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NATURAL SYNTAX FOR NAVAHO

Kip Canfield

I. Introduction

I will deal here with two syntactic rules that have been posited for the grammar of Navaho. They are relative clause extraposition (henceforth referred to as RCE--Perkins, 1975) and enclitic raising (henceforth referred to as ER--Kaufman, 1974), both of which were considered to be rules exhibiting unbounded rightward movement. The theoretical concern that motivates this study has two inter-related aspects: (1) the transformational component of many forms of transformational grammar (TG) fails to distinguish two different kinds of phenomena (see below); (2) a formal syntactic theory should try to represent the internalized grammar of a speaker, that is, it should have defensible arguments for psychological reality.

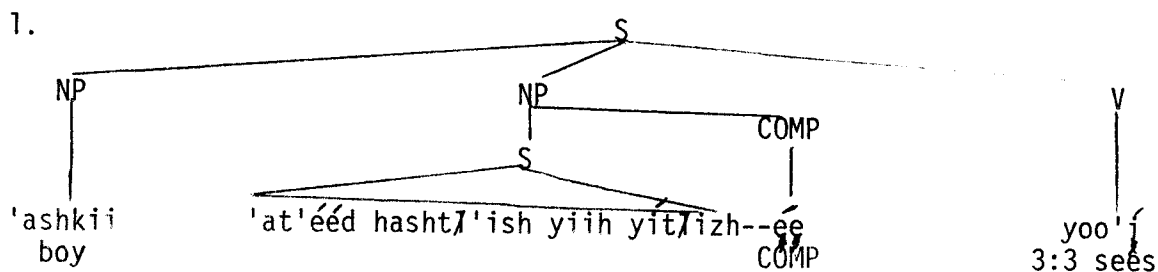
The first concern is based upon a simple distinction. Transformations are usually posited for two basic reasons. Some transformations produce structures that are deformed for a performative marking reason. These would include WH-movement and topicalization in English. These structures are not easily motivated in the phrase structure rules. Other transformations simply relate somewhat synonymous sentences. These include the passive and raising transformations in English. Such transformations are always structure-preserving. TG has formally ignored this distinction and has applied the cover term 'transformation' to both types of rules. I will motivate this distinction below in the discussion of Navaho. The transformations with a performative marking function will be illustrated by ER. The transformations that have a relating function will be exemplified by RCE. These structures will be considered as base-generated, and the rules that relate them to other structures are interpretive.

The second concern follows from the rule distinction outlined above. The separation divides the rules into those that apply 'top-down', that is, those that are real-time processes, and those that apply 'bottom-up', that is, those that are interpretive. This distinction makes stronger claims about what a speaker does when using these structures. This results in a more psychologically real description because of the shift in the place of abstraction.

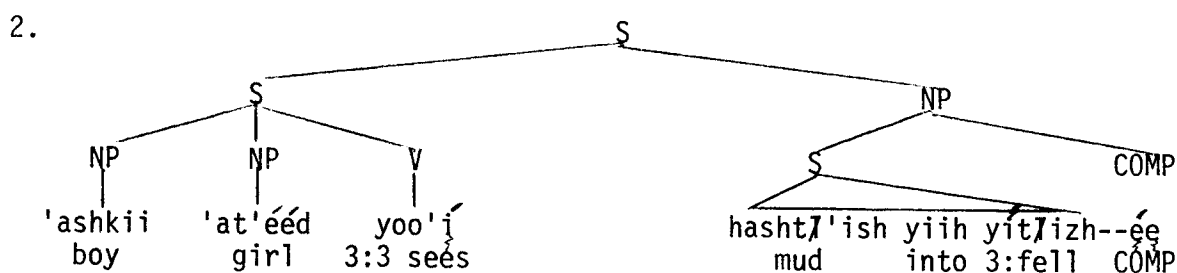
This rule distinction and its resulting naturalness have been previously discussed in Natural Generative Phonology (Hooper, 1974), Upside-Down Phonology (Leben and Robinson, 1977), and in syntax with Brame's (1974) Inverted Cycle Hypothesis. These will be briefly discussed in relation to the present analysis in the conclusion of this paper. The rest of the paper is structured as follows: II. Relative Clause Extraposition (RCE); III. Enclitic Raising (ER); IV. Conclusion.

II. Relative Clause Extraposition (RCE)

The extraposition analysis for relative clauses was proposed by Perkins (1975) in order to explain the relationships shown in these examples (from Perkins):



'The boy sees the girl who fell in the mud.'



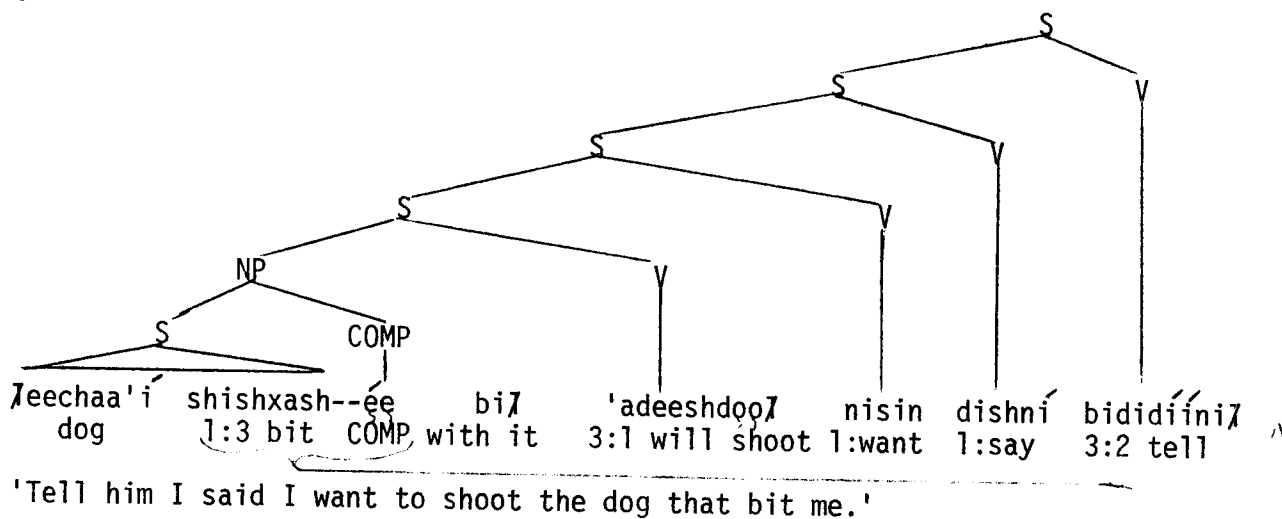
'The boy sees the girl, the one who fell in the mud.'

The first example shows the basic SOV order. Relative clauses are headless¹ in Navaho and so the relative clause construction in (1) is syntactically a nominalized clause, indistinguishable in form from an object complement. This creates ambiguity in that any NP may be considered the head. Context usually mitigates this. The second example shows the application of RCE. The NP 'girl' has been raised from the subordinate clause and the remainder has been attached at the root node.

Perkins concluded that these two sentences should be related by the rule of extraposition. Her decision was based on the fact that the posited extraposition rule was a root transformation (i.e. exhibits unbounded movement) and that it conforms to Ross's island constraints. I shall briefly consider evidence against these contentions and then present an alternative analysis.

The unbounded nature of RCE is posited in response to sentences such as these (from Perkins):

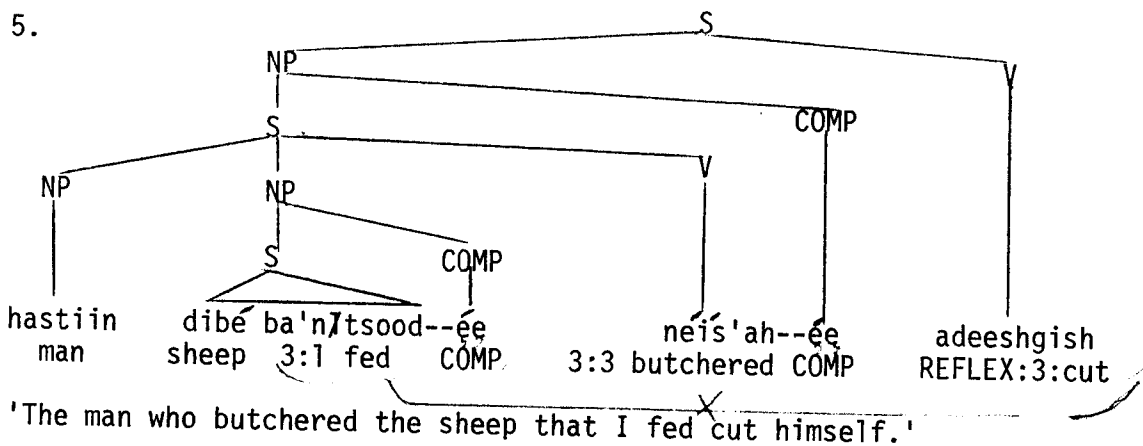
3.



4. λ eechaa'i bi λ 'adeeshdoo λ nisin dishní bididíini λ , shishxash--ée
 dog with it 3:1 will shoot 1:want 1:say 3:2 tell 1:3 bit COMP
- 'Tell him I said I want to shoot the dog, the one that bit me.'

The strange thing here is that the movement only takes place over direct discourse verbs. No complementizer surfaces between the alleged sentences. I take this as evidence that there are no clause boundaries crossed in (3) and therefore a posited movement rule would not be unbounded. There are also semantic arguments for the lack of COMP here. The quoted utterance in (3) is not oriented personally or temporally with the speech act until the end of the direct discourse verb string. This adds additional support to the argument above in that the superficial lack of COMP reflects the semantic unity of this type of VP consisting of the direct discourse verb string.²

The second argument used by Perkins is that RCE obeys Ross's island constraints. The only relevant one here is the Complex NP Constraint (CNPC).³ Perkins offers this example in support of the CNPC for Navaho:



6. *Hastiin dibe néis'ah-ée adeeshgish, [ba'ni]tsood-ée]
-

The result of RCE is ungrammatical. The adjoined clause cannot refer to hastiin because that would entail stacking relative clauses. Perkins states that it cannot refer to dibe because of the CNPC. I offer this counter-example:

7. ['ashkii ['at'éeéd nleídi sidáh-ígíí] yizts'os-ée] yoo'í
 boy girl over there 3:sits-COMP 3:3 kissed-COMP 3:3 sees

'The boy who kissed the girl who sits over there sees her.'

8. 'ashkii 'at'éeéd yizts'os-ée yoo'í [nleídi sidáh-ígíí]
 boy girl 3:3 kissed-COMP 3:3 sees over there 3:sits-COMP
-

'The boy who kissed the girl sees her, the one sitting over there.'

This clause extraposition results in a grammatical output. The only way to repair the CNPC would be to add the semantic constraint that the adjoined clause must refer to an argument of the main verb. The CNPC seems to hold in the majority of cases because of the difficulty in finding examples where a clause embedded so far down does refer to the main verb. I conclude that RCE does not conform to the relevant island constraints.

Perkins suggests a counter-example to RCE that she calls the 'split-antecedent problem', but she feels that it is not sufficient to refute the movement analysis suggested by the two arguments above. This example (from Perkins) illustrates the problem:

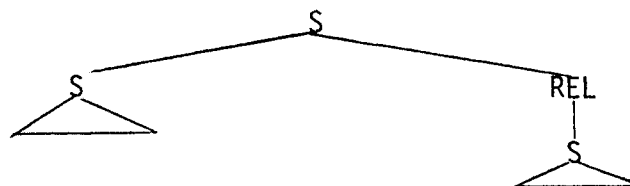
9. Teechaa'í mostí yinoo]chéé], 'ahigán--ée
 dog cat 3:3 chases 3(du):fight-COMP
-

'The dog is chasing the cat, the ones that were fighting.'

The adjoined clause is construed with both 'dog' and 'cat' so there cannot be an embedded version of (9)--they do not form a single NP constituent. As Perkins noted, this is a serious problem for RCE and argues for base generation.

Given that the two arguments for movement have been weakened and the existence of the 'split antecedent problem', base generation of these two structures can be reconsidered. This entails allowing adjoined clauses to be generated in the phrase structure rules with a rule like: $S \rightarrow NP NP V S$. Relative clause structures such as those discussed by Hale (1976) would be allowed in the base.

- 10.



Semantically these structures are quite different from embedded ones. This construction allows the objective content to be concisely stated and frees the adjoined clause (which can also be initial and attached to the too) to be exploited by topic-comment articulation. Although both embedded and adjoined structures with the same propositional content would be generated separately in the phrase structure rules, they would be related by interpretive rules, which were discussed in the Introduction.

III. Enclitic Raising (ER)

Kaufman (1974) suggested another unbounded rightward movement transformation for Navaho. It accounts for sentences like these (from Kaufman):

11. shi-naaí kin-góó deeshááʔ nisin ní
my-brother store-to 1:will go 1:want 3:say

'My brother says he wants to go to town.'

12. shi-naaí deeshááʔ nisin ni-ní-góó Jáan bi-ʔ bééhózin
my-brother 1:will go 1:want 3:say-COMP-to John him-with 3:it is known

'John knows where my brother says he wants to go.'

13. shi-naaí  -góó nisin ní-  Jáan biʔ bééhózin

Sentence (11) shows the normal declarative construction. The directional enclitic attaches to the noun which is its 'goal'. In (12), because it is an indirect question, the goal-NP is not realized and the enclitic moves (raises) rightward until it comes to a complementizer and attaches there. This movement is shown graphically in (13).

Kaufman regarded the movement as unbounded because the enclitic can cross as many direct discourse verbs as is necessary to attach to a complementizer. For basically the same reasons as outlined above, I do not consider the movement to be unbounded.⁴

ER creates traces which must be indexed with the enclitic in order to decode the sentence. A trace is defined as the 'structural residue' left by the unrealized NP and vacating enclitic. In (13), the delta is the trace. These traces are evidences of movement, that is, structure deformation. Combined with this transformation's performative marking function (namely, to mark indirect questions), ER falls into the first class of real-time process rules discussed in the Introduction.

IV. Conclusion

The problem which motivates the above rule distinction is a problem with abstraction. Abstract derivations (which usually incorporate

information of a diachronic nature) give us many structural insights but do not always describe the linguistic knowledge of a speaker. This paper has attempted to show that a rule of distinction can help to solve this problem. Intuitively too, abstract derivations which entail non-productive rules are deemed interpretive in character and are differentiated from productive generative rules which correspond to real-time performative marking processes. I will very briefly below outline how this distinction has been exploited previously in some other works.

In her discussion of Natural Generative Phonology, Hooper distinguishes three different rule types that were conflated in transformational generative phonology. She separates phonological rules which are phonetically motivated, morphophonemic rules which are morphologically conditioned, and via-rules which express lexical relations. She supports this distinction by showing its psychological reality. Via-rules are interpretive in that they capture generalizations about lexical relations without granting them the reality of the other rules.

The basic assumptions of Upside-Down Phonology (Leban and Robinson) are similarly motivated. In this framework, the lexicon contains words in a form that is close to phonetic. Most rules exist not to generate surface forms but to relate them. Hence these rules are abstractions from structural regularities and not mechanisms that create structure. The 'upside-down' rules undo a lexical form so it can be related to others. Pollack (1977) points out that there must be a distinction in rule type here too. He allows phonological rules which apply 'upside-down' and are usually products of diachronic change. He separates these from natural processes which apply actively ('right-side up') and represent processes like sandhi rules, loan phonology, etc.

A parallel development in syntax is seen in Brame's Inverted Cycle Hypothesis (ICH). He distinguishes two types of rules that he calls G-rules (genotype rules) and T-rules (transformational rules):

14. (adapted from Wasow, 1978)

Abstract Structures ← G-rules ← Base → T-rules → Surface Structures

The G-rules are 'inverse' transformations which relate base structures on an abstract level. T-rules generate structures that are not in the phrase structure rules. The ICH obviously depends on most of the transformations (in the old sense of the word) being structure preserving (cf. Emonds, 1976). This allows the base to come close to being an inventory of all structures and reduces the need for long abstract derivations. G-rules handle the abstraction but it is not clear to me how much a naïve speaker even has to know about them.

The rule distinction discussed in this paper fits nicely into this model. RCE exemplifies a G-rule, while ER is the product of a T-rule. Under this analysis, no generalizations are lost, but a measure of God's Truth is obtained. If it is not the case that Hocus Pocus has just been swept under the rug, this might be a small step towards a natural syntax.

NOTES

¹This is not Perkins' analysis. She uses a headed underlying form and deletion to get the surface structure. For good arguments against this analysis and in support of a raising one, cf. Hale and Platero (1974).

²For a detailed discussion of this unity, cf. Canfield (forthcoming M.A. thesis, University of Utah, 1979).

³Perkins states that factive subject complements are not islands. The Coordinate Structure Constraint holds for the obvious reason that a relative clause cannot refer to one conjunct of a constituent.

⁴The enclitic attaches to the NP constituent that contains the trace. The rule cannot recognize the NP constituent unless it has a COMP marker on it.

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