deep structure of a sentence enters the transformational component from the base component. English has two special transformational rules which apply to conjoined structures. There is an obligatory *and*-deletion rule which may be stated as follows:

*T*_{and-deletion} (obligatory):

SD: $X \left[\begin{matrix} \text{and} & A_1 & Y & L & Z \\ 1 & 2 & 3 & 4 & 5 \end{matrix} \right]$ for any category *A*

SC: delete 2

In addition, there is an optional transformation which deletes all but the last conjunction of a conjoined structure.

These two rules apply to *and* introduced by rule (3) as well as to *and* introduced by the schema that conjoins sentences, even though these two types of *and* are different. The two *and*'s must be marked with a difference in syntactic feature composition since they exhibit different syntactic behavior.

Since conjunction may arise either in the base component through rules like (3) or transformationally from sentence conjunction, one would expect there to be a large number of ambiguities of this sort. Indeed, there are. In cases like (7)

(7)(a) *John and Mary left.*

(b) *Shakespeare and Marlowe wrote plays.*

we may either be asserting that the subjects left or wrote together, in which case we get paraphrases (8) and (9).

(8)(a) *John and Mary left together.*

(b) *Shakespeare and Marlowe wrote plays together.*

(9)(a) *John left with Mary.*

(b) *Shakespeare wrote plays with Marlowe.*

or we may be asserting two separate and not necessarily related facts, in which case we get the paraphrases (10) and (11).

(10)(a) *Both John and Mary left.*

(b) *Both Shakespeare and Marlowe wrote plays.*

(11)(a) *John left and Mary left.*

(b) *Shakespeare wrote plays and Marlowe wrote plays.*

The *together* and *with* paraphrases, (8) and (9), indicate underlying phrasal conjunction; the *both* and the full sentences paraphrases, (10) and (11), indicate underlying sentence conjunction (for details, see Peters, 1966). Note that the *both* paraphrase cannot co-occur with the *together* paraphrase:

(12)(a) **Both John and Mary left together.*

(b) **Both Shakespeare and Marlowe wrote plays together.*

But the number of possible ambiguities of this sort is not as great as one might at first believe. Robin Lakoff has made the discovery (personal communication) that most stative verbs and adjectives may not have conjoined noun phrases in their underlying subjects*. Consider, for example,

*For the distinction between *stative* and *nonstative*, see George Lakoff, "Stative Adjectives and Verbs in English," Harvard Computation Laboratory, Report No. NSF-17, 1966. In this paper Lakoff postulates the syntactic property *stative* versus *nonstative* in order to account for the grammaticality of sentences such as *Slice the salami*, *Be careful*, and the ungrammaticality of sentences such as *Know the answer* and *Be tall*. *Slice* and *careful* are *nonstative*, while *know* and *tall* are *stative*. It is shown that this distinction is needed not only for command imperatives, but also for various other constructions in English:

Progressive forms:

I am slicing the salami.

**I am knowing the answer.*

I am being careful.

**I am being tall.*

Do-something pro-forms:

What I did was slice the salami.

**What I did was know the answer.*

Do-so pro-forms:

I sliced the salami, and George did so, too.

**I knew the answer, and George did so, too.*

Complement restrictions of *persuade*, *remind*, etc.:

I persuaded John to slice the salami.

**I persuaded John to know the answer.*

(13) *John and Mary know the answer.*

(13) is unambiguous with respect to conjunction; it can be paraphrased only by (14) and (15).

(14) *Both John and Mary know the answer.*

(15) *John knows the answer and Mary knows the answer.*

(13) may not be paraphrased by either (16) or (17).

(16) **John and Mary know the answer together.*

(17) **John knows the answer with Mary.*

Thus, *know* may not take an underlying conjoined subject.³ The same is true of stative verbs in general.

Stative adjectives show the same property. Compare (18) and (19):

(18) *John and Mary are careful.* (Nonstative)

(19) *John and Mary are erudite.* (Stative)

(18) is ambiguous with respect to conjunction. In the sentence conjunction case, (18) represents the conjunction of two assertions which are not necessarily related to one another, as in (20).

(20) *John is careful and Mary is careful.*

The phrasal conjunction sense of (18) shows up in (21).

(21) *John and Mary are careful when making love together.*

In (21), *careful* clearly has a conjoined subject in its underlying structure. The same is true of (22).

(22) *John and Mary are careful together.*

(19), on the other hand, is unambiguous, and may only come from sentence conjunction. (19) has the paraphrases

(23) *Both John and Mary are erudite.*

(24) *John is erudite and Mary is erudite.*

But (19) may not have the paraphrases of (25) and (26).

(25) **John and Mary are erudite together.*

(26) **John is erudite with Mary.*

The same is true of nearly all stative adjectives.

There are some nonobvious cases where this generalization about the subjects of statives holds true, in particular, those in which underlying subjects of stative verbs are superficial objects. Take, for example, verbs like *surprise*, *amuse*, *seem*, *appear*, etc., which on independent grounds have been analyzed as having superficial objects that are underlying subjects. (For discussion see Rosenbaum, 1965; Lakoff, 1965; and Lakoff, to appear.)

³This fact is reflected in the possibility of *John's and Mary's knowledge of the facts* ... as opposed to the impossibility of **John and Mary's knowledge of the facts* ... For a verb such as *arrive* which optionally takes NP^o subjects we get *John's and Mary's arrival* ... corresponding to *John arrived and Mary arrived*, and *John and Mary's arrival* ... corresponding to phrasal conjunction in the base component. We are indebted to Emily Norwood for this observation.

(27) *Sally's rude behavior amuses Mary and John.*

According to the claim made in the above mentioned studies, *Mary and John* are underlying subjects of *amuse* and *Sally's rude behavior* is the underlying object. Since *amuse* is stative in (27), one would expect (27) to be unambiguous with respect to conjunction. This is indeed the case. We get the paraphrases of (28) and (29), but not that of (30).

(28) *Sally's rude behavior amuses both Mary and John.*

(29) *Sally's rude behavior amuses Mary and Sally's rude behavior amuses John.*

(30) **Sally's rude behavior amuses Mary and John together.*

However, the underlying object (which is the superficial subject) of *amuse* does show ambiguity with respect to conjunction, as in (31).

(31) *Sally's rude behavior and Bill's polite reactions amuse John.*

If (31) is derived from sentence conjunction, then we get the paraphrase of (32).

(32) *Sally's rude behavior amuses John and Bill's polite reactions amuse John.*

In this sense, there is no necessary connection between Sally's behavior and Bill's reactions. However, if (31) is derived from underlying phrasal conjunction, such a connection is implied. In that case, we have paraphrases such as (33) and (34).

(33) *Sally's rude behavior and Bill's polite reactions together amuse John.*

(34) *Sally's rude behavior together with Bill's polite reactions amuses John.*

Thus, R. Lakoff's generalization holds for *amuse*, and it appears to hold for all similar cases.

Since there are exceptions to this generalization, it appears that the only way to state it is in terms of markedness. For stative verbs and adjectives, unmarked cases other than measure adjectives and possessive verbs may not take conjoined underlying subjects; unmarked possessive verbs and measure adjectives may or may not take them; marked cases must take conjoined subjects.⁴ An example of a stative verb which must take conjoined subjects is *agree*.

(35) *John and Bill agree that Harry is an idiot.*

(36) *John agrees with Bill that Harry is an idiot.*

In sentences like (37) it appears that *agree* does not have a conjoined subject.

(37) *John agrees that Harry is an idiot.*

But in such sentences as (37) it is "understood" that John agrees with some un-

⁴The notion of markedness corresponds to the notion of "normal state." Most words in a class are normal (unmarked); some words in a class may be exceptional (marked). The theory of markedness claims that only marked cases contribute to the complexity of a grammar. Thus, generalizations in language may be of two kinds. Absolute generalizations state properties that are true for an entire class, with no exceptions. Markedness generalizations state properties that are true for most of a class (the normal or unmarked cases), but such generalizations may have exceptions (the marked cases). In addition, the theory of markedness claims that the exceptions themselves may not be random in their behavior, but rather form a subclass for which there is a subgeneralization. In this case, marked items *must* take NP^o subjects. For further discussion, see Lakoff (1965) and Lakoff (to appear).

specified person, that is, the occurrence of *with someone* has been deleted. (37) would be derived from (38).

(38) *John agrees (with some unspecified person) that Harry is an idiot.*
And (38) would be derived from (39).

(39) *John (and some unspecified person) agree that Harry is an idiot.*
And in sentences like (40),

(40) *Both John and Bill agree that Harry is an idiot.*

it is understood that John and Bill agree with a third party or parties. *Agree* is exceptional in this respect, since most verbs that take *NP** subjects cannot delete an unspecified *NP* following *with*. Thus *John conferred with Unspecified NP* does not reduce to **John conferred*.

An example of a stative measure adjective that may or may not take underlying conjoined subjects is *heavy*.

(41) *John and Mary are heavy.*

(41) is ambiguous. It can mean that each is heavy, as in (42).

(42) *Both John and Mary are heavy.*

Or (41) can mean that their combined weights are great, though their separate weights may not be, as in (43).

(43) *John and Mary are heavy together.*

The ambiguity of (41) also appears in the question of (44).

(44) *How heavy are John and Mary?*

In (44), one can either be asking for their separate weights or for their total weight. Note that the same ambiguity does not appear with the nonmeasure adjective *erudite*. When one asks,

(45) *How erudite are John and Mary?*

one is never asking for the total amount of their erudition.

In nonstative verbs and adjectives the markedness situation is rather different. Unmarked nonstatives may take either nonconjoined subjects or conjoined subjects (*NP**). A typical example is the verb *leave* in examples (7) through (11) above. Marked nonstatives *must* take *NP** subjects. An example is the verb *confer*:

(46) *John and Bill conferred.*

(47) *John conferred with Bill.*

(48) *John and Bill conferred together.*

(49) **John conferred.*

So far, we have found no nonstative verb that may not take an *NP** underlying subject.

To sum up, nonmeasure stative adjectives and verbs normally do not take *NP** subjects; marked nonmeasure adjectives must take *NP** subjects. Measure adjectives normally may or may not take *NP** subjects. Exceptional measure adjectives may not take them. *Fast* is an example of the latter. In asking *How fast are Koufax's*

fast ball and curve? we are not asking for the sum of their speeds. Nonstative adjectives and verbs normally may or may not take *NP** subjects. Exceptional cases of nonstatives (like *confer*) *must* take *NP** subjects.

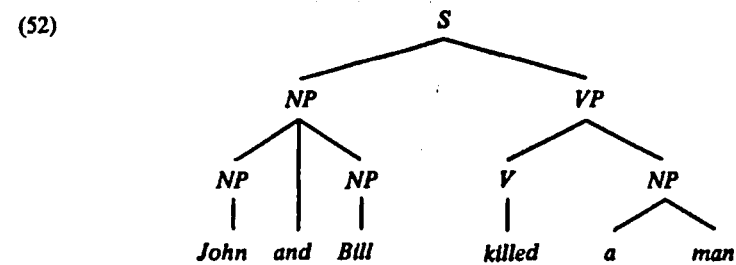
We suggested above that sentences like

(50) *John killed a man with Bill.*

were to be derived from structures underlying sentences like (51),

(51) *John and Bill killed a man (together).*

where *John and Bill* forms a phrasally conjoined *NP* in the deep structure. That is, the underlying structure of (50) would be (52).



Sentence (50) would be formed from this structure by a rule (actually a sequence of rules) which

(i) deletes *and* and adjoins *with* to the left of the *NP Bill*

and

(ii) adjoins *with Bill* to the right of the *VP killed a man*.

We will call (i) PREPOSITION ADJUNCTION and (ii) CONJUNCT MOVEMENT. These rules must be constrained to apply (a) only in sentence-initial position,⁵ (b) only in cases where there is a binary branching in the topmost *NP*, and (c) only when the con-

⁵If the rule could apply to an *NP** object we would derive *I hit John with Bill* from *I hit John and Bill*. But this is clearly incorrect in this case since the former is not a paraphrase of the latter. There are some apparent counterexamples to this claim:

(A) *The prisoner stole the warden's wallet (together) with his keys.*

(B) *I drink milk with meat.*

The *with*-phrase in these sentences cannot be derived by conjunct movement, since the derived structure is different than in the cases we have been discussing. We can see this in sentences that take a *do-so* in place of a verb phrase:

(C) *I killed a man with Bill and Harry did so with Tom.*

(D) **I stole the warden's wallet with his keys and John did so with his glasses.*

(E) **I drink milk with meat and John does so with fish.*

In the conjunct movement cases, there is in the derived structure both an "inner" and an "outer" *VP* (see (109)), and *do-so* may substitute for the "inner" *VP*. In (A) and (B) there is no inner *VP*, and so (D) and (E) are impossible. Thus, the derived structures of (A) and (B) could not have been brought about by conjunct movement. We do not understand the process which forms these sentences.

joined NP is derived from phrasal conjunction in the base, not from sentence conjunction.⁶

So far, we have only asserted that sentences like (50) should be derived from structures underlying sentences like (51), and that the *with*-phrase of accompaniment (*with Bill* in (50)) is derived and not basic. Let us now consider some evidence for this assertion. Consider (53):

(53) *John was killed with Bill.*

(53) is synonymous with (54).

(54) *John and Bill were killed (together).*

Bill in (53) is understood as part of the superficial subject of *be killed*, which is to say, it is understood as part of the *underlying object* of *kill*. In (53) we know someone or something has killed *Bill*. Now compare the phrase *with Bill* in (53) to the same phrase in (50). In (50) *Bill* is understood again as part of the superficial subject of *kill*, but it is also understood as part of the *underlying subject* of *kill*. In (50), *Bill* does the killing, he doesn't get killed.

These examples show that the underlying grammatical relation that the object of *with* bears to the other elements in the sentence is not fixed, but depends at least on whether or not passivization has applied. But, by definition of underlying structure, grammatical relations are fixed in the base and cannot depend on transformations. Unless such a conception of grammar is incorrect, the *with*-phrases cannot be introduced in the base.

Moreover, the objects of *with* do not enter into any grammatical relations which are different from those already defined in the base component; in fact, they are limited exactly to grammatical subjects and grammatical objects. This fact lends credence to our claim that they are actually derived from real subjects and objects.

We can account for the way we understand (50) and (53) by hypothesizing that in each case the underlying structure contains the phrasally conjoined noun phrase *John and Bill* and by hypothesizing that rules such as (i) and (ii) above apply *after* the application of the passive transformation. This would account for the fact that in both cases the object of *with* is understood as part of the *superficial* subject of the sentence and that in passive constructions it is understood as part of the *underlying* object.

So far we have shown that it is not possible to derive phrasally conjoined noun phrases from underlying *with*-phrases since there can be no underlying *with*-phrases. We will now argue that if we derive *with*-phrases from underlying phrasally conjoined noun phrases, we can account automatically for a number of facts that

⁶*John and Bill are erudite* can only be derived from sentence conjunction, and we do not get **John is erudite with Bill*. Furthermore, the only reading of *John and Bill own houses* which is paraphrased by *John owns houses with Bill* is the reading which is derived from phrasal conjunction. In footnote 2 we stated that there will be a feature difference between the *and* which is introduced by sentence conjunction and the *and* which is introduced by phrasal conjunction. We can use this feature difference to allow this rule to apply only to structures containing *and* from phrasal conjunction. Or the restriction might be exercised in some other way.

would otherwise be inexplicable. For example, the object of a *with*-phrase of accompaniment may never be a reflexive pronoun:⁷

(55) **John left with himself.*

(56) **John killed a man with himself.*

(57) **John was killed with himself.*

This follows from the fact that we do not get reflexives in phrasally conjoined noun phrases:

(58) **John and himself left.*

(59) **John and himself killed a man.*

(60) **John and himself were killed.*

But this lack of reflexives follows from the fact that in any type of conjunction in the deep structure of a sentence, no two members of the conjunction may be identical. Thus in the sentence

(61) *John and John left.*

we must be talking about two different people named *John*. If they are to be understood as the same person, then the sentence is ungrammatical. This is true not only of phrasal conjunction, but also of sentence conjunction. Thus the following sentences are ungrammatical:

(62) **I left and I left.*

(63) **I saw you and I saw you.*

(64) **You are tall and you are tall and you are tall.*

And this constraint on deep structure conjunctions appears to be universal.⁸ Thus

⁷There are two apparent counterexamples to this statement. The first involves such metaphorical expressions as *John agreed with himself that Bill was an idiot* and *John struggled with himself over whether he should leave*. In such cases, one is thinking of *John* as two separate individuals, or possibly, as in the case of *agree*, as a single individual at two different points in time. We can see that such sentences are rather special by the nonoccurrence of **John struggled with himself in the back yard*. We can see here that the sense of "struggle" is rather different from that in *John struggled with Bill in the back yard*.

The second apparent counterexample has to do with sentences like *John left by himself*. It might be claimed that *by* in this sentence is derived from *with* whenever a reflexive appears, and that the source of this sentence has an NP^s subject containing two occurrences of *John*. If this were true, such an NP^s subject could occur with verbs such as *meet* which require NP^s subjects. But we never get sentences like *John met by himself*. Hence such a claim would be incorrect.

⁸Sentences like the following constitute apparent counterexamples to this claim:

I hit him and I hit him and I hit him—until he died.

John ran and ran and ran and ran.

But, as Wayles Browne has shown (Browne, 1964) such conjunctions do not appear in the deep structure and must be transformationally introduced. Consider the sentences

John got taller and taller and taller.

John got more and more and more confused.

Some adjectives may take either the *more* or *-er* form of the comparative:

John got colder and colder and colder.

John got more and more and more cold.

if we adopt our proposed analysis of *with*-phrases of accompaniment,⁹ we can account for the lack of reflexives following *with* in terms of an independently motivated universal constraint on deep structure conjunctions.

Another fact that we can account for in terms of this analysis is the symmetric nature of sentences that have *with*-phrases.

(65) *John left with Bill.*

is true if and only if

(66) *Bill left with John.*

is true.

But the two types of conjunction may not be mixed:

**John got more and more cold and colder and colder.*

These examples show that such conjunctions must be introduced by a transformational rule that operates *after* the rule which reduces *more* to *-er* for certain adjectives (optionally for *cold*).

These conjunctions have other strange properties. They do not undergo normal conjunction reduction:

I hit him and hit him and hit him—until he died.

**I hit him and him and him—until he died.*

Nor do they undergo optional *and* deletion:

I ran and ran and ran and ran.

**I ran, ran, ran, and ran.*

Moreover, they are restricted to active verbs and to perceptual statives; they may not occur with nonperceptual statives. The above cases have active verbs. An example with a perceptual stative would be

I saw his face and saw his face and saw his face—until it drove me crazy.

But such constructions are impossible with nonperceptual statives:

**I knew that John left and knew that John left and knew that John left.*

Note that such constructions indicate repetition or continuation and may be paraphrased with a verb like *keep*:

I kept hitting him—until he died.

I kept running.

I kept seeing his face—until it drove me crazy.

Keep may also occur with actives and perceptual statives, but not with other statives:

**I kept knowing that John left.*

Negatives may not be conjoined in such constructions, nor may they appear in the complement following verbs like *keep*:

**I didn't hit him and didn't hit him and didn't hit him.*

**I kept not hitting him.*

Moreover, the range of adverbs that can co-occur with such constructions is exactly the range of adverbs that can occur with verbs of the *keep* class. Such facts lead us to the view that conjunctions of this sort do not occur in deep structures at all, but are derived by a late transformational rule. In the deep structure the conjoined sentence is probably a complement of a verb of the *keep*, *continue*, etc., class, perhaps just the bundle of features defining the class. In the transformation forming the conjunction, the bundle of features would be deleted. Such a solution would account both for the meaning of the conjoined structure and for the strange grammatical constraints on it. For a further discussion of this phenomenon, see Lakoff (to appear).

⁹Note that *I killed the man with Bill* is ambiguous. It can mean either *I killed the man who was with Bill* or *Bill and I killed the man*. We are considering only the latter interpretation. Observe that corresponding to the two interpretations we get two different derived structures. These are reflected in the relative clauses *the man with Bill who I killed . . .* and *the man who I killed with Bill . . .*

(67) *John drank a glass of beer with Harry.*

entails that

(68) *Harry drank a glass of beer with John.*

and vice versa.

Under our analysis of these constructions, these facts would also follow from a universal fact concerning deep structure conjunction, namely, that semantic interpretation is independent of the order of conjunction. Thus

(69) *John and Bill left together.*

is synonymous with

(70) *Bill and John left together.*

and

(71) *John and Harry drank a glass of beer together.*

is synonymous with

(72) *Harry and John drank a glass of beer together.*

This is true not only of phrasal conjunction but of sentence conjunction as well.

(73) *John is tall and Harry is fat.*

is synonymous with

(74) *Harry is fat and John is tall.*¹⁰

Thus we see that the symmetric nature of sentences containing *with*-phrases of accompaniment can be accounted for in terms of an independently motivated constraint on deep structure conjunction.

We can now account for the fact that verbs which must take *NP** subjects are necessarily symmetrical. Consider *confer*. *John conferred with Bill* entails *Bill conferred with John*, and vice versa, since those sentences are derived, respectively, from *John and Bill conferred* and *Bill and John conferred*. The same is true of certain adjectives that must take *NP** subjects—except that some items take *to* instead of *with*. Consider the adjective *similar*.

¹⁰An apparent counterexample to our claim that conjunctions are symmetrical is the *and then* type of conjunction. Consider

Harry robbed the bank and drove off in a car.

This may be a paraphrase of

Harry robbed the bank and then drove off in a car.

If it is, then it is not identical in meaning with

Harry drove off in a car and robbed the bank.

We would claim that the type of *and* that means *and then* is actually derived from the ordinary symmetric *and* followed by a deep structure occurrence of *then*, which may be deleted under certain conditions. The lack of symmetry in the conjoined sentences derived in this manner would follow from the nature of *then* which is itself derived in these cases probably from *after it Sentence*, where the *Sentence* deletes under identity with the preceding sentence.

This contention is supported by the fact that asymmetrical *and* constructions are possible only when a *then* can occur. The reason that we always get symmetry in cases like (73) and (74) is that *then* may not occur in these cases:

**John was tall and then Harry was fat.*

**John knew that Bill left and then Harry doubted that the world was round.*

(75) *This problem is similar to that problem.*
entails that

(76) *That problem is similar to this problem.*
and vice versa.

(75) would be derived from (77):

(77) *This problem and that problem are similar.*

(76) would be derived from (78):

(78) *That problem and this problem are similar.*

(77) and (78) are, of course, synonymous.

This accounts not only for the symmetric nature of *similar* but also for the fact that *similar* cannot take reflexives:

(79) **This problem is similar to itself.*

Note that in mathematical parlance it would be possible to say something like

(80) *This problem is similar to this problem.*

or

(81) *A is similar to A.*

One of the many things that distinguish mathematical jargon from any natural language is that reflexivization does not take place. Another thing that distinguishes mathematical jargon from natural language is that phrasal conjunctions may contain identical elements and still be well-formed. Thus, sentences like

(82) *A and A are similar.*

(83) *This problem and this problem are similar.*

(84) *Harry is tall and Harry is tall and Harry is tall.*

are quite normal in the artificial language of logic and mathematics. Thus, in mathematics, a predicate such as *similar* is both symmetric and reflexive (in the logical sense). In English, *similar* is symmetric and *logically reflexive*, but it is *grammatically irreflexive*. In English, the sentence **This problem is similar to itself* is ungrammatical, although, in semantic terms, it is perfectly meaningful and, in fact, true. This means that the general constraint on deep structures that forbids any two members of a conjoined structure from being identical is a *grammatical* and not a *semantic* constraint.¹¹

We can explain still another fact on the basis of this analysis. We have already pointed out that in the *with-* and *to-*phrases under consideration, the object of the preposition is understood as part of the superficial subject of the sentence. The superficial subject, in turn, may come from either the underlying subject or object. It is a fact that the class of noun phrases that can occur as objects of such prepositions is identical to the class of noun phrases that can appear as superficial subject.

¹¹Actually there does seem to be a semantic constraint of this sort for active verbs. *John left with himself* and *John met himself in Vienna* do not make sense at all. The possibility for semantic reflexivity seems to be limited only to certain stative verbs and adjectives.

Or more precisely, the selectional restrictions between the main verb and the noun phrase that appears as superficial subject are identical to the selectional restrictions on the object of these prepositions. But this is an automatic consequence of the analysis we have given. Since the objects of these prepositions are derived from the superficial subject, it follows that they would have exactly the selectional restrictions that superficial subjects would have.

Now consider the sentence

(85) *Kosygin met with Johnson and Rusk.*

We have not yet discussed the manner in which this sentence can be generated. Notice that (85) is ambiguous; one reading is derived from

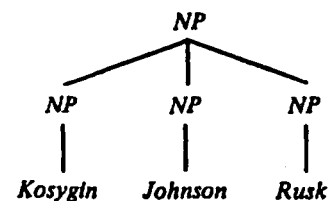
(86) *Kosygin met with Johnson and Kosygin met with Rusk.*

by the ordinary conjunction transformation. The other reading must come from

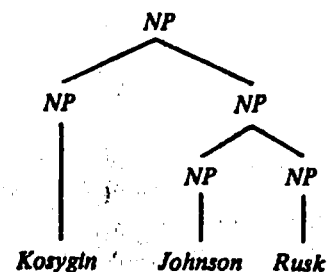
(87) *Kosygin and Johnson and Rusk met.*

by CONJUNCT MOVEMENT. At first it might appear that the transformation must be modified to move two noun phrases contrary to our claim above. Notice, however, that (87) is itself ambiguous. The subject can have any one of the structures (88):

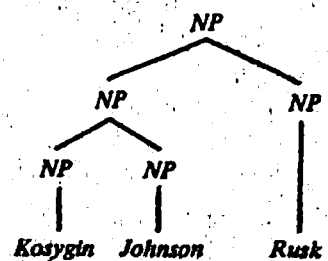
(88)(a)



(b)



(c)



The version of CONJUNCT MOVEMENT discussed above will apply to (88b) to produce the desired structure for (85). In (88a) there is no internal grouping of the conjuncts—either syntactic or semantic. (88b) describes a grouping in which Johnson and Rusk are a unit on a par with Kosygin by himself. In (88c) the grouping classes Kosygin and Johnson together as opposed to Rusk. Structures (88b) and (88c) are generated by recursive application of schema (3). Note that these structures are semantically distinct and all three are possible. Note that in the reading of (85) under consideration, Johnson and Rusk form a unit. Therefore, the structure in (88b) is the correct underlying structure of (85). So here, as in the examples above, CONJUNCT MOVEMENT takes the second of two conjoined noun phrases and moves it to the end of the following verb phrase. The same transformation applies in both cases.

It is clear that structures like (88b and c) can exist for verbs like *meet*. For (88c) we would get

(89) *Kosygin and Johnson met with Rusk.*

which, of course, is ambiguous in the same way that (85) is. That is, (89) could also be derived by ordinary conjunction rules from

(90) *Kosygin met with Rusk and Johnson met with Rusk.*

So far, we have described the process of conjunct movement in informal terms. Let us now consider the details. We mentioned above that *with* is not the only preposition that may attach to conjuncts. *To* and *from* may do so as well.

(91) *John, Bill, and Harry are similar to the Celtics in the way that they handle the basketball.*

(92) *The earth is identical to the moon in its chemical composition.*

(93) *Harvard and M.I.T. correspond to Berkeley in the quality and breadth of their combined course offerings.*

(94) *China and Russia differ from England and America in their combined nuclear resources.*

(95) *John, Bill, and Harry are distinct from the Celtics in their ability to handle a basketball.*

As is obvious, those verbs and adjectives that take *from* have a negative connotation, however that is to be described. We will distinguish them from the *to* cases by an arbitrarily chosen feature: *Positive*.

Note that in each of the above sentences, we have used a restrictive phrase to further specify the relationship signified by the verb or adjective. If we had not used such phrases the sentences would have been vague, bizarre, or meaningless:

(96) *John, Bill, and Harry are similar to the Celtics.*

(97) *The earth is identical to the moon.*

(98) *Harvard and M.I.T. correspond to Berkeley.*

(99) *China and Russia differ from England and America.*

(100) *John, Bill, and Harry are distinct from the Celtics.*

This is not true of sentences containing verbs and adjectives that take *with*.

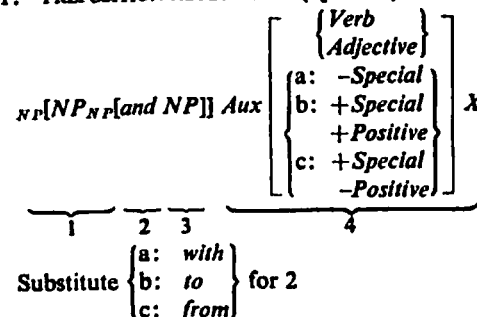
(101) *John left with Bill and Mary.*

(102) *John robbed a bank with Tom and Harry.*

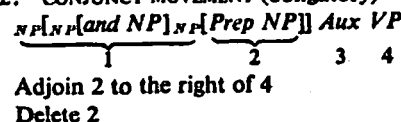
We need a syntactic feature to distinguish the cases that take *with* from those that take *to* or *from*. Notice that there is a semantic correlation to this syntactic property. The verbs and adjectives that take *to* or *from* require special interpretation, which must be supplied from extralinguistic context or an additional restrictive phrase. This is not true of verbs and adjectives that take *with*. Since the requirement of a special interpretation correlates to the distinction between the *with* cases and the *to-from* cases, we will call the feature that distinguishes these cases *Special*.

We can now state precisely the rules for conjunct movement.

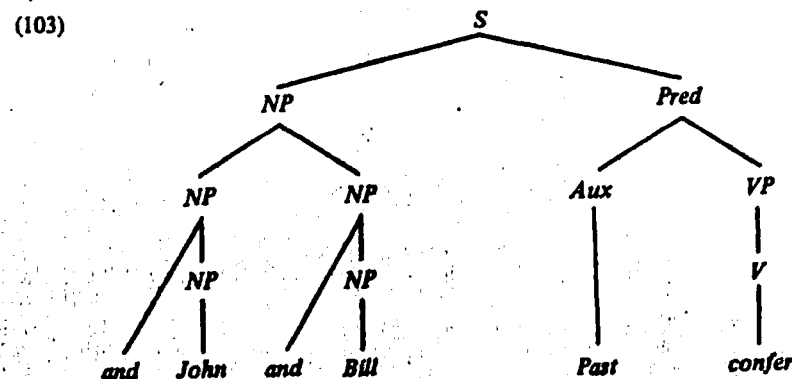
Rule 1: PREPOSITION ADJUNCTION (optional)



Rule 2: CONJUNCT MOVEMENT (obligatory)

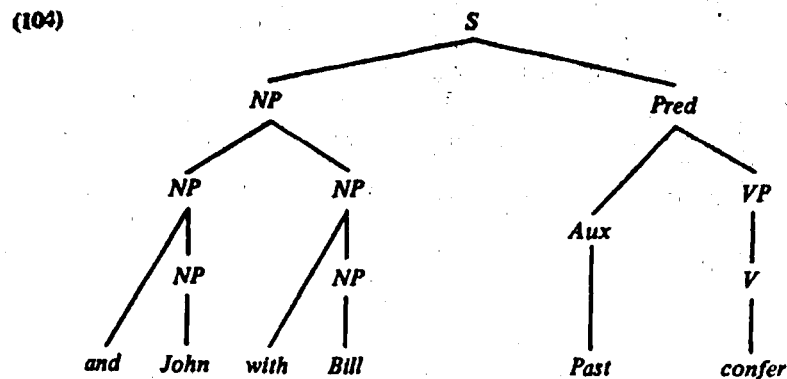


These rules will yield derivations like the following:

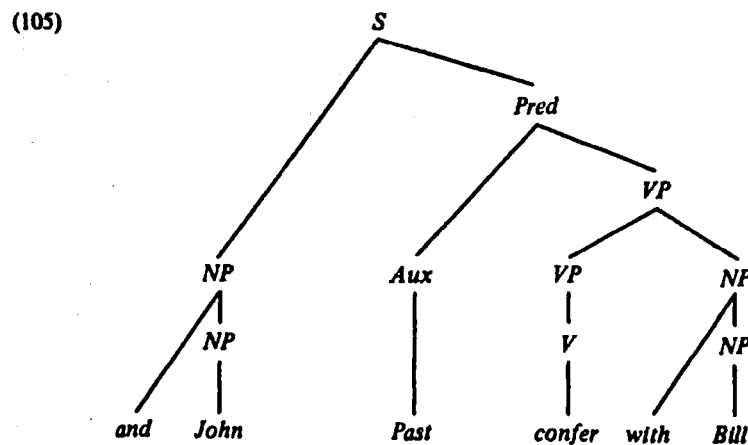


Recall that the reasons for assuming this structure in the subject noun phrase were discussed in footnote 2.

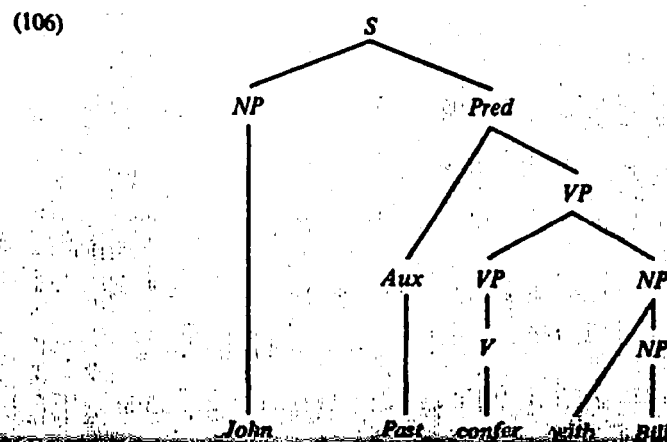
Applying Rule 1 we get:



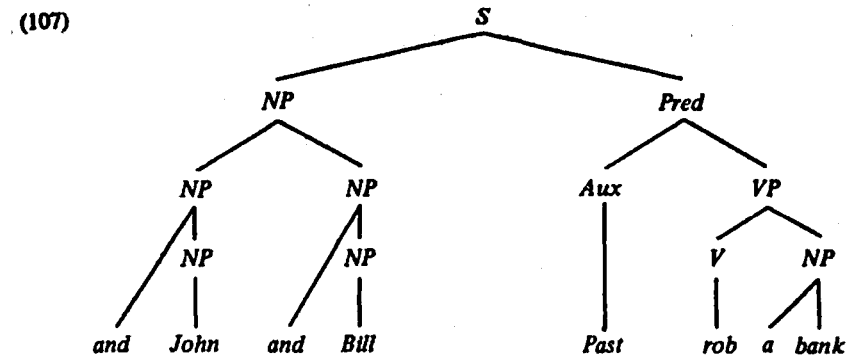
Applying Rule 2 we derive:



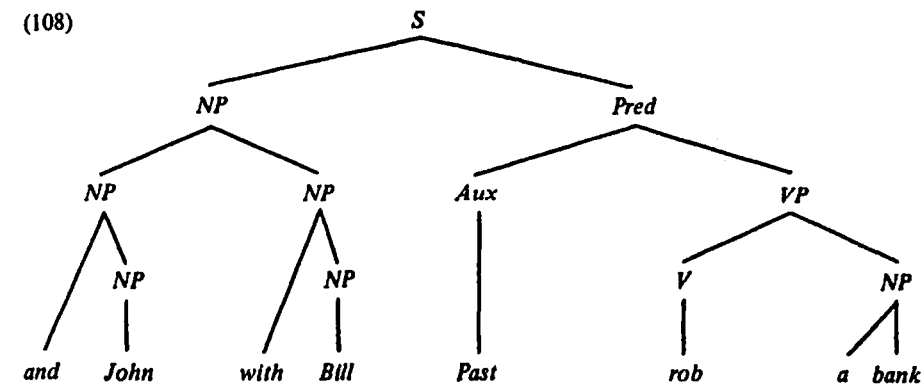
And after application of the obligatory *and*-deletion rule described in footnote 2 we get:



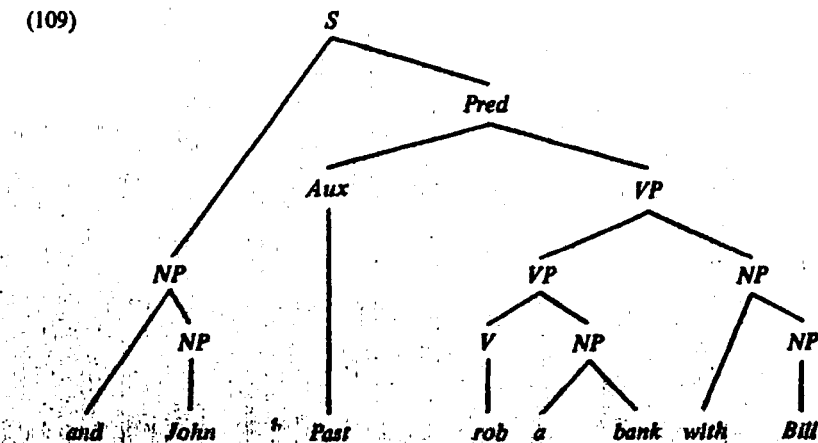
We will give two more sample derivations. First, *John robbed a bank with Bill.*



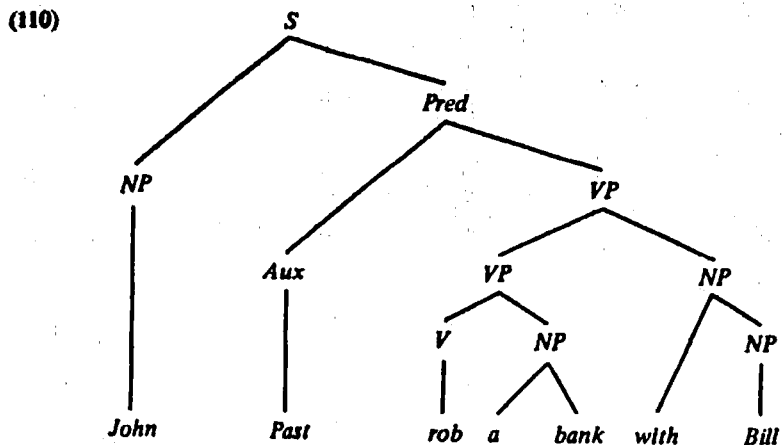
By Rule 1:



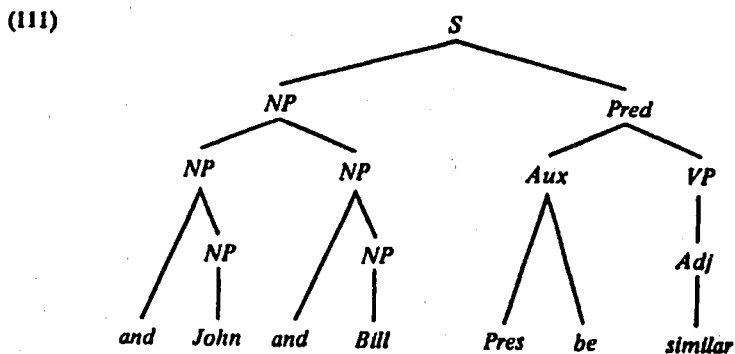
By Rule 2:



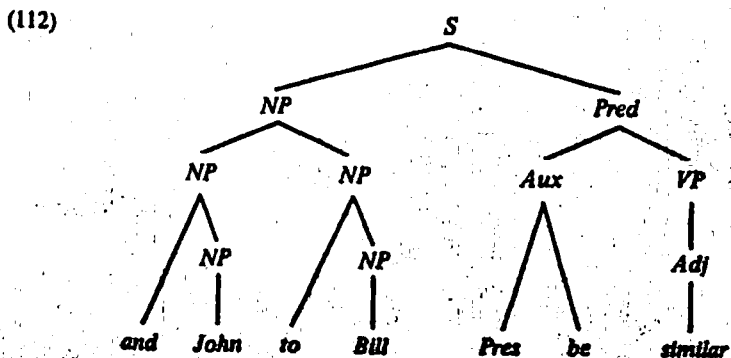
By obligatory *and*-deletion:



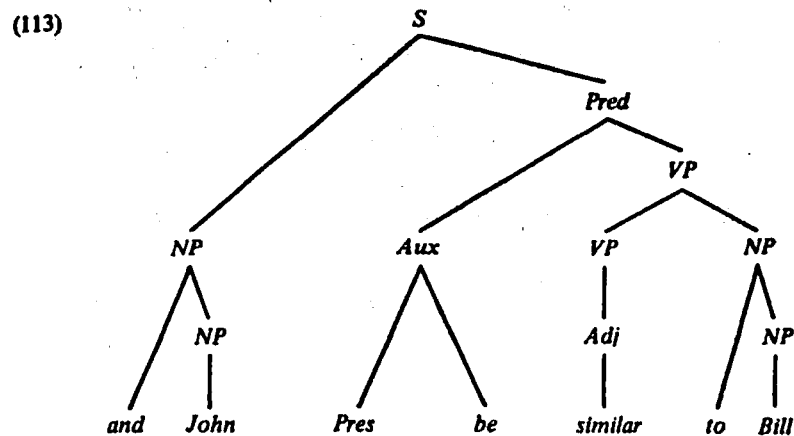
And in the following way we can get:
John is similar to Bill.



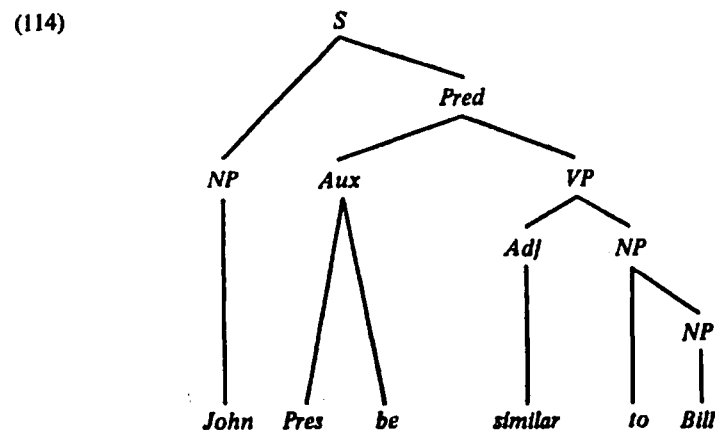
By Rule 1:



By Rule 2:



By the obligatory *and*-deletion rule:



As we pointed out above, these rules must follow the passive transformation in order to account for the difference in grammatical relations between *John killed with Bill* and *John was killed with Bill*. These rules will account for an enormous number of cases. However, as is usual in natural language, there are exceptions to these rules. Consider the adjective *apart*. We get (115) but not (116) and (117).

(115) *New York and San Francisco are 3000 miles apart.*

(116) **New York is 3000 miles apart from San Francisco.*

(117) **New York from San Francisco is 3000 miles apart.*

Thus, *apart* is an exception to Rule 1; it may not undergo Rule 1. The adjective *far* on the other hand must meet the structural description of Rule 1 and must undergo it.¹²

¹²For a discussion of items that must meet the structural description of some rule, see Lakoff (1965) and Lakoff (to appear).

(118) **Washington and Hanoi are far.*

(119) *Washington is far from Hanoi.*

Note that by deriving (119) from a sentence with an *NP** subject, we can automatically explain the fact the *far* is symmetrical and irreflexive. *Near* works very much like *far* in that it too must meet the structural description of Rule 1 and undergo the rule. But *near* has an additional idiosyncrasy. In some dialects the *to* which follows it may optionally delete and in other dialects the *to* must delete:

(120) **Boston and New York are near.*

(121) (*)*Boston is near to New York.*

(122) *Boston is near New York.*

Note that *to* never deletes when *near* is nominalized to *nearness*:

(123) *Boston's nearness to New York*

(124) **Boston's nearness New York*

This is a consequence of a general fact about preposition deletion in English. At some point in their derivations, all object noun phrases take prepositions as a kind of case marking. When substantivization takes place, that is, when a verb is transformed into a noun, the preposition remains:

(125) *the killing of the men*

(126) **the killing the men*

(127) *the killer of the men*

(128) **the killer the men*

However, if the verb is not transformed into a noun, the preposition is deleted by a postcyclical rule:

(129) *John killed the man.*

(130) **John killed of the man.*

Observe the difference between

(131) *John's killing of the man*

and

(132) *John's killing the man*

In (131) *killing* is a noun. We know this, since adjectives may be preposed before it, as in (133).

(133) *John's merciless killing of the man*

In (132), however, *killing* is still a verb since adjectives may not be preposed before it.

(134) **John's merciless killing the man*

The preposition deletion rule has four cases:

Case 1: Verbs that must take *NP** subjects.

Case 2: All other verbs.

Case 3: Adjectives that must take *NP** subjects.

Case 4: All other adjectives.

In Case 1, the preposition *to* normally deletes (in the unmarked cases) but there are some exceptions, e.g. *correspond*, *relate*. The preposition *from* never deletes. *With*, on the other hand, normally does not delete, but there may be exceptions, e.g. *meet* (meaning *make the acquaintance of*). In Case 2, the preposition *of* usually deletes; exceptions are *conceive of*, *think of*, etc. Other prepositions also normally delete; an exception is *decide on*. In Case 3, *with* and *from* may never be deleted; there are no exceptions. *To* is usually kept, but there are exceptions, e.g. *near*, *like*. In Case 4, the preposition may never be deleted; there are no exceptions.

Near is an exception with respect to the preposition deletion rule, since it must take an *NP** subject (Case 3), but may undergo preposition deletion. Thus, *near* is an exception both to Rule 1, because it *must* undergo preposition adjunction, which is otherwise optional, and to the rule for preposition deletion, which normally does not apply to Case 3, but may with *near*. Note that deriving *near* in this fashion allows us to explain why it, like *far*, is symmetrical and irreflexive.

Resemble is another exception. Like *near* it must meet the structural description of Rule 1 and undergo the rule. It is normal in that it undergoes preposition deletion, since it has an *NP** subject and takes *to* (see Case 1).

(135) **John and Bill resemble.*

(136) **John resembles to Bill.*

(137) *John resembles Bill.*

Resemble is very close in meaning to *similar* and in a sentence like (138) a special interpretation or restrictive phrase is required, as in (139).

(138) *John, Bill, and Harry resemble the Celtics.*

(139) *John, Bill, and Harry resemble the Celtics in the way that they handle the basketball.*

Thus, *resemble* requires the feature [+ *Special*] and takes the preposition *to* when Rule 1 applies, even though the preposition is later deleted. However, the preposition *to* does show up as predicted in nominalizations:

(140) *John's resemblance to Bill*

(140) is parallel to (141):

(141) *John's similarity to Bill*

After Rule 2 has applied to *resemble*, the resulting structure meets the structural description of the passive transformation. But, as is well-known, we do not get sentences like

(142) **Bill is resembled by John.*

But this is precisely what we would predict, since as we pointed out above the passive transformation must precede conjunct movement. That is, at the time at which the passive transformation is reached in the sequence of rules, Rule 2 has not yet applied and *resemble* is still an intransitive verb. The same is true of *marry*, *equal*, and *meet* (in the sense of *make the acquaintance of*). Thus, we can explain not only why these verbs do not undergo the passive, but also why they are symmetric, irreflexive, and have the same selectional restrictions on their subjects and superficial objects.

Equal, by the way, turns out to be regular with respect to preposition deletion.

Equal would be unspecified in the lexicon for being either a verb or an adjective, and so could occur as both. If it occurred as an adjective we would get either *x and y are equal* or *x is equal to y*. The presence of *to* here is regular since *equal* is an adjective in this sentence. If *equal* occurs as a verb, we get *x equals y*, which again is regular since *to* normally deletes after verbs. The only thing irregular about *equal* would be the nonoccurrence of such sentences as *x and y equal* where *equal* is a verb. We could express this by entering *equal* in the lexicon with a Boolean condition stating that if it occurs as a verb, then it must undergo preposition adjunction (and consequently, conjunct movement and preposition deletion). Such Boolean conditions are discussed in Lakoff (1965) and Lakoff (to appear).

Note that our assumption that *with* and *to* are deleted by the ordinary post-cyclical preposition deletion rule can explain why *with* can never be deleted in the case of an underlying transitive verb (e.g. see (50)). The preposition deletion rule specifies that a preposition can be deleted only directly after a verb. In the case of transitive verbs, the *with* prepositional phrase can appear only following the entire verb phrase, and so it will always appear after the object noun phrase and never appear directly after the verb. The structural description of the deletion rule will never be met in such cases. Thus, we can explain an otherwise strange fact.

Let us now consider the words *married* and *engaged* as in the following examples:

- (143)(a) *John and Mary are married.*
- (b) *John and Mary are engaged.*
- (144)(a) *John is married to Mary.*
- (b) *John is engaged to Mary.*

Both *married* and *engaged* in the above sentences are adjectives that take NP* subjects. They are regular in that they take *to* and do not undergo preposition deletion (Case 3). The fact that they are adjectives can be determined by their occurrence in certain diagnostic environments where adjectives, but not the passive participles of transitive verbs can occur. Note that *married* in the above sentences has the same phonological form as the passive participle of the transitive verb *to marry* as in (145).

- (145)(a) *The preacher married John and Mary.*
- (b) *John and Mary were married by the preacher.*

If the agent in (145b) were not *the preacher* but some unspecified person, then the *by*-phrase would delete and we would get (146).

- (146) *John and Mary were married.*

(146), however, is ambiguous while (145b) is not. (146) may either be derived from a passive sentence like (145b) with *by*-phrase deletion or it can be the past tense of the simple predicate adjective construction in (143a). The fact that (143a) is not ambiguous follows from the fact that the passive of the transitive verb *marry* cannot occur in the present tense (except the historical present, in which case (143a) is ambiguous).

- (147) **John and Mary are married by the preacher.*

Note that the adjective *married* can occur directly after verbs like *seem* and *look*, while the passive participle cannot, regardless of tense.

- (148)(a) *John and Mary seemed married.*
- (b) *John and Mary looked married.*
- (149)(a) **John and Mary seemed married by the preacher.*
- (b) **John and Mary looked married by the preacher.*

(148) is unambiguous and only the adjective occurs. The sentences of (149) cannot occur at all, since the passive participle interpretation of *married* is forced by the presence of the *by*-phrase.

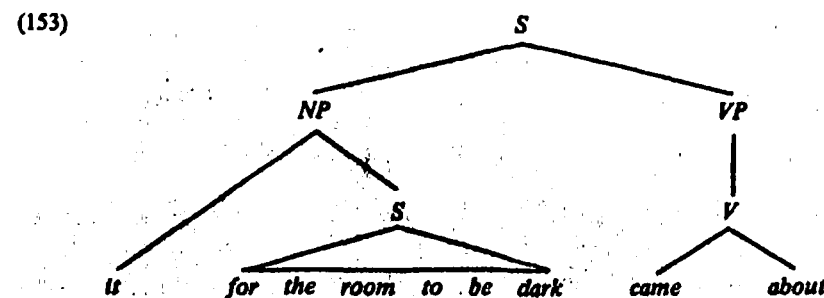
But the morphological variants of *marry* are certainly related in their occurrences in the following sentences:

- (150)(a) *John and Mary are married.*
- (b) *John and Mary married.*
- (c) *The preacher married John and Mary.*
- (151)(a) *John is married to Mary.*
- (b) *John married Mary.*
- (c) *The preacher married John to Mary.*

The (a), (b), and (c) sentences are related to one another in the same way as the following sentences:

- (152)(a) *The room is dark.*
- (b) *The room darkened.*
- (c) *Harry darkened the room.*

It was claimed in Lakoff (1965) that the (b) and (c) sentences are transformationally derived from underlying structures which include the underlying structures of the (a) sentences. The (b) sentences are derived by embedding the structure underlying the (a) sentences in the subject of a verb semantically equivalent to the verb *come about*:



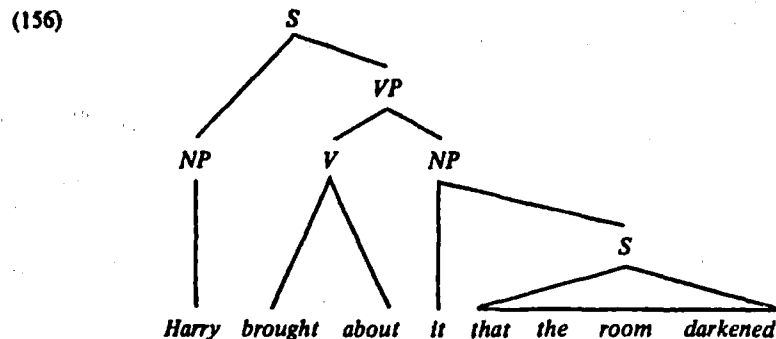
With the real verb *come about* we would derive sentences like

- (154) *The room came to be dark.*
- (155) *The room became dark.*

These are synonymous to (152b). If, instead of the real verb *come about*, there appeared in the underlying structure a pro-form with the same meaning, additional rules would apply which would substitute *dark* for the pro-form, yielding

the verb *darkened* in sentence (152b). Thus, *darken* is a derived, not an underlying, verb. Precisely the same process yields (150b) and (151b). Thus, *marry* is a derived verb in these sentences. Note that the deletion of *to* in (151b) is perfectly regular since *marry* has become a verb by the time the postcyclical preposition deletion rule applies. (Recall that *marry* falls under Case 1 above.) Note that the *to* appears in the transformationally derived substantive *John's marriage to Mary*.

The sentence of (152c) would be derived by further embedding the structure underlying (152b) inside the object of a pro-form corresponding to a verb meaning *to cause, bring about, or effect*.



This would yield (157).

(157) *Harry brought it about that the room darkened.*

(157) is synonymous with (152c). As before, if there appeared a pro-form in the deep structure instead of *bring about*, then an additional rule would substitute *darken* for the pro-form, yielding (152c). Here, as before, *darken* is a derived, not an underlying verb—in this case, a transitive verb in the superficial structure. Note that the underlying subject of *darken* turns out to be the superficial object of *darken*.

By the same process, we would derive (150c) and (151c). Thus, the transitive verb *to marry* in these sentences would be a derived verb, not an underlying one. Notice that in (151c) the *to* cannot be deleted postcyclically, since the above processes occur cyclically. By the time the rule is reached *to* is no longer immediately after the verb *marry* and so the rule cannot apply to it. Thus the sentences of (150) and (151) are all completely regular!

We have stated that these cases are completely regular. But one apparent irregularity which has long been noticed is that (151b), though superficially transitive, is not passivizable; but (150c) and (151c) are passivizable.

(158) **Mary was married by John.* (As the passive of (151b))

(159) *John and Mary were married by the preacher.* (The passive of (150c))

(160) *John was married to Mary by the preacher.* (The passive of (151c))

The occurrence of (159) and (160) shows that the rule which substitutes the intransitive *marry* for the *bring about* pro-form must precede the passive transformation.

Notice that the rules we have given allow two different ways of deriving the unique surface structure of

(161) *John married Mary.* (Equals (151b))

from a single deep structure. The two derivations are schematically represented below:

- | | | |
|----------|---|-----------|
| (162)(a) | <i>it for John and Mary to be married [came about Pro-form]</i> | Cycle 1 |
| (b) | <i>John and Mary [came about Pro-form] for to be married</i> | Cycle 2 |
| (c) | <i>John and Mary [came about Pro-form] married</i> | |
| (d) | <i>John and Mary married</i> | |
| (e) | <i>John to Mary married</i> | |
| (f) | <i>John married to Mary</i> | |
| (g) | <i>John married Mary.</i> | Postcycle |
| (163)(a) | <i>it for John and Mary to be married [came about Pro-form]</i> | Cycle 1 |
| (b) | <i>it for John to Mary to be married [came about Pro-form]</i> | |
| (c) | <i>it for John to be married to Mary [came about Pro-form]</i> | |
| (d) | <i>John [came about Pro-form] for to be married to Mary</i> | Cycle 2 |
| (e) | <i>John [came about Pro-form] married to Mary</i> | |
| (f) | <i>John married to Mary</i> | |
| (g) | <i>John married Mary.</i> | Postcycle |

In (162) preposition adjunction and conjunct movement do not apply on the first cycle, but rather on the second. Recall that preposition adjunction is optional, and that conjunct movement depends on it. Since the process is optional, it can apply on either cycle, providing of course that the structural description is met. In (163), it has applied on the first cycle, not on the second. If it had not applied on either cycle, we would have derived (164).

(164) *John and Mary married.* (Equals (150b))

Since the passive transformation is a cyclical rule, we must explain in each case why it cannot apply. Let us consider (163) first. The only point at which the structural description of the passive transformation could be met is at line (f) of (163). Before that point is reached *married* must substitute for *[came about Pro-form]*, deriving line (f) from line (e). But before that can happen, the rule deleting *for to be* must apply. By ordering the passive before that rule, we can account in a natural way for the nonoccurrence of (158). We know from the study of English complementation that this can be done.¹³

This rule ordering would also account for the impossibility of passivization in the derivation of (162). But in (162) we have an independent explanation of the lack of passivization. As we pointed out in the case of *resemble* the passive transformation must precede preposition adjunction and conjunct movement. In this derivation, the verb *marry* would be intransitive at the point at which the passive transformation was reached in the cycle. So, passivization could not possibly apply.

If we derive the various forms of *marry* in this way, then we need not set up a transitive verb *marry* in the lexicon which would require an underlying *NP** object. Instead, we would have an intransitive adjective, which, like many other adjectives, requires an *NP** subject. But the other occurrences of verbs which apparently

¹³See Rosenbaum (1965), Ross (1966), and Lakoff (to appear).

require an underlying NP^* object can be treated in the same way. Consider the sentences

- (165)(a) *The sand and the loam are mixed.*
 (b) *The sand and the loam mixed.*
 (c) *John mixed the sand and the loam.*
- (166)(a) *The sand is mixed with the loam.*
 (b) *The sand mixed with the loam.*
 (c) *John mixed the sand with the loam.*

Mix in the (c) sentences is a case of an apparent transitive verb requiring an NP^* object. But it seems to work just like *marry* and we can handle it that way. We would like to claim that all transitive verbs which appear to require an NP^* object are derived in the same way from underlying intransitives. Most such verbs, like *mix*, have occurring underlying adjectives as in (165a). But there are a few exceptions such as *introduce*, *exchange*, and *switch* which have hypothetical underlying forms which must meet the structural description of the rule which derives the (c) sentences from the (b) sentences—the causative transformation. The underlying form of *introduce* would have the meaning and basic grammatical properties of *meet* in the sense of *make the acquaintance of*. The underlying forms of *exchange* and *switch* would resemble the adjective *reversed* as in (167).

(167) *This pole and that pole seem reversed.*¹⁴

If we are correct in this assertion, then it follows that verbs need not be sub-categorized with respect to whether they are restricted to taking or not taking NP^* objects in the deep structure. In other words there is no need for a feature [$\text{---}NP^*$] which could distinguish between verbs that do and do not take NP^* objects in deep structure. Thus, all underlying transitive verbs may take NP^* or not freely in their underlying objects.

In terms of the features that we have already discussed there are certain generalizations that can be stated. Take the feature *Special*, for example, which correlates to the *to-from* versus *with* distinction. All of the verbs and adjectives which are [+*Special*] have the following grammatical properties: they *must* take NP^* subjects; they are intransitive; and they are stative. We might state these facts with the redundancy rule:

$$(168) [+Special] \rightarrow \left[\begin{array}{l} +NP^* \\ -\text{---}NP \\ +Stative \end{array} \right]$$

This is an absolute generalization. There is also a generalization that we can state in terms of markedness: It is normal for verbs and adjectives that *must* take NP^* subjects (those that are marked for that feature) to be intransitive. We know of

¹⁴There are certain transitive verbs with superficial NP^* objects which are clearly derived from intransitive adjectives with NP^* subjects, but are not causatives. Among them are *compare*, *equate*, *relate*, and *liken*. These are obviously derived from *comparable*, *equal*, *related*, and *like/alike* respectively. But they do not have the meaning of causatives. We have no idea as to the deep structure of such verbs, although we can be sure that they are not basic and are derived from their corresponding intransitive adjectives.

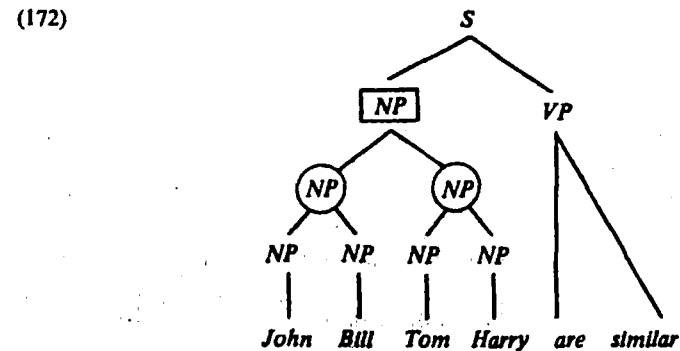
only a handful of verbs that are not intransitive that must take NP^* subjects (e.g. *agree*, *conspire*...). We might state his generalization by the redundancy rule:

$$(169) \left[\begin{array}{l} m NP^* \\ u \text{---} NP \end{array} \right] \rightarrow [-\text{---} NP]$$

Let us now look at another property of verbs and adjectives that have NP^* subjects. Consider the difference between the sentences of (170) and those of (171):

- (170)(a) *John and Bill are similar to Tom and Harry.*
 (b) *John and Bill are similar to that group.*
 (c) [*John and Bill*]_{NP} and [*that group*] are similar
 (d) [[*John and Bill*]_{NP} and [*Tom and Harry*]_{NP}]_{NP} are similar
 (e) **That group is similar.*
 (f) *Those groups are similar.*
- (171)(a) *John and Bill conferred with Tom and Harry.*
 (b) *John and Bill conferred with the committee.*
 (c) [*John and Bill*]_{NP} and [*the committee*] conferred
 (d) [[*John and Bill*]_{NP} and [*Tom and Harry*]_{NP}]_{NP} conferred
 (e) *The committee conferred.*
 (f) *The committees conferred.*

In these sentences we are considering only the readings which are not derived from sentence conjunction. So, for example, the only underlying structure for (170a) that we are considering is (172).



With this underlying structure, (170a) receives the interpretation that the group of John and Bill is similar in some unspecified respect to the group of Tom and Harry. But this structure does not assert that the four individuals, John, Bill, Tom, and Harry, are similar in any respect. The similarity is predicated only of the two groups. This is clearer in (170b) where *John and Bill* are considered as a unit on the one hand and *the group* is considered as a unit on the other.

But this "group interpretation" does not hold in the sentences of (171). In (171a), it is not only true that the groups conferred but that the individuals conferred as well. Thus, *confer* is predicated not only of the two groups, but also of the four individuals. This fact about group interpretation correlates with a syntactic fact, as can be seen in sentences (e) of (170) and (171). A singular collective

noun (like *group* or *committee*) may not occur as the subject of a verb or adjective that takes a group interpretation (*similar* but not *confer*).

As we saw in (170b-c), a singular collective noun (*group*) functions like an NP^* embedded inside of an NP^* . That is, there is a significant grammatical distinction between a top-level NP^* (such as the NP enclosed in the square in (172)) and an embedded NP^* (such as the NP 's enclosed in circles in (172)). A singular collective noun always functions like an NP^* . But with verbs and adjectives that take a group interpretation, a singular collective noun functions always like an embedded NP^* , never like a top-level NP^* . That is why sentence (170e) is ungrammatical. *That group* there cannot play the role of a top-level NP^* , since *similar* takes a group interpretation. However, (171e) is grammatical since *confer* does not take a group interpretation. For verbs and adjectives of this class, any singular collective noun is equivalent to an NP^* subject.

Now we can state a further generalization: all [+Special] verbs and adjectives take a group interpretation. In addition, every verb and adjective that takes a group interpretation must obligatorily take an NP^* subject.

Let us now consider a subcategory of those verbs and adjectives that optionally take NP^* subjects. Consider the following sentences:

- (173)(a) *John and Bill own the house together.*
 (b) *John and Bill robbed the bank together.*
 (c) *John and Bill opened the door together.*
 (d) *John and Bill killed Harry together.*
- (174)(a) *John and Bill ran together.*
 (b) *John and Bill left the party together.*
 (c) *John and Bill hit Harry together.*
 (d) *John and Bill arrived late together.*

In the sentences of (174), it is entailed that each individual performed the indicated action. In other words, (174a) entails both *John ran* and *Bill ran*. That is, the phrasal conjunction entails the sentence conjunction (but not vice versa, of course). However, in the sentences of (173), this is not true. For example, if (173a) is true, then it is false that *John owns the house* and false that *Bill owns the house*. In these sentences the falsehood of each member of the corresponding sentence conjunction is entailed.

Before concluding, we would like to point out the impossibility of deriving sentences with NP^* subjects from *each other* constructions, a derivation which has been proposed in several places, e.g. Gleitman (1965). It might be claimed that sentences like (175) are derived from (176).

- (175)(a) *John and Bill met.*
 (b) *John and Bill are similar.*
 (c) *John and Bill killed Harry (together).*
- (176)(a) *John and Bill met each other.*
 (b) *John and Bill are similar to each other.*
 (c) **John and Bill killed Harry with each other.*

(175) would be derived from (176) by the deletion of *each other*—the deletion being obligatory in the case of (176c). (176) would be derived from sentence conjunction, as in (177).

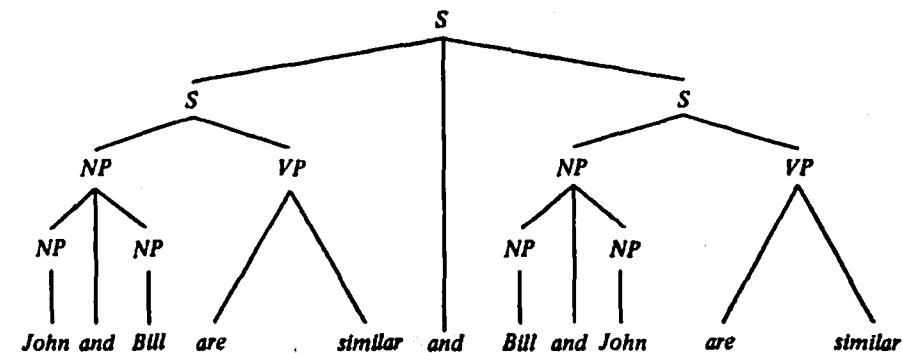
- (177)(a) *John met Bill and Bill met John.*
 (b) *John is similar to Bill and Bill is similar to John.*
 (c) *John killed Harry with Bill and Bill killed Harry with John.*

This solution would presumably avoid the necessity of having NP^* subjects at all. It is the (c) cases that show that it is impossible to eliminate NP^* subjects in this manner. In the (c) cases, the *with* phrases would have to be considered as occurring in deep structures. But as we showed above, this is impossible since the grammatical relations they express depend upon whether or not the passive transformation has applied. To accept such an analysis would be to give up the concept of deep structure—a single level on which grammatical relations determine semantic interpretation. It would also mean that we would have to give up the natural explanations that we have given for the symmetry of the constructions, the lack of reflexives, the lack of passives, etc. All of these would then have to be given by *ad hoc* constraints, which would be difficult, if not impossible to state. This leads us to believe that such a solution is untenable.¹⁵

¹⁵It is fair to ask how we would get sentences like

John and Bill are similar to each other.

One possible answer would be that such sentences are derived from deep structures like



This would be transformed to

John is similar to Bill and Bill is similar to John.

Then by the same rule that turns *John killed Bill and Bill killed John* into *John and Bill killed each other*, we would get

John and Bill are similar to each other.

The deep structure of this sentence, under our analysis, would contain a conjunction of two sentences that are identical in meaning and differ syntactically only in the order of their NP^* subjects. Since the sentences do differ syntactically, such a deep structure would not violate the constraint that two identical sentences may not appear in a deep structure conjunction. However, since the two conjoined sentences would have the same meaning, we would predict that the derived sentence would be redundant. This is correct. English teachers commenting on style correctly tell us to avoid sentences like *John and Bill are similar to each other* since they are unnecessarily redundant and since *John and Bill are similar* will carry the meaning just as well with fewer words. With the proposed analysis we can explain the redundancy in such sentences and the lack of a similar redundancy in sentences like *John and Bill killed each other*, where the conjoined sentences in the deep structure are not semantically identical.

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III

PRONOMINALIZATION

Pronominalization is the process that replaces one or more co-referential noun phrases in the deep structure of a sentence with the corresponding personal pronouns in the surface structure. The first transformational treatment of pronominalization, R.B. Lees and Edward S. Klima's "Rules for English Pronominalization," shows how co-referential noun phrases on the right undergo pronominalization. Rules are presented for deriving simple, reflexive, and reciprocal pronouns.

The next two papers investigate the conditions on deep structure configurations necessary for pronominalization to take place—in particular, the constraints on forward and backward pronominalizations. Ronald W. Langacker, in "On Pronominalization and the Chain of Command," develops such a set of conditions, introducing the notion of "command"—a relation among nodes in the tree configuration. He then discusses the significance of this notion for other grammatical processes of English. John Robert Ross, in "On the Cyclic Nature of English Pronominalization," argues for the placement of pronominalization within the transformational cycle.

Whereas the first three articles are concerned with the nature of the pronominalization process, the fourth deals with the forms of the personal pronouns themselves. In "On So-Called 'Pronouns' in English," Paul M. Postal adduces syntactic evidence for considering pronouns as a variety of definite article. His treatment exemplifies the striking kinds of differences that can be found between the underlying and surface forms of sentences.