

sentence, that is, within the same simple phrase marker, will yield reflexive forms, while identity within a complex sentence, that is, across sentence boundaries, will yield nonreflexive pronoun forms. However this condition is stated formally within the theoretical framework of the grammar, it does an impressive amount of work and can often be used as a clue to the analysis of certain sentence types.

There are, however, sentences in which compelling considerations force us to entertain the possibility of exceptions to the restriction on reflexivization. This paper will deal with one of these seeming exceptions, as exemplified by the sentences in (1):

- (1) a. *John read a book about himself.*
- b. *John heard a description of himself.*
- c. *John gave Mary a picture of himself*
 (or herself).
- d. *John gave Mary some statistics about*
 herself (or himself).

Although the occurrence of reflexive pronouns should indicate that these are simplex sentences, other considerations point to a different analysis. The possible presence of a relative clause--*John read a book which was about John, John gave Mary some statistics which were about Mary*--forces us to consider these as complex sentences of the type in which relative clauses yield postnominal modifiers. That is, the sentences in (1) would appear to result from the application of the same rules that produce *John stared at the blood on him* from *John stared at the blood, The blood was on John* → *John stared at the blood which was on him*. In the sentences under discussion here, then (which will be referred to as "picture sentences" for convenience), the two underlying sentences would be of the type *John read a book, The book was about John*. Since neither of these simplex sentences contains two occurrences of *John*, there appears to be no way to reconcile this analysis with the previously stated condition on reflexivity.

Three possibilities now present themselves: (a) we can try to ascertain whether there is a different analysis that would somehow provide an antecedent noun within the simple phrase marker to yield the reflexive; (b) we can re-examine the condition on the reflexive to determine whether some reformulation is called for; (c) we can accept picture expressions as exceptions to the reflexive rule and perhaps note some generalizations about the rule that would be required to produce them. This paper will be concerned

Reflexivization

primarily with point (c).

The troublesome construction is of the form
NP₁-of/about-NP₂, involving such NP₁ as *book, picture, description*.¹ The nouns that fit into the NP₁ position are fairly numerous, as can be seen from the list (2), which, though extensive, is, I am sure, far from exhaustive.

(2) Picture Nouns

Group I (Nominalizations with *of*)

discussion (discuss)	drawing (draw)
description (describe)	sketch (sketch)
remembrance (remember)	snapshot (snap a shot of)
film (film)	advertisement (advertise)
painting (paint)	dramatization (dramatize)
photograph (photograph)	illustration (illustrate)
allegory (allegorize)	portrayal (portray)
impersonation (impersonate)	representation (represent)
outline (outline)	silhouette (silhouette)
diagram (diagram)	takeoff (take off?)
imitation (imitate)	parody (parody)
burlesque (burlesque)	distortion (distort)
sight (see)	view (view)
reflection (reflect)	satire (satirize)
depiction (depict)	analysis (analyze)
study (study)	critique (criticize)
criticism (criticize)	judgment (judge)
evaluation (evaluate)	estimation (estimate)
assessment (assess)	measurement (measure)
appreciation (appreciate)	knowledge (know)
summary (summarize)	appraisal (appraise)

Group II (Nominalizations with *about* or *on*)²

A

talk (talk about)	generalization (generalize about)
speech (speak about)	comment (comment about)
lecture (lecture about)	tale (tell about)
commentary (comment about)	argument (argue about)
report (report about)	oration (orate about)
sermon (sermonize about)	conversation (converse about)
debate (debate about)	muttering (mutter about)
recitation (recite about)	gossip (gossip about)
chatter (chatter about)	lie (lie about)
whisper (whisper about)	joke (joke about)

Florence Warshawsky Harris

broadcast (broadcast about)	journal (journalize about)
song (sing about)	dissertation (dissertate on)
writing (write about)	dream (dream about)
fable (fable) ³	complaint (complain about)
reflection (reflect about)	theory (theorize about)
testimony (testify about)	slander (slander)

B

?statement (state something about)	proclamation (proclaim something about)
declaration (declare something about)	pronouncement (pronounce something about)
report (report something about)	imagining (imagine something about)
announcement (announce something about)	decree (decree something about)
thought (?think something about)	discovery (discover something about)
finding (find something about)	doubt (?doubt something about)
belief (believe something about)	knowledge (know something about)
assumption (assume something about)	guess (guess something about)
supposition (suppose something about)	revelation (reveal something about)
?plan (plan something about)	notice (note something about)
note (note something about)	saying (say something about)
phrase (phrase something about)	utterance (utter something about)
detail (detail something about)	insinuation (insinuate something about)
decision (decide something about)	deduction (deduce something about)
admission (admit something about)	observation (observe something about)
disclosure (disclose something about)	confession (confess something about)
claim (claim something about)	prediction (predict something about)
feeling (feel something about)	composition (compose something about)

Group III

question	address	account
rumor	engraving ⁴	carving

Reflexivization

treatise (treat?)	etching	conception
vision (envision?)	conviction	information
impression	opinion (opine?)	story (story) ⁵

Group IV (Nonnominalizations)

sentence	material	data
statistics	spectacle	paragraph
memories	falsehood	drama
picture	print	portrait
book	play	movie
opera	novel	essay
article	letter	poem
statue	bust	(auto)biography
history	epic	cartoon
program	show	thesis
bulletin	volume	tract
pamphlet	magazine	periodical
fiction	anecdote	parable
theme	model	shadow
likeness	image	perspective
opinion	facsimile	idea
truth	evidence	notion
illusion	fact	

All the picture nouns seem to have something to do with a form of intellectual, creative, or sensory activity. There is also a sense of communication involved, implying a subject matter. If we take *John* to be this subject matter, we can then say a picture noun will fit into the following possible paraphrases: *John is (appears) in a ...*, *John is the subject of a ...*, *A ... is about John*.

The list has been organized on the basis of certain obvious characteristics of these nouns. Some are followed by *of*, others by *about*. An overwhelming proportion are nominalized verbs, formed by the same rule that yields typical nominalizations of the type in (3):

- (3) a. *The committee approved the plan* →
The committee's approval of the plan
- b. *Wall Street reacted to the news* →
Wall Street's reaction to the news

The nouns that take *of* plus object have underlying verbs that are transitive (Group I): *Mary discussed John* → *Mary's discussion of John*. Most of the nouns which take *about* (or *on*) plus object have underlying verbs with *about* (or *on*)

plus object (Group II): *Mary argued about John* → *Mary's argument about John*. The correspondence here is almost perfect, with *slander* (*They slandered John* but **John heard slander of himself*) being among the few exceptions. This kind of match between the preposition following a verb and the preposition that appears in one type of nominalization of that verb is quite common in English and will be mentioned again later.

Before we proceed to specific observations on the other groups in (2), there are several additional points we should note about the verbs underlying so many of the picture nouns. The choice of possible objects is very wide, as illustrated in (4):

- (4) a. *John believed that Mary was beautiful.*
- b. *John stated the facts clearly.*
- c. *John photographed everything he saw.*
- d. *John judged Mary to be efficient.*
- e. *John argued about the green hat on the table.*
- f. *John complained about Mary's having behaved so badly at the party.*

There are, of course, certain specific restrictions for some of the verbs: **John complained about that Mary had behaved badly*, **John measured Mary's having behaved so badly*.

The possible objects in every case include nouns that are [+human]. (A distinction has to be made here between examples like *lectured John*, which is possible but not directly relevant to these expressions, and *lectured about John*, which is both possible and relevant. Furthermore, there are cases like **stated John* versus *stated the point*, but there is also *stated the point about John*.)

The subjects of the verbs must be animate, though not necessarily human, depending on how one regards sentences like *The squirrel thought about taking the nut from me but then decided to run away*. Ignoring the rather special case represented by *The machine remembered the data*, the only significant examples I could find of inanimate subjects for these verbs turned out to be nouns of the very type being discussed here, as shown in (5):

- (5) a. *The article analyzed the statements that had been uttered at the conference.*
- b. *The painting depicted the horrors of war.*
- c. *The book argued about the causes of the depression.*

Reflexivization

Since, as mentioned previously, these nouns all concern the results of animate intelligence or sensation, the sentences in (5) could be viewed as being related to sentences like *In the article someone analyzed...*, *In the painting someone depicted...*. These expressions, then, may not be exceptions to the [+human] subject required by the verbs.

Returning to the groups of nouns in the list (2), it should be mentioned that the categories are not very strict ones, and there is a good deal of overlapping. I have categorized Group IIB separately because the underlying verbs there seem to require special consideration. A number of them--those in the first part of the group--are verbs occurring in a construction that is often assumed to be another exception to the reflexivization condition:

(6) *John believes himself to be irresistible.*

The problem here arises from the fact that certain considerations suggest the following source sentences for (6): *John believes it*, *John is irresistible* → *John believes it for John to be irresistible*. Here, again, reflexivization seems to operate on identity across sentence boundaries. Under this assumption, the relevant verbs could then be marked as having to undergo the special reflexivization rule being considered here even when the nominalization rule has not applied. That is, the other verbs underlying picture nouns would undergo the special rule only when marked [+Noun], while *believe* verbs would be [+Verb] (with the further restriction that they have an infinitival complement--to avoid **John believes that himself is irresistible*).

A related problem is that if *Someone believes something about John* is not taken as a simplex sentence, then the rule for deriving *someone's belief about John* has to operate on two source sentences, and our special reflexivization rule, when applied to nominalizations of verbs like *believe*, will have to apply across three sentence boundaries instead of just two. Compare (7) and (8):

(7) I *John heard it S*

II *Someone discusses John* →
a discussion of John

John heard a discussion of himself

(8) I *John heard it S*

II *Someone declared something* } →
III *Something was about John*
a declaration about John

John heard a declaration about himself

The other nouns in Group IIB have been included because there is reason to believe that the preceding remarks apply in part to them. They are different from the *belief* type in that there is no occurrence of **John uttered himself to be irresistible*. But they are similar to the *belief* nouns in that nominalizations like *Someone's Nom about John* may require two source sentences, given the possibility of, for example, *Someone uttered something which was about John*.

The last two groups in the list (Groups III and IV) include nouns of two kinds: (a) those with possible underlying verb forms that do not fit the patterns of Groups I and II, and (b) those with no obvious underlying verb forms.

Clearly, there are many more nominalizations than non-nominalizations in list (2), which leads one to consider whether Group IV nouns might not also be nominalizations of some kind. Consider first (9) and (10):

- | | | |
|-----|----------------|-------------------------|
| (9) | <i>dream</i> | <i>have a dream</i> |
| | <i>argue</i> | <i>have an argument</i> |
| | <i>lecture</i> | <i>give a lecture</i> |
| | <i>speak</i> | <i>give a speech</i> |
| | <i>state</i> | <i>make a statement</i> |

- | | |
|------|-------------------------|
| (10) | <i>have an idea</i> |
| | <i>have illusions</i> |
| | <i>make a spectacle</i> |
| | <i>take a picture</i> |

The verbs in (9) appear both as verbs and as nominalizations in {*have/give/make*}-Article-Nom constructions. The latter seem parallel to the constructions in (10), although here the nouns do not have obvious underlying verbs. Let us consider, then, the possibility that *have, give, make, etc.* are, in such cases, just dummy verb markers that appear in the superficial structure rather than coming in from the deep structure. We could then go on to assume that *idea, spectacle, etc.* do have underlying verb forms and that the same nominalization rule that applies to yield *discussion* from *someone discusses* obligatorily applies to *someone ideas* to yield *idea*. This could be extended even further to nouns like *book*, admittedly a wilder assumption. That is, *write* could be added to the list of dummy markers so that *write a book, poem, tragedy, ...* could be viewed as being parallel to *have a dream*. Then again, *someone books* would obligatorily be nominalized to produce *book*.

Let us interrupt briefly our discussion of picture nouns as nominalizations to make one further comment about the Group III nouns. Among these appears *rumor*, with a rather unusual underlying verb form. It is frequently noted that

Reflexivization

although sentences like *John is rumored to have a jail record* are perfectly acceptable, there is no corresponding active sentence from which that passive form can be derived: **They rumored John to have a jail record*. The fact that *rumor* is one of the picture nouns may show something further about the existence of some active form for the verb. (Indeed I notice now that other verbs of this kind appear in the list--*John is said/reported to have a jail record*--although for some reason I am now at a loss to explain, I grouped *rumor* separately. Perhaps all this has something to do with the peculiarities of the *someone-Verb-something-about-someone* constructions, but I have not done enough thinking along this line to make any suggestions.)

To return to the subject of *idea* and *book* as nominalized verbs, it can be demonstrated that this assumption would result in substantial savings in the grammar. Verbs have to be marked for which complements they can take, and so do certain nouns (*The idea that...*). The same is true of prepositions, and, as was noted previously, the preposition following a nominalization is usually predictable from the verb. (I am assuming here that transitive verbs would be followed by *of*, which, for most verbs, would then be obligatorily deleted in the absence of nominalization.) If, then, the Group IV picture nouns were all considered to be verbs, this type of selection would have to be stated only in the verb system and would not have to be repeated for nouns.

A similar point has to do with agentive nominals. It is well accepted that these nominals in *-er* are based on verbs: *He farms* → *He's a farmer*. Note that there is at least one case of an agentive nominal in *-er* that seems to be based on a noun in the list of picture nouns--*biographer*.

Furthermore, there are many examples of nouns in *-ist* that have related verb forms. Taking only examples from the list:

<i>he analyzes</i>	<i>analyst</i>
<i>he satirizes</i>	<i>satirist</i>
<i>he caricatures</i>	<i>caricaturist</i>
? <i>he journalizes</i>	<i>journalist</i>
? <i>he allegorizes</i>	<i>allegorist</i>

Thus, it is far from unjustified to claim that other nouns in *-ist* on the list might also come from related verb forms: *novelist*, *essayist*, *cartoonist*, *anecdotalist*, *lyricist*, *dramatist*?, *portraitist*?. By the same token, we have *critic*, for *criticize*, so we may have *poet* for some verb underlying *poem*. It is also possible to think of

certain agentive nominals in *-eer* and *-ian* as related to verbs: *profits-profit*, *auctions-auctioneer*; *guards-guardian*. Again, there are several nouns of this type related to the apparent nonnominalizations in our list: *balladeer, pamphleteer; historian, tragedian, comedian*. The savings that would result from the formation of all agentive nominals within the verb system alone are readily apparent.

The statement of the special reflexivization rule being discussed here would also be simplified if all picture nouns were derived from verbs. Since it is assumed that nominalized verbs will not appear in the dictionary, a large proportion of the nouns in the list will be entered only as verbs, which will have to be marked somehow for this rule. If *book* and *idea* nouns are not verbs, the rule will have to be restated and repeated for nouns. Consider, in this regard, (11)-(14):

- (11) a. *John heard a description of himself.*
b. *John heard Mary's description of him.*
- (12) a. *John read an analysis of himself.*
b. *John read the psychiatrist's analysis of him.*
- (13) a. *John listened to a speech about himself.*
b. *John listened to the master of ceremonies' speech about him.*
- (14) a. *John had a good opinion of himself.*
b. *John was well aware of Mary's opinion of him.*

It seems from these pairs that an intervening noun blocks reflexivization across sentence boundaries even with these special picture noun constructions. Furthermore, where the picture nouns are obvious nominalizations, the intervening noun is clearly the subject of the underlying verb. Where the picture noun is not an obvious nominalization, the structure with the intervening noun is obviously related to a form with one of our dummy verbs, with the intervening noun as the subject: *Mary has an idea about John* → *Mary's idea about John*. Not only does this provide further motivation for considering *book* and *idea* nouns to be nominalized verbs, but it is also a needed part of the rule that could be stated most simply and most generally when applied only to verbs. That is, where the subject of the underlying verb is a proform that is subsequently deleted under nominalization, reflexivization will operate across sentence boundaries. Where the subject is not deleted in nominalizing the verb, the special reflexive rule is blocked (except where the subject and object are identical: *John liked his speech about himself*).

REFLEXIVIZATION II

The principle that reflexivization operates only within a simple sentence while pronominalization ranges over complex sentences is a well-motivated and extremely useful one. However, it has had to be re-examined in the light of attempts to define its operation within the framework of the theory of the cycle. If reflexivization is indeed limited to simple phrase markers, it would seem that the rule would have to be outside the cycle of transformations. Cyclical application would permit it to range over "complex" strings when sentence boundaries are erased and would therefore produce ungrammatical forms like **She begged him not to beat herself*. On the other hand, there are certain occurrences of reflexive forms that are so far unexplainable under this assumption. Consider (1):

- (1) *John saw a picture of himself.*

In expressions like *picture of himself*, one feels that *of himself* modifies *picture*, and this intuition is borne out syntactically by the passive of (1), i.e., *A picture of himself was seen by John*. The sentence in (1) seems to be a typical construction formed by the operation of relativization on the underlying sentences: *John saw a picture, The picture is of John* → *John saw a picture which is of John*. However, neither of the source sentences contains two occurrences of *John* to explain the reflexive form that appears in the derived sentence (1). There is, then, no way to reconcile this analysis with the principle of restricting reflexivization to simple phrase markers. Thus, one is forced either to find and justify a different analysis for sentences like (1) or to admit reflexivization into the cycle. Actually, as will be discussed, there may even be reason to do both.

Were this the only type of example left unaccounted for under the assumption that reflexivization operates precyclically, one might simply propose that an ad hoc rule applies cyclically to these forms only. The existence of sentences like (2) and (3), however, complicates the picture still further:

- (2) *John prevented himself from killing himself.*⁶
 (3) *John believed himself to be irresistible.*

Sentence (2) poses a problem in that there is no sentence **John prevented himself from it* or *John prevented himself* to act as one of the underlying strings. It has been suggested (Rosenbaum, 1967) that this *from* is introduced as a complementizer rather than as a preposition. In any event,

there is no readily apparent way to account for the reflexive forms in (2) without admitting reflexivization into the cycle.

Forms like (3) occur with at least forty rather common verbs (e.g., *know*, *proclaim*, *assume*, *declare*, *imagine*, *judge*). Given the reflexive form, it would seem, on the surface, that *himself* is the object of the verb, as in *John convinced himself to murder his mother*. However, although *John believes himself* is a perfectly acceptable sentence, it does not seem to be the semantically appropriate main sentence for (3). To support this intuition there is the fact that verbs like *believe* also occur in constructions like (4):

- (4) *John believed there to be tickets available .*

Assuming *himself* to be the object of *believe* in (3) implies that *there* is the object in (4). *There*, however, is not a proper object (**I believe there*). Indeed, the fact that it cannot occur with certain verbs (**John convinced there to be tickets available*) is strong support for the assumption that complement structures with *convince* are not introduced in the same way as complements with verbs like *expect*, for example. Thus, it would seem that the reflexive form in (3) is not the object of *believe*.

A possible explanation which would be consistent with the simple-sentence condition on reflexivization is as follows. The occurrence of sentences like (5) must be accounted for:

- (5) a. *John believes it of himself .*
b. *John expects too much of himself .*
c. *John revealed something about himself .*

Clearly, verbs like *expect* and *believe* do occur with prepositional phrases that can be interpreted as having been introduced within the same simple phrase marker. Furthermore, note (6):

- (6) a. *I believe it of John that he could do something like that .*
b. *I expect it of myself to succeed .*
c. *He revealed something about Mary that was startling .*

In light of such examples, it does not seem unreasonable to assume that, just as *convince* can be followed by an object and some sort of prepositional phrase in one simple phrase

Reflexivization

marker (*I convinced him of it*), so can *expect* and *believe* (*I expect/believe it of him*). And the existence of the prepositional phrase in simplex *expect/believe* sentences would explain the appearance of the reflexive, as shown, roughly, in (7):

- (7) *John believes [it S] of John*
John believes [it S] of himself
John believes [it for John to be ready] of himself
John believes himself to be ready.

There are several different groups of verbs that might be involved here: (a) verbs like *expect* (*require, desire, ...it of oneself*); (b) verbs like *believe* (*announce, reveal, declare, desire, imagine, know, ...something about oneself; ...oneself to be*); (c) verbs like *utter* (which do not take to-complements but do have *utter something about oneself*).

Such an analysis would simplify at least two more statements that may have to be made in the grammar. Obviously, *discussion* is a nominalization of *discuss*, as *declaration* is of *declare*. But note (8):

- (8) a. *Someone discusses John* → *a discussion of John*
b. $\left\{ \begin{array}{l} \text{Someone declares something} \\ \text{Something is about John} \end{array} \right\} \rightarrow \begin{array}{l} \text{a declaration} \\ \text{about John} \end{array}$

If, instead, we consider sentences like (5) to be simplex, the nominalization in (8b) will work on one sentence--*Someone declares something about John*--just as it does in (8a). This would allow a more general nominalization rule.

The same advantage applies when considering sentences like those in (9):

- (9) a. *John heard a discussion of himself.*
b. *John heard a declaration about himself.*

Let us assume for the moment that these are exceptions to the constraint on reflexivization and therefore require a special rule. If (8b) is taken as the source for *declaration*, reflexivization would have to cross three sentence boundaries to yield (9b). If, on the other hand, *Someone declares something about John* comes from one simple phrase marker, only two sentence boundaries would be involved in both (9a) and (9b).

Furthermore, consider (10):

- (10) a. *John read a book which was about him.*
b. *John read a book about himself.*

The appearance of the reflexive in (10b) but not in (10a) could be taken to mean that the sentences do not have the same source, that is, that (10a) is the result of the relativizing operation on two source sentences, while (10b) results from reflexivization in a simple sentence. The sentences *John heard something about himself* and *John heard something which was about him* do indeed seem to have different interpretations and therefore can conceivably be thought of as having different underlying structures. However, this analysis by no means provides all the answers, since there is still no ready explanation for the occurrence of sentences like (4) with *there*: it is clearly not possible to postulate an underlying form like **John believed it of there*. Something might be worked out along the lines of *John believed it of tickets for tickets to be available*, but this is obviously not the most natural of solutions. Furthermore, note (11):

- (11) a. *John read a book about himself to himself.*
 b. *John read Mary's book about him to himself.*

The introduction of *Mary's* in sentence (11b) seems to block reflexivization after *about* but does not affect the reflexive form after *to*, which seems to indicate that the entire *about* construction cannot be in the same simple sentence as the *to* construction.

A different account has been offered (Rosenbaum, 1967) for the *believe* sentences that has the distinct advantage of explaining the appearance of both the reflexive and *there* but that is based on the assumption that reflexivization must be allowed to operate within the cycle. According to this analysis, sentences like (3) would have the underlying forms in (12):

- (12) a. *John believes [it ↓ S]_{NP}*
 b. *John is irresistible*

That is, *believe* is assumed to be among those verbs that take nominal complements as objects. Then, an extraposition rule, which is needed to account for the position of the complement in sentences like *It is desirable for John to be here*, is assumed to apply vacuously to (13):

- (13) *John believes [[it]_N [for-to John be irresistible]_S]_{NP}*

The result is that the complement *S* is taken out of the *NP*, yielding (14):

- (14) *John believes [it]_{NP} [for-to John be irresistible]_S*

Reflexivization

Sentence (14) then undergoes the pronoun replacement rule that takes the subject of the complement sentence and substitutes it for the object *it* of the main sentence, giving (15):

(15) *John believes [John]_{NP} [for-to be irresistible]_S*

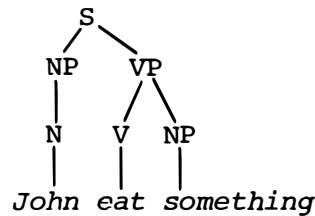
And reflexivization can now apply to yield *John believes himself to be irresistible*. The appearance of *there* with *believe* verbs can now be explained in the same way, that is, *there* is the subject of the complement that is substituted for the pronoun that is the object of the main sentence.

One result of this analysis seems suspicious, however. Although sentences like *John believed it of himself that he was irresistible* and *John believed himself to be irresistible* are both accounted for, different underlying structures are assumed despite the fact that they are clearly open to the same semantic reading.

All the examples cited above seem to provide sufficient reason to give serious consideration to the question of allowing reflexivization to operate cyclically. The crucial problem, as mentioned earlier, is how to block its operation to avoid **She begged him to stop beating herself*. Another look at the analysis for *believe* sentences yields one possible approach. Observe that in (15), the noun to be reflexivized is no longer in the complement sentence but now in the main sentence, in other words, under the same *S* as the identical antecedent noun needed to produce the reflexive form. Let us, then, reinterpret the notion of simplex sentence in terms of cyclical theory as a string--underlying or derived--dominated by a single *S*.

Transformations operate on terminal strings and state the reordering of these strings, but they give no information as to the resulting effect on the phrase marker. On the other hand, it is necessary to specify the constituent structure each time a new transformation is applied to an already transformed string. Thus there is a crucial need to discover rules for obtaining derived constituent structure, but the basic questions of what these rules should be, how they should work, and what they should produce are very far from having been answered. One fundamental issue still to be resolved is whether it is desirable to destroy as much structure as possible or preserve as much as possible. Take (16) as an example:

(16)



In deriving *John eats* from *John eats something*, what happens to the VP node to which the NP dominating *something* was attached? Since VP will now have only one branch, should it be preserved, or should it be erased and V attached to S?

There are other problems, too. If some type of erasure should take place, at what point are nodes to be erased--as each rule applies or postcyclically? And what effect will erasure have on the "is a" relations represented in the tree, and on the structure indices of transformations?

If it could be shown that a certain erasure principle yielded a tree that under some interpretation correctly predicted occurrences of the reflexive, there would be significant motivation for preferring that particular approach to derived constituent structure over another and would perhaps suggest a takeoff point for further investigation.

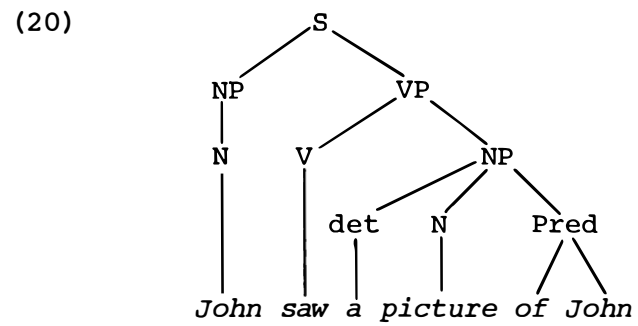
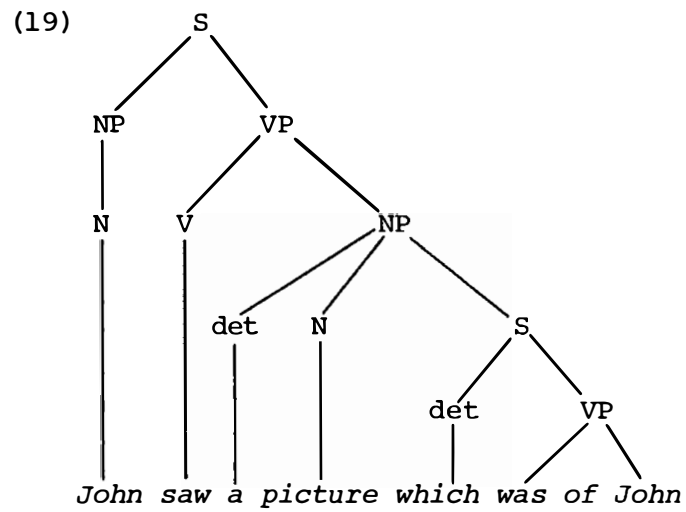
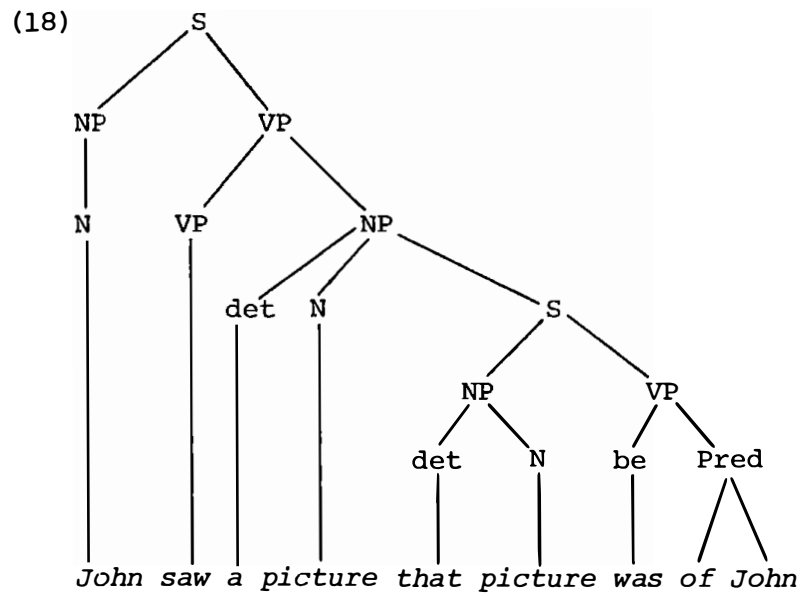
The interpretation proposed above--that reflexivization operates on identical nouns dominated by the same S--has the double advantage of allowing reflexivization to apply cyclically while at the same time maintaining the valuable generalization about the rule operating within a simplex sentence. The question is, will it work?

Let us look first at a possible--and very rough--derivation of the sentence (17):

(17) *John saw a picture of himself*

A series of trees will be presented in (18)-(20), representing first the underlying and then the derived constituent structure that might result from the application of reflexivization to the assumed source sentence. The particular rules involved are well known and will therefore not be described here. In the derived trees, single-branching nodes will be erased.

Reflexivization



Note that (19), in which the node S cannot be erased because there is binary branching under it, yields (21):

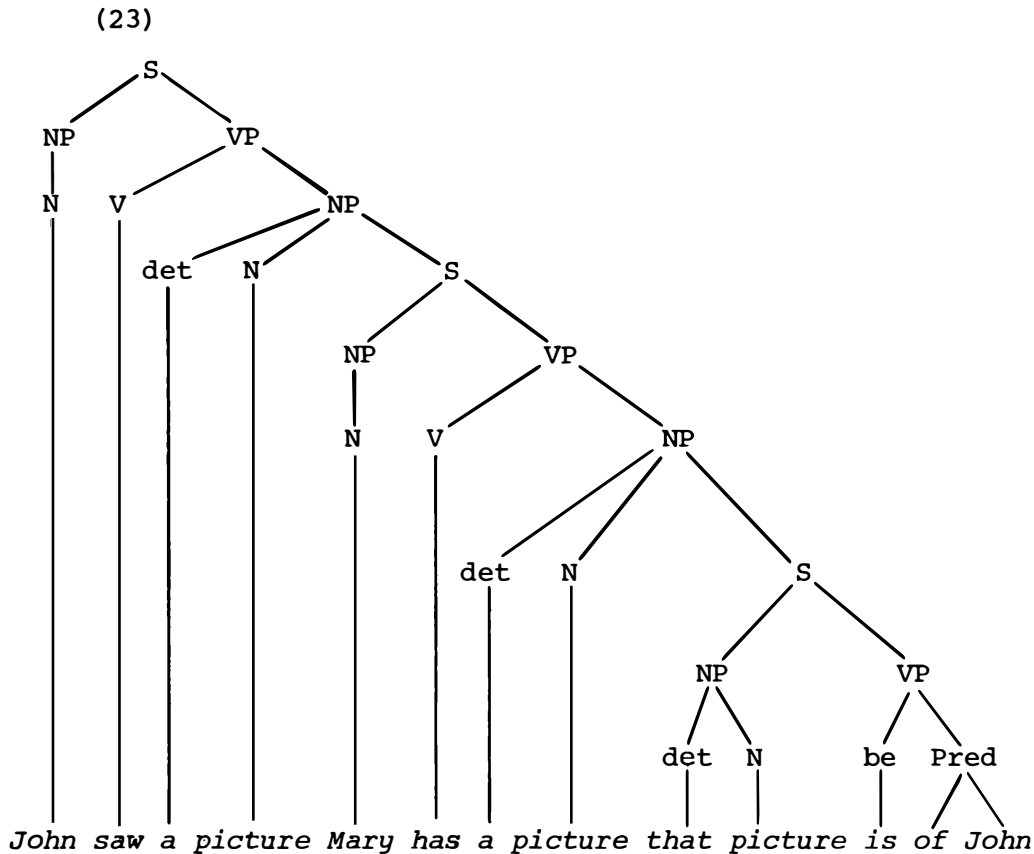
(21) *John saw a picture which was of him.*

In (20), on the other hand, the S node is erased because of the deletion of *which was*, and the result is sentence (17), in which the reflexive appears.

Now let us compare the tree in (20) with the final tree in a possible derivation of the sentence (22):

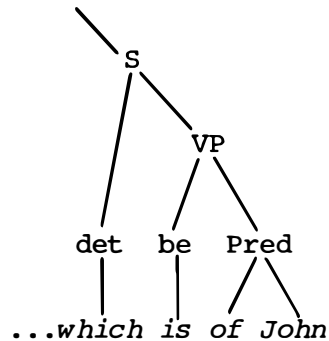
(22) *John saw Mary's picture of him.*

Note that the appearance of *Mary's* in this sentence, rather than the indefinite article, seems to block the reflexive. We would therefore hope to get a tree in which the constituent S is not erased. Here, again, the trees will be presented without explanation. They are obviously very rough approximations, and certain details could be added and others changed. The point at issue here, however, would presumably not be affected.

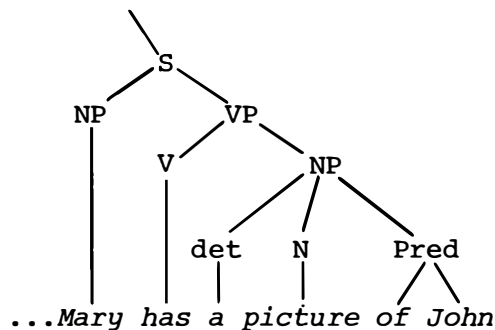


Reflexivization

(24)



(25)



Note that at this stage, the most deeply embedded S has been erased, since only Pred remained. Thus, if the subject of the resulting sentence were *John* rather than *Mary*, we would get *John has a picture of himself*, with the reflexive form correctly predicted.

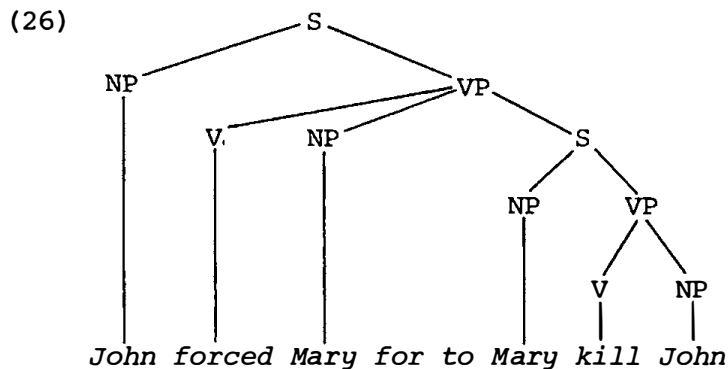
We will now assume that the string in (25) is transformed into *Mary's picture of John*. If this transformation were not applied, the result would be *John saw a picture which Mary has of him*. Note that there is no reflexive form in this sentence, as is correctly predicted by the fact that the S dominating the embedded string in (25) still has two branches and is therefore not erased.

I am forced to omit the final tree in the derivation because I don't know how to draw it, that is, where and under what to put the genitive form. It is still quite clear, however, that at least the NP (*Mary's*) and Pred (*of John*) of the embedded sentence remain, meaning that the S node has two branches and is therefore not erased.

There are, however, the inevitable problems, and unfortunately they are fairly serious. First of all, it is immediately obvious that some rather weird "is a" relations are set up in the trees. Furthermore, the suggested derivations and source sentences fail to take advantage of an important generalization about the nouns that can occur in constructions

like *picture of John*--that is, that most of them, and possibly all of them, are derived from verbs. I have spent much effort in trying to determine possible derivations making use of this fact, but have not succeeded in coming up with anything workable, that is, with anything I could formalize. If verb forms are used, relativization cannot be the combinatory process: the verb in the main sentence cannot be nominalized until sentence boundaries are erased, and there is therefore no identical noun to fit the structure index. Thus, it seems that complementation has to be used. Here, however, one encounters the still open questions of exactly how and when and under what conditions a verb is to be nominalized and what the nominalization does to the derived constituent structure. Some patterns that may be significant will be mentioned directly.

First, there is another problem that must be brought up with regard to the proposal about S deletion. Note the tree in (26):



To get the sentence *John forced Mary to kill him*, the identical noun *Mary* is deleted and the NP node is erased. The result is that only VP is left under the embedded S node and therefore it, too, would be erased. According to the principle we are discussing, this should produce a sentence with the reflexive: **John forced Mary to kill himself*.

Thus, although the principle seems to have much about it that seems right, a good deal more study is required to determine just what is wrong. Obviously, the conventions for erasing nodes must be more precisely formulated. Furthermore, it is hard to see why the two sentences *John forced Mary to kill him* and *John forced himself to kill himself* should not have the same derived constituent structure. Thus it seems that the "S principle" discussed above may not be a sufficient condition for the appearance of the reflexive. Indeed, an examination of all the sentences discussed thus far reveals that those in which the reflexive form does not appear all

Reflexivization

have one thing in common; that is, there is an intervening noun between the identical noun and its antecedent. This middle noun turns out to be the subject of the embedded sentence. When, on the other hand, the subject of the constituent sentence is the identical noun, the reflexive form results. This is true whether it appears as the underlying subject or the derived subject after passivization. With this in mind, note (27) and (28):

- (27) a. *John heard himself being discussed by Mary .*
b. *John heard Mary discussing him .*
- (28) a. *John saw a picture of himself by Mary .*
b. *John saw Mary's picture of him .*

Here, I believe, lies the direction for further study.

NOTES

¹For many people, *on* must be included here, in the sense of 'about', 'concerning', as in *a discussion on*, *a takeoff on*. In a few cases, *on* may be the preferred choice: *a dissertation on*, *a report on*.

²See Note 1.

³Verb form cited in various dictionaries.

⁴One might also regard *engrave John* to be like *paint John*. *Carving* and *etching*, also listed in this subgroup, might be regarded in the same way.

⁵Verb form cited in various dictionaries.

⁶This sentence was suggested to me by George Lakoff.