

CONJUNCT SPLITTING IN SAMOAN

Perhaps the most tantalizing area of modern syntactic theory is the portion usually referred to as universal constraints on grammar. If we were able to identify the limits of the range of possible grammars of human languages, we would have constrained the power of the generative system in an interesting way. Specifically, we would have restricted the range of hypotheses available to the child in developing his grammar; thereby establishing a serious claim about the innate structure of the human mind. This would constitute an opening wedge into the study of man's cognitive processes in general. Some of the most suggestive work available is contained in Ross' work "Constraints on Variables in Syntax".¹

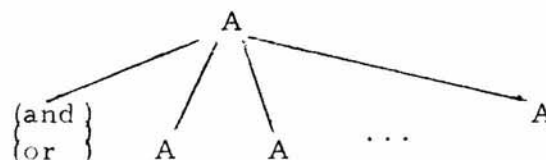
The Constraint

Among the universals proposed in Ross' work, is the conjoined structure constraint (CSC):

(1) = Ross' 4.84

In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

where coordinate structure is defined by the schema²



The CSC is a constraint on all movement transformations which block them just in case their application would split a conjunct. For example, the transformation which would front the NP which includes the Wh element in 2) is blocked by the CSC, preventing 2(i).

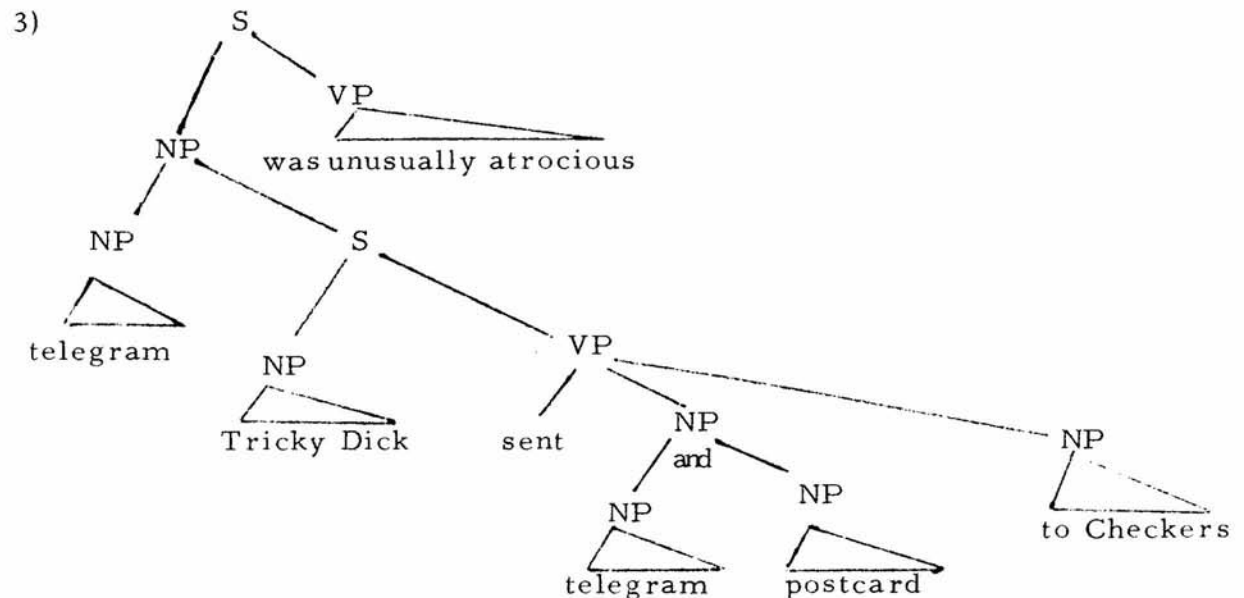
2) Irving placed the iguana between [wh-someone]_{NP} and the president of the United Fruit company.

WhQ Movement

=>

*2(i) Who did Irving place the iguana between and the president of the United Fruit company.

Similarly, the presence of the conjunct in 3), given the CSC, prevents Wh-Rel Movement from applying; blocking 3 (i):



3(i) The telegram which Tricky Dick sent and the postcard to Checkers was unusually atrocious.

There are transformational processes, however, which have the option of either operating on the entire conjunction or on only one term of it. Thus for example, Left Dislocation will produce both 4(i) and 4(ii).

4) The elf who worked for Santa Claus and the Easter Bunny finally quit.

Left Dislocation
 \Rightarrow

4(i) Santa Claus_i, the elf who worked for him_i and the Easter Bunny finally quit.

Left Dislocation
 \Rightarrow

4(ii) Santa Claus_i and the Easter Bunny_j, the elf who worked for them_{ij} finally quit.

This last process is easily distinguished from the previous ones by the fact that it is a copying rule. That is, roughly, it copies the element involved at the position indicated in the structural change of the transformation. In general, copying rules mark the original element for pronominalization. If they do not, the original will be pronominalized by its copy by the subsequent operation of the regular rule of the pronominalization.⁴

The rules mentioned in 2) and 3) above differ from Left Dislocation formally in that they are chopping rules;³ rules which rip elements out of the position indicated in the structural index leaving no trace. The CSC was amended by Ross to reflect this asymmetry; namely, chopping rules are subject to the CSC, copying rules are not.⁵

1(i) In a coordinate structure, no conjunct may be chopped nor may any element contained in a conjunct be chopped out of that conjunct.

The amended constraint correctly predicts the ungrammaticality of 2(i) and 3(i) while allowing 4(i) and 4(ii). The plot now thickens. Ross noticed that there were two rules which had been proposed which

were counterexamples to 1(i); Appositive Clause Formation and the putative rule of Conjunct Movement.⁶

5) Pietro_i bought a Ferrari from me and Sophia adores him_i.

Apposit. Clause

=>

Formation

5(i) Pietro_i, {who_i Sophia adores
and Sophia adores him_i}, bought a Ferrari from me.

6) = Ross' 6.178a

Bartlett and Toni danced.

Conjunct

=>

Movement

6(i) Bartlett danced with Toni

As can be seen from the 5) and 6) sequences Appositive Clause Formation and the putative rule of Conjunct Movement apparently operate on conjunctions (sentential and NP conjunctions respectively), ripping out the right hand conjunct without a trace. We will consider Conjunct Movement first.

Perlmutter⁷ in his dissertation has presented a number of rather cogent arguments against the rule of Conjunct Movement. To these the following observations can be added.

I. There are some rather serious semantic difficulties with the putative transformation if one accepts the constraint that transformations are essentially meaning-preserving operations.⁸ Judgements of semantic equivalence which are sometimes difficult in simple sentences (7) and 7(i) will often become easier in more complex structures 8) and 8(i)). Selecting one of the verbs identified by Lakoff and Peters as a symmetrical predicate, we have:

7) Bertha and Thor agreed.

Conjunct

=>

Movement

7(i) Bertha_i agreed with Thor_j

but

8) Bertha_i and Thor_j agreed after she_i proved that he_j was wrong.

Conjunct

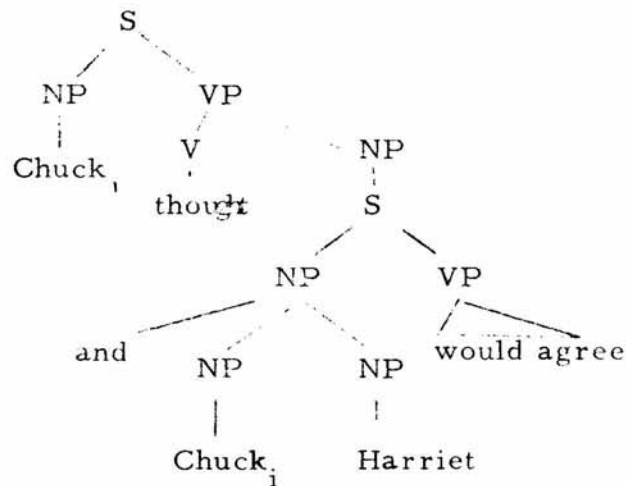
=>

Movement

??8(i) Bertha_i agreed with Thor_j after she_i proved that he_j was wrong.

II That the putative rule of Conjunct Movement would have to be optional is obvious from pairs of sentences such as 9(i) and 9(ii). That is, the underlying structure of 9) yields 9(i) if Conjunct Movement failed to apply; 9(ii) if it did apply.

9)

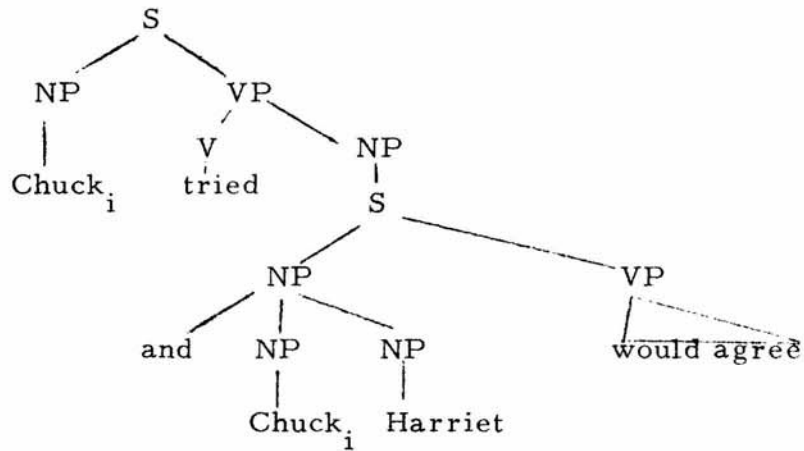


9(i) Chuck_i thought that he_i and Harriet would agree.

9(ii) Chuck_i thought that he_i would agree with Harriet.

There exists a set of verbs such as "try, condescend, ..." which impose the deep structure constraint that their subject and the subject of verb embedded immediately below them be coreferential.⁹ From the ill-formed underlying structure 10), we would predict no grammatical surface strings.

10)



Equi NP deletion

=>

*10(i) Chuck tried $\left(\begin{matrix} \text{(to)} \\ \text{(that)} \end{matrix} \right)$ and Harriet would agree.

Suppose we do not apply Equi-NP deletion and simply pronominalize.

*10(ii) Chuck_i tried $\left\{ \begin{matrix} \text{that} \\ \text{for} \end{matrix} \right\} \left\{ \begin{matrix} \text{he}_i \\ \text{him}_i \\ \text{himself}_i \end{matrix} \right\}$ and
Mildred $\left\{ \begin{matrix} \text{would} \\ \text{to} \end{matrix} \right\}$ agree.

However, for any grammar of English containing a rule of Conjunct Movement, 10(iii) would be a surface string derived from 10).

10(iii) Chuck tried to agree with Harriet.

That is, any grammar of English which included the rule of Conjunct Movement would be forced to claim that there are ill-formed deep structures from which grammatical surface strings can be derived just in case an optional transformation has applied in the derivation.

III. If the grammar were to contain a rule of Conjunct Movement, the following asymmetries would have to be accounted for.

*11) Jarvis and no one agreed.

Conjunct

=>

Movement

11(i) Jarvis agreed with no one.

*12) No one and Jarvis agreed.

Conjunct
 \Rightarrow
 Movement

12(i) No one agreed with Jarvis.

*13) This book and no other book that I have ever read are similar.

Conjunct
 \Rightarrow
 Movement

13(i) This book is similar to no other book that I have ever read.

*14) No other book that I have ever read and this book are similar

Conjunct
 \Rightarrow
 Movement

14(i) No other book that I have ever read is similar to this book.

*15) That Toni_i and Bartlett danced surprised her_i.

Conjunct
 \Rightarrow
 Movement

15(i) That Toni_i danced with Bartlett surprised her_i.

but

*16) That Bartlett and Toni_i danced surprised her_i.

Conjunct
 \Rightarrow
 Movement

16(i) That Bartlett danced with Toni_i surprised her_i.

It should be clear from the arguments above that it would be more than a minor understatement to say that the grammar would be complicated if it were to include Conjunct Movement.

Conjunct Movement along with Appositive Clause Formation was apparently the motivation which originally forced Ross to place the following rider on his CSC.

17) = Ross' 6.180

Only rules in which terms are reordered around variables are subject to the CSC, ...

That is, Ross noticed that although they are all chopping rules (note the \emptyset in the structural change), there is a formal difference between Conjunct Movement and Appositive Clause Formation, and rules such as Wh-Q Movement. Namely, the former transformations may be written without a syntactic variable, for example, T Conjunct Movement,¹⁰

	[NP	NP]	VP
	NP	NP	
	1	2	3
\Rightarrow	1	\emptyset	3 + 2

while the latter type of transformation is left unbounded i.e. they must be written with a variable which the moving elements move over,

T Wh Q Movement				
Q	X	<u>Wh + NP</u>	Y	
1	2	3	4	
1 + 3	2	\emptyset	4	

Syntactic variables, as they were used by Ross, were not particularly well defined. Postal has since refined the notion of a syntactic variable suggesting a distinction¹¹ be made among:

- (a) End variables
- (b) Essential variables
- (c) Abbrevatory variables

End variables are (surprisingly) variables which appear at the extremes of structural indices of transformations and which are not crossed by elements moved by the transformation in which they appear. Abbrevatory variables in Postal's sense are sentence bounded i.e. they may only be used to represent sequences of elements which are in the same clause; they may not cover higher clause boundaries. The variables Y, U, W and Z which appear in the structural index of the Tough Movement transformation in English, for example, are abbrevatory variables:

18) = Postal's 13. (25)

$$\begin{array}{ccccccc} X, & \text{Adj}_{\text{tough}}, & \text{it}, & [& Y [& U, & \text{NP}, & W] & Z] \\ & & & S & & \text{VP} & & \text{VP} & S \end{array}$$

Essential variables are those which appear in structural indices and are not members of the two sets as defined above. They are precisely those variables which are crossed by elements moved by transformations which are unbounded (WH Q Movement in English, for example).

I would understand, then, Ross' mention of variable in 17) above to refer to essential variables. Let's put Ross' CSC in the form which he finally gave it.

19) = Ross' 4.84 + 6.180 (amended)

In a coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of conjunct over any essential variables.

This final condition on the CSC was ill advised as we shall presently see.

That this formulation fails is obvious from the following examples (assuming as does Postal that Tough Movement is a₁₂ transformation in English which uses no essential variables).

20) It is difficult for Herman to understand Sue and Max.

*20(i) Sue is difficult for Herman to understand and Max.

*20(ii) Max is difficult for Herman to understand Sue and.

20(iii) Sue and Max are difficult for Herman to understand.

*20(iv) Sue and Max are difficult for Herman to understand him.

The contrast between 20(iii) and 20(iv) indicates that Tough Movement is a chopping rule. 18) shows that Tough Movement contain no essential variables. 20(i) and 20(ii) show that Tough Movement is subject to the CSC. We may conclude that 19) is too weak. But counterexamples to 19) may be found in any chopping rule which is clause-restricted. The Passive transformation in English is assumed by both Postal and Ross¹³ to contain only end variables.

21) Iggy hit Maximilian and Oliver.

Passive
==>

*21(i) Maximilian was hit and Oliver by Iggy.

22) Giorgioni and Alfred hit Thor.

Passive
==>

*22(i) Thor and Alfred $\left\{ \begin{array}{l} \text{was} \\ \text{were} \end{array} \right\}$ hit by Giorgioni.¹⁴

21) and 22(i) indicate that although the NP's involved are moved over constants by a chopping transformation, they still must be blocked. The same result obtains for the following series which contains NP's which are unequivocally conjuncts.

23) Melvin hit the boy and the girl who were similar.

Passive
==>

*23(i) The boy was hit and the girl who $\left\{ \begin{array}{l} \text{was} \\ \text{were} \end{array} \right\}$ similar by Melvin.

24) The boy and the girl who were similar hit Melvin.

Passive

=>

*24(i) Melvin and the girl who were similar { was } hit by the boy.
 were }

It is clear that Ross' last amendment to the CSC was incorrect. By making the CSC operative only in case the transformation was both one which chopped conjuncts and did so over an essential variable, it could not be used to block application in operations which function intra-clause (e. g. Passive) or which can be written without essential variables (e. g. Tough Movement). Thus every bounded chopping transformation will produce counterexamples to 19). We have already rejected half of the motivation for this last amendment to the CSC; namely, Conjunct Movement. Appositive Clause formation needs to be considered now.

If one accepts the node raising version of conjunction reduction it also stands as a counterexample to the CSC.¹⁵ Further, every language which I am familiar with has a rule of conjunction reduction. Both conjunction reduction and Appositive Clause formation have a feature in common; namely, both have as their proper domain sentences i. e. the input unit to these transformations are multiples (≥ 2) of conjoined sentences as opposed to, for example, the inputs to the passive, indirect object movement, "it" replacement, particle movement, ... The correct constraint is 1(i).

1(i) amended.¹⁶

In a non-sentential coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of that conjunct.

The constraint blocks the application of all chopping rules which would otherwise split non-sentential conjuncts. This constraint holds with perfect universality for the languages which I am acquainted with, with the exception of Samoan.

The Samoan Data

In the data which follow () and 0 indicate optional and obligatory pro-forms respectively.

Case I. Conjunct Splitting within Clauses

There are two chopping rules which operate within Samoan clauses which could possibly break the CSC. Both do so. The first rule is:

Rule A: Clitic movement (optional)

U	[W	VB	X	NP	Y]	Z
	S				[+pro]	S	
1		2		3	4	5	6
=>	1	2+4	3	∅	5	6	

where VB represents tense (tns) plus verb and W, X and Y are abbrevatory variables.

For a subset of Samoan verbs, when an NP object is pronominalized/deleted under identity with a higher NP, a pronominal marker obligatorily remains:

25) e mana'o Pili i le ufi_i olo'o
tns want Bill case the yam_i tns

ou va'ai (iai_i)
I see it_i

(Bill wants the yam I see)

From an underlying structure like 26);

26) e mana'o Pili i le ufi_i olo'o
tns want Bill case the yam_i tns

va'ai le teine i le ufi_i ma le toi
see the girl case the yam_i and the axe

(Bill wants the yam_i that the girl sees
the yam_i and the axe)

Pronom/deletion

=>

26(i) e mana'o Pili i le ufi_i olo'o
tns want Bill case the yam_i tns

va'ai le teine (iai_i ma le to'i
see the girl [+pro]_i and the axe

(Bill wants the yam_i that the girl sees it_i and the axe)

Clitic

=>

Movement

26 (ii) e mana'o Pili i le ufi_i olo'o
tns want Bill case the yam_i tns

va'ai (iai_i le teine ma le to'i
see it_i the girl and the axe

(Same meaning as 26(i) above)

Thus the effect of this rule is schematically:

....[... V NP_i NP_j]
S NP_k and NP_l
[+pro]

Clitic

=>

Movement

....[... V NP_k NP_i NP_j]
S [+pro] and NP_l

as in 26(ii).

The second rule which splits conjuncts within clauses is the scrambling rule. One possible formulation of this rule is:

Rule B: Scrambling (optional)

W	[X	NP	Y]	Z
	s		s	
1	2	3	4	5
== >	1	2	∅	4+3 5

where X and Y are abbrevatory
variables

27) e sozi e le teine le tama
 tns cut case the girl the boy

i le to'i ma le naifi
 case the axe and the knife

(The girl cuts the boy with the axe and the knife)

Scrambling

==>

27(i) e sozi ma le naifi e le teine
 tns cut and the knife case the girl

le tama i le to'i
 the boy case the axe

(same meaning as 27).

Of course, the scrambling rule as written above produces a number of other structures besides 27(i); in fact, $n!$, where n is the number of NP's available.¹⁷

Case II Unbounded Conjunct Splitting.

Before leaping into the unbounded cases, the following formation will be useful:

28) e tele le ufi
 tns big the yam
 [singular]
 (The yam is big)

*28(i) e tetele le ufi
 tns big the yam
 [plural]
 (The yam are big)

28(ii) e tetele le ufi ma le to'i
 tns big the yam and the axe
 [plural]
 (The yam and the axe are big)

*28(iii) e tele le ufi ma le to'i
 tns big the yam and the axe
 [singular]
 (The yam and the axe is big)

That is, Samoan inflects the verb for number agreement with the "subject," using a reduplication process.

There are two left unbounded rules which I know of in Samoan: Topicalization and Wh Q Movement.¹⁸

Rule C: Wh Q Movement (oblig.)

	Q	X	NP	Y
	1	2	3	4
=>	1*3	2	3	4

where X is an essential variable
 (* indicates Chomsky adjunction)

Thus for a simple sentence such as 36), we have the related questions following it.

29) e sogi e le tama le ufi i le to'i
 tns cut case the boy the yam case the axe
 (The boy cuts the yam with the axe)

Wh Q Movement

=>

29(i) o'ai_i e sogi (e'ia_i) le ufi i le to'i
 who_i tns cut (pro_i) the yam case the axe
 (Who cuts the yam with the axe?)

- 29(ii) o lea le mea_i e sogi (o'ia_i) e le tama
 what thing_i tns cut (pro_i) case the boy
 i le to'i
 case the axe
- WhQ Move. (What does the boy cut with the axe?)
 ==> and
 Clitic Move. 29(iii) o lea le mea_i e sogi (iai_i) e le tama
 what thing_i tns cut (pro_i) case the boy
 le ufi
 the yam
 (What is the boy cutting the yam with?)

Now paralleling 29) and its related questions, and selecting the verb from the subset mentioned on page 57, (we drop the instrumental for obvious semantic reasons), we have 29(a) and its related question.

- 29(a) e mana'o le tama i le ufi
 tns want the boy case the yam
 (The boy wants the yam)
- WhQ Move.
 ==> and
 Clitic Move. 29(a(i)) o lea le mea_i e mana'o (iai_i) le tama
 what thing_i tns want (pro_i) the boy
 (What does the boy want?)

29(a(i)) is ungrammatical without the 'iai'. Now to show that the process is unbounded.

- 30) e mana'o Pili i le teine olo'o fa'apa'u le ufi ma
 tns want Bill case the girl tns drop the yam and
 le to'i e tetele
 the axe tns big
 (Bill wants the girl who is dropping the yam and the axe which are big)
- 30(i) o lea le mea_i e mana'o Pili i le teine
 what thing_i tns want Bill case the girl
 olo'o fa'apa'u (o'ia_i) ma le to'i e tetele
 tns drop (pro_i) and the axe tns big
 (What does Bill want the girl who is dropping and the axe which are big ?)
- WhQ Move.
 ==>

- 31) e alofa Pili i le teine olo'o va'ai i
tns love Bill case the girl tns see case
le tama olo'o fa'apa'u le ufi ma le to'i
the boy tns drop the yam and the axe
e tetele
tns big

(Bill loves the girl who sees the boy who is
dropping the yam and the axe which are big)

- 31(i) o lea le mea_i e alofa Pili i le teine olo'o
what thing_i tns love Bill case the
WhQ Move va'ai i le tama olo'o fa'apa'u o'ia_i ma le
=> see case the boy tns drop (pro_i) and the
to'i e tetele
axe tns big

(What does Bill love the girl who sees the boy who
is dropping and the axe which are big ?)

Paralleling 30(i) and 31(i), we have 32(i) and 33(i) which differ only in
the verb which appears in their embedded sentences.

WhQ Move
=>

- 32(i) o lea le mea_i e mana'o Pili i le teine
what thing_i tns want Bill case the girl
olo'o va'ai iai_i ma le to'i e tetele
tns see (pro_i) and the axe tns big
(What does Bill want the girl who sees the axe
which are big ?)

- 33(i) o lea le mea_i e alofa Pili i le teine
what thing_i tns love Bill case the girl
olo'o va'ai i le tama olo'o mana'o
tns see case the boy tns want
(iai_i ma le to'i e tetele
pro_i and the axe tns big
(What does Bill love the girl who sees the boy
who wants and the axe which are big ?)

Sentences 32(i) and 33(i) are ungrammatical without the 'iai' in the embedded S. Rule C, Wh Q Movement, captures the fact that the process is a copying as opposed to a chopping transformation.

Rule D: Topicalization¹⁹ (optional)

	X	NP	Y
	1	2	3
=>	2*1	2	3

where X is an essential variable

For simple sentences paralleling the 29(i) and 29(a(i)) series we have the 34(i) and 34(a(i)) series which differ only in that the Topic as opposed to the Wh Q Movement transformation has applied.

Topic

=> 34(i) o le tama_i e sogi (e'ia_i) le ufi
 case the boy_i tns cut (pro_i) the yam
 i le to'i
 with the axe

Topic

=> (The boy cuts the yam with the axe)

34(ii) o le ufi_i e sogi (o'ia_i) e le
 case the yam_i tns cut (pro_i) case the
 tama i le to'i
 boy case the axe

Topic

=> (same as 34(i))

34(iii) o le to'i_i e sogi (ai_i) e le
 case the axe_i tns cut (pro_i) case the
 tama le ufi
 boy the yam
 (same as 34(i))

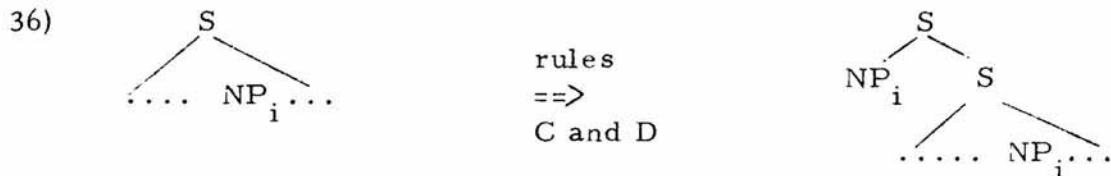
- 34(a(i)) o le ufi_i e mana'o (iai_i le tama
 case the yam_i tns want (pro_i the boy
 (The boy wants_i the yam)

In 34(iii) and 34(a(i)) of the above set, if the coreferential pro-forms are not present, the sentences are ungrammatical. The same results obtain for demonstrating the unbounded nature of topicalization as we have seen for the Wh Q Movement. Specifically, substituting the topicalized NP form 'o le NP' for the questioned NP form, 'o lea le mea' in the 29) through 33) series, we obtain the same results. For example, corresponding to 33(i), we have 35(i).

- 35(i) o le ufi_i e alofa Pili i le teine
 case the yam_i tns love Bill case the girl
 olo'o va'ai i le tama olo'o mana'o (iai_i ma
 tns see case the boy tns want (pro_i and
 le to'i e tetele
 the axe tns big
 (Bill loves the girl who sees the boy who wants the yam
 and the axe which are big)

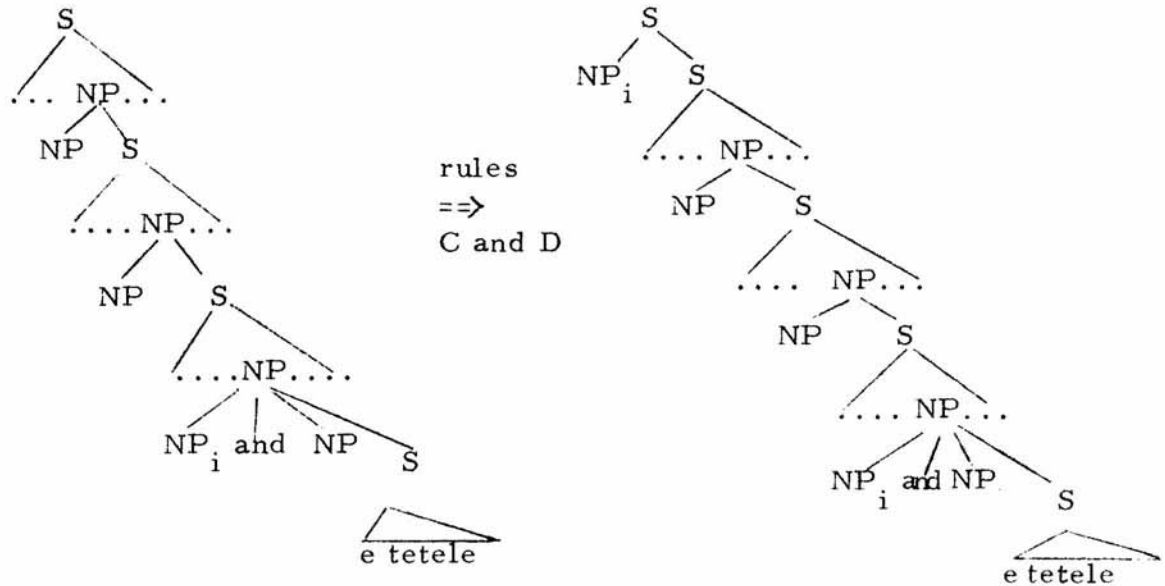
Structurally, the effect of the rules C and D is equivalent:

For a simple S(as in 29(iii), for example)



For a series of embedded Ss (as in 35(i), for example)

37)



That Topicalization and Wh Q Movement are copying rules should be clear from the data. For every sentence of the form (j') derived from (j), there exists the synonymous sentence (j'').

(j) $X V_i Y NP_j Z$

where X is an essential variable

Y is an abbreviatory variable

and V_i a verb of the subset which optionally take a pro form of one of its NP objects are pronominalized/deleted under identity with a higher NP

Rule C or D
 \Rightarrow
 and Pronom/deletion

(j')	$\left\{ \begin{array}{c} Q \\ \text{Topic} \end{array} \right\}$	NP_j	$X V_i \emptyset Y$
(j'')	$\left\{ \begin{array}{c} Q \\ \text{Topic} \end{array} \right\}$	NP_j	$X V_i [pro]_j Y$

cases 32(i), 33(ii)...

Further for every sentence of the form (k') derived from (k), the (k'') version is either non-synonymous (derived from a different underlying structure) or ungrammatical.

(k) $X \ V_k \ Y \ NP_j \ Z$

where X is an essential variable, Y is an abbrevatory variable and V_k is a verb of the subset which obligatorily take a pro form when one of its NP objects are pronominalized/deleted under identity with a higher NP.

Rule C or D

\Rightarrow

and Pronom/deletion

$$\left\{ \begin{array}{l} (k') \left\{ \begin{array}{l} Q \\ \text{Topic} \end{array} \right\} \ NP_j \ X \ V_k \ Y \ [pro]_j \ Z \\ * (k'') \left\{ \begin{array}{l} Q \\ \text{Topic} \end{array} \right\} \ NP_j \ X \ V_k \ Y \ \emptyset \ Z \end{array} \right\}$$

The asymmetry is precisely this: while there are sentences which are out for the lack of a pro-form, the converse is not true. Any grammar of Samoan which contained two rules C, and two rules D, one set for the verbs of V_i (chopping rules) and another set for the verb of V_k (copying rules) would be valued less highly than the single set proposed in the text. This is not to suggest that the problem of the obligatory versus optional appearance of pro-forms is solved. Consider, however, the other possibility: assume rules C and D are chopping rules. This would require a pronoun insertion rule for all the sentences of type (k') above obligatorily, and optionally, for all cases of (j''). Imagine specifying the environment for the insertion. Hopefully, further work on Samoan will uncover a principled way of handling these pronouns. I am convinced the "forthcoming" solution will maintain that rules C and D are copying rules.²⁰ To review the data in Case II we notice the following:

- (a) there are Samoan sentences where either Wh Q Movement or Topicalization has applied to move an NP_i out of an S with one of the two following possible results:

1. a pronoun obligatorily appears in the surface in the position occupied by NP_i prior to the application of the transformation. That pro-form is coreferential to NP_i (cases 29(iii), 29(a(i)), 31(i), 32(i), 33(i), 34(iii), 34(a(i)) and 35(i)).
 2. a pronoun optionally appears in the surface in the position occupied by NP_i prior to the application of the transformation. That pro-form is coreferential to NP_i (all the cases in the 29 series not listed immediately above, for example).
- (b) the two rules involved are left unbounded; they involve an essential variable.
- (c) the two rules involved are copying rules.
- (d) the two rules split conjuncts.

Summary

For the reader's convenience, I repeat here the CSC which we found to be correct in the initial section.

1(i) In a non-sentential coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of that conjunct.

1(i) holds with full generality for the languages known to me with the exception of Samoan. The facts for Samoan are:

- a) Case I shows that 1(i) fails within clause
- b) Case II shows that 1(i) is not applicable since the rules (C and D) are not chopping rules.

Faced with the above, I propose the following. There exists a hierarchy of constraints concerning the application of movement

transformations to non-sentential conjuncts.

19) amended

In a non-sentential, coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of that conjunct over an essential variable.

1(i) amended

In a non-sentential, coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of that conjunct.

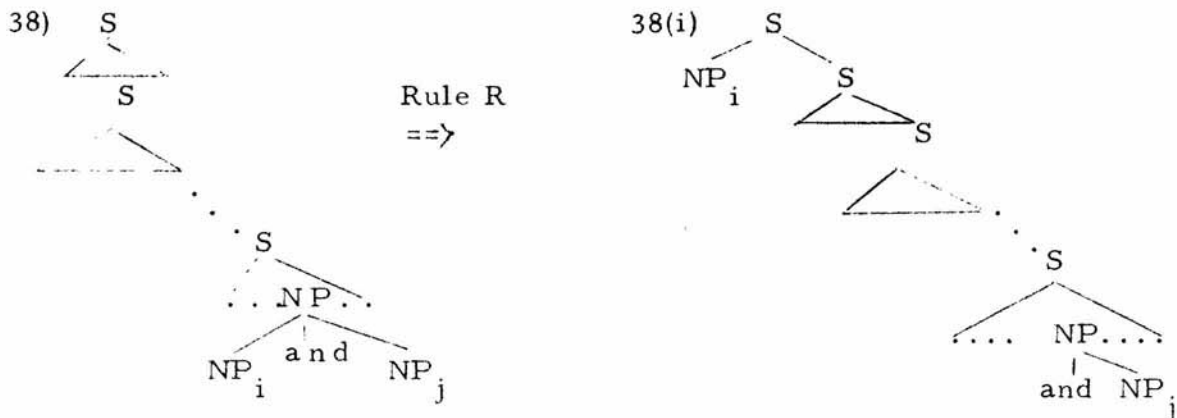
Samoa is subject only to the weaker constraint, 19) amended, and not to 1(i) amended. All other languages known to me are subject to the stronger constraint 1(i) and therefore, trivially, by implication given the hierarchy, to 19). Thus, only 19) has the status of a universal. It makes the claim that no human language could have a rule R which is not subject to the amended CSC.

Rule R:

X	β	Y
1	2	3
2*1	\emptyset	3

where β could be a non-sentential conjunct and X is an essential variable.

Structurally, rule R would map 38) into 38(i).



Notice, now, the Samoan sentence 39).

- 39) e alofa Pili i le teine olo'o va'ai i le tama
 tns love Bill case the girl tns see case the boy
 olo'o togi le ma'a ma le ufi e tetele
 tns throw the rock and the yam tns big

(Bill loves the girl who sees the boy who in throwing the
 rock and the yam which are big)

Topicalization

=>

and Pronom/deletion

- 39(i) o le ma'a_i e alofa Pili i le teine olo'o va'ai
 case the rock_i tns love Bill case the girl tns see
 i le tama olo'o togi (o'ia_i) ma le ufi e tetele
 case the boy tns throw (pro_i) and the yam tns big
 (same meaning as 39))

but 39(i) is only one possible surface form for 39) + Topicalization
 plus pronom/deletion; the other is 39(ii).

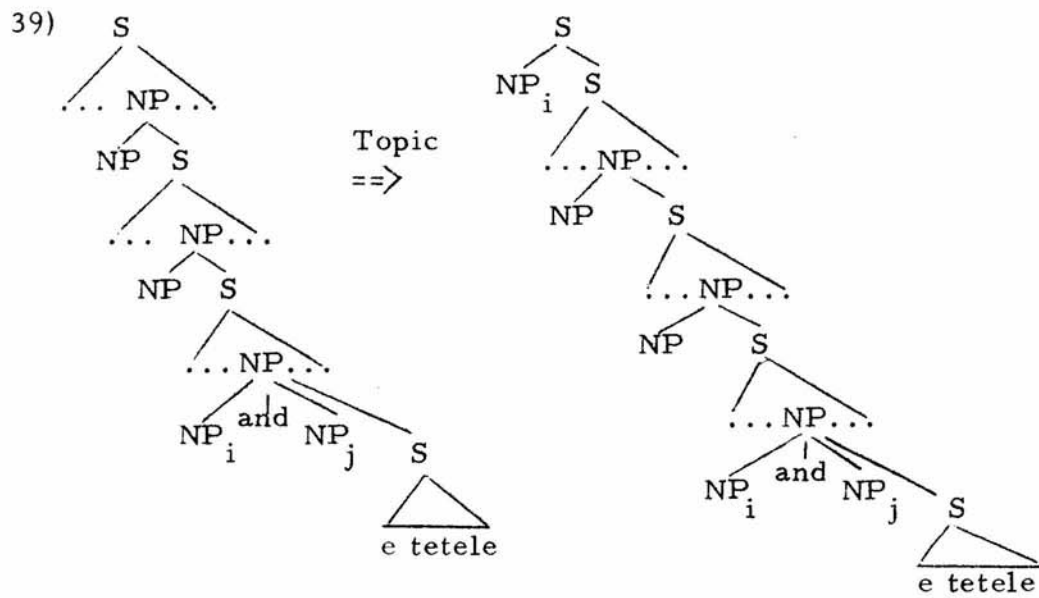
Topic

=>

and Pronom/deletion

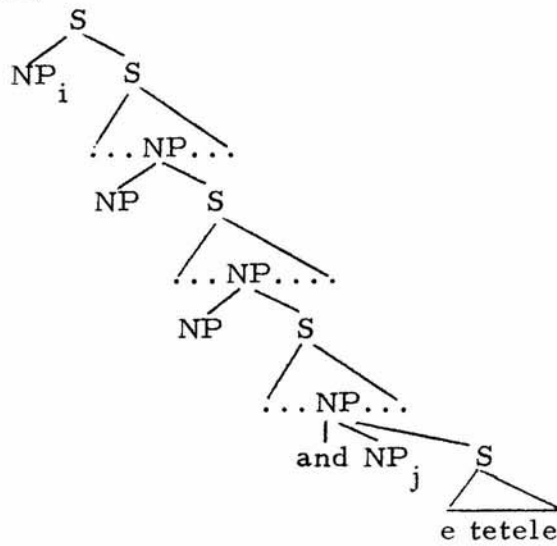
- 39(ii) o le ma'a_i e alofa Pili i le teine olo'o va'ai
 case the rock_i tns love Bill case the girl tns see
 i le tama olo'o togi ma le ufi e tetele
 case the boy tns throw and the yam tns big
 (same meaning as 39))

Schematically, we have the following sequence for 39) and 39 (ii).



Pronom/deletion
==>

39(ii)



where NP_i = 'le ma'a'

where NP_j = 'le ufi'

Compare the sequence 38) → 38(i) with the sequence 39) → 39(ii). It should be apparent that the hypothetical rule R and the sequence of Samoan rules Topic and Pronom/deletion are functionally equivalent.

The point is this; although Topic and Wh Q Movement are copying rules, Topic or Wh Q Movement plus Pronom/deletion are functionally equivalent to the hypothetical rule R (chopping), which we have already claimed in 19) cannot exist as a rule for a human language.

Regarding the proposed universal 19), two attitudes are possible:

- a. It is an accident that Samoan has no unbounded chopping rules. It could well have: witness the functional equivalent of an unbounded chopping rule operating on conjuncts which Samoan has in the sequence, Topic or Wh Q Movement plus Pronom/deletion.
- b. Samoan is extremely strong evidence for 19). Look at the way it chops conjuncts insanely within clause, but can only split conjuncts over essential variables by coping them.

Notice that whether 19) stands, given research into other languages, it is not immediately obvious that it can be attributed to perceptual strategy constraints, as the Samoan who hears 39(ii) has precisely the same surface information as would be provided by an unbounded chopping rule which had operated on 39).²¹

It is clear that while 1(i) represents a deep insight about language, it is not a universal. I propose that 19) be incorporated as a language universal.

19) The Conjoined Structure Constraint

In a non-sentential coordinate structure, no conjunct may be chopped, nor may any element contained in a conjunct be chopped out of that conjunct over an essential variable.

LNLJ II

I would like to thank the informant, Mr. Fa'aunga Salesa, for his interest particularly as it was reflected in his quick understanding of the problems I was attempting to handle and in the incredible patience and good humor he displayed in the face of my often irrelevant bumbblings in pursuit of the data.

My appreciation goes also to Ed Klima, Paul Chapin, Quentin Pizzini and Patrick Brogan for their hours of discussions and argumentation concerning the content of this paper.

FOOTNOTES

1. Unpublished dissertation, MIT, 1967, John R. Ross.
2. The English morphemes, " $\left\{ \begin{array}{c} \text{and} \\ \text{or} \end{array} \right\}$ " appearing in the schema
are intended merely as a representation of a more abstract,
language-independent symbol for the conjoining operator.
3. A precise definition of chopping may be found in pg. 427 of
Ross' dissertation.
4. See Paul Chapin's paper in this volume for a full discussion
of this process.
5. Ross, pg. 428.
6. Lakoff and Peters, Phrasal Conjunction and Symmetrical
Predicate, NSP 17, May 1966.
7. See Chapter 2 of Perlmutter's dissertation for his arguments.
8. I am ignoring for the moment the recent dispute regarding the
notion of the change of "focus" or emphasis produced by some
transformations e. g. Passive, Left and Right Dislocation etc.
9. This analysis is, of course, David Perlmutter's. Lakoff's
earlier characterization of the verb "try" by marking its structural
description for Equi-NP deletion doesn't affect the argument as the
sentence 10(i) in the text shows.
10. Adapted from the formulation given by Lakoff and Peters,
pg. VI-25.
11. Chapter 13, Cross-Over Phenomena, Paul Postal, IBM.

12. That Tough Movement employs only abbrevatory variables appears to be correct. After Psych Movement (see Postal) we have (a). (a'') shows Tough Movement is a chopping operation.

	(a)	It is difficult for Mary to wash the orange elephant.
Tough \Rightarrow Movement	{	(a') The orange elephant is difficult for Mary to wash. * (a'') The orange elephant is difficult for Mary to wash it.

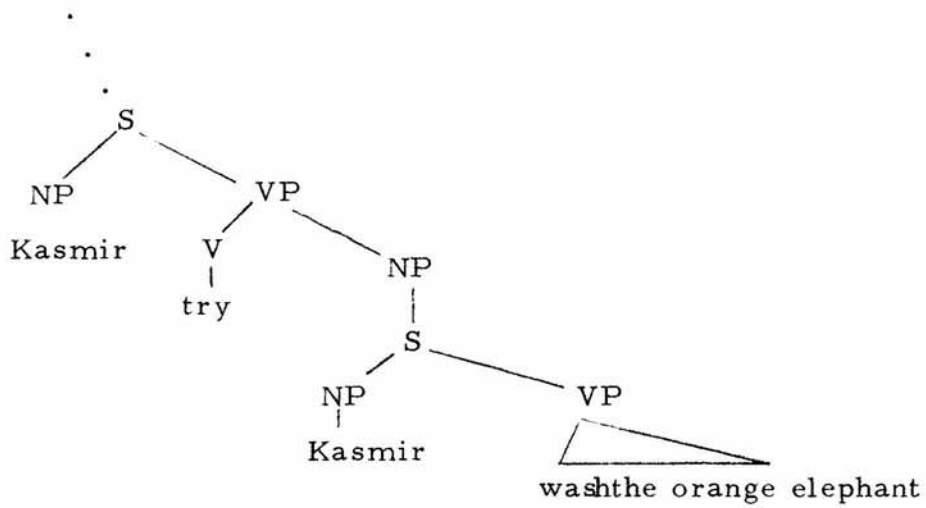
but

	(b)	It is difficult for Max to believe that Mary washes the orange elephant.
Tough \Rightarrow Movement	{	* (b') The orange elephant is difficult for Max to believe that Mary washes. (b'') That Mary washes the orange elephant is difficult for Max to believe.

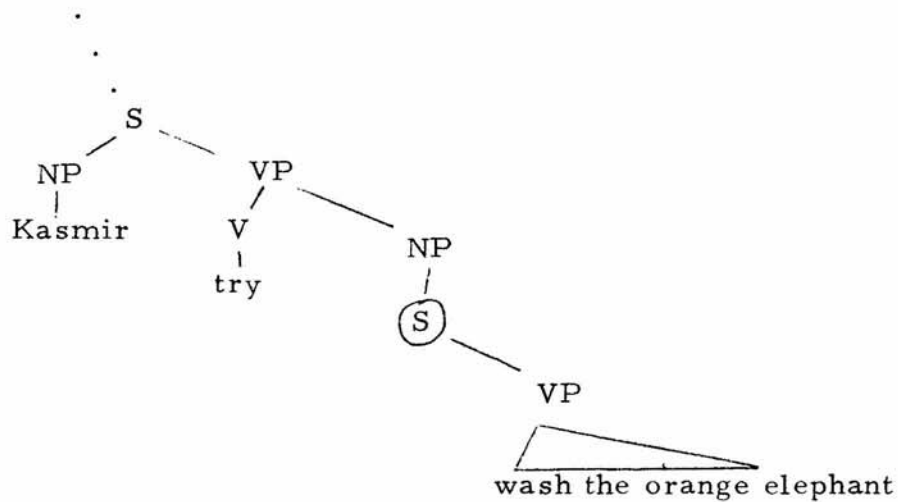
The starred (b') is the result of an improper analysis with respect to Tough Movement. Specifically, the NP moved to the front in (b') came from a clause two sentences below the matrix S. This could only occur, given the structural description 18) in the text, if the abbrevatory variable 'Y' were allowed to cover the higher clause ('for Max to believe'). Sentence (b'') is the result of the proper analysis of (b) with respect to Tough Movement. Notice, by the way, that the fact that Tough Movement contains only abbrevatory variables provides an additional argument for S pruning.

	(c)	It is difficult for Kasmir to try to wash the orange elephant.
Tough \Rightarrow Movement	(c')	The orange elephant is difficult for Kasmir to try to wash

After Equi-NP deletion applies to the sequence (complimentizers and other details aside) on cycle 2:



Equip-NP
==>



the circled S node prunes by Ross' convention. Therefore on cycle 3 the NP 'the orange elephant' is available for Tough Movement; there being only one embedded clause at that point.

13. Postal's formulation of the Passive on pg 97 of Cross-over is:

	X	NP	Verb	NP	Y
	1	2	3	4	5
\Rightarrow	1	4	3	2	5

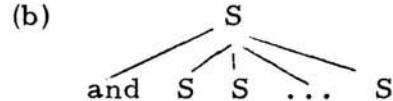
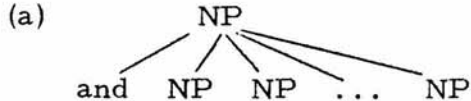
where X and Y are abbrevatory variables.

Ross makes an equivalent claim on pg 448 of his dissertation.

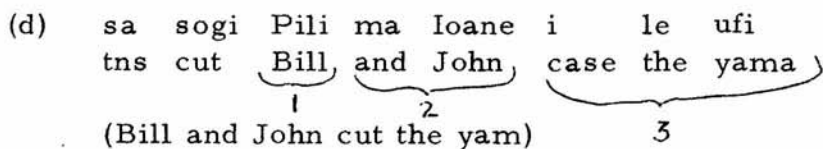
14. 22(i) is out on the intended reading, i.e. as the Passive transform 22)

15. See Stanley Peters, Chap. 3, The Node Raising Proposal, mimeograph.

16. The term 'non-sentential' conjunct obviously stands in need of a more explicit characterization (i.e. a definition). Having none at present, I hope that the intent of the term is, at least, intuitively clear. The CSC as reformulated in 1(i) would apply to (a), for example, but not to (b).



17. Actually, the scrambling rule in Samoan presents a particularly interesting problem as it must be somehow constrained. For example:



Given (d), the fact that the singular and plural forms of "sogi" are homophonous, the fact that "sogi" requires an agent with a [+animate] marking and the fact that scrambling does not respect coordinate structures, the rule as we have written it will produce 3! or 6 different surface strings.

- (d') sa sogi 1 3 2
(Bill cuts the yam and John)
- (d'') sa sogi 2 1 3
ambiguous readings (d) and (d')
- (d''') sa sogi 2 3 1
ambiguous readings (d) and (d')
- (d''''') sa sogi 3 1 2
(Bill and John cut the yam)
- (d''''') sa sogi 3 2 1
ambiguous readings (d) and (d')

It is not clear to me why (d'') but not (d''''') is ambiguous. There seems to be the general perceptual strategy that the surface sequence "NP_i and NP_j" if no semantic violations occur is perceived as arising from an underlying structure (that is, before scrambling applied) where the NP involved were coordinate. Apparently where the "normal" word order is preserved (d') the other reading (d) is impossible. This would account for the difference between (d') and (d'''''). This is slightly supported by the deviance of (e') arising from (e).

- (e) sa sogi loane i le ufi ma le falaoa
tns cut John case the yam and the bread
(John cuts the yam and the bread)
- *(e) sa sogi loane ma le falaoa i le ufi
tns cut John and the bread case the yam
(John and the bread cut the yam)

It is difficult, however, to obtain consistent data in this area and the phenomenon obviously must be further studied.

18. Wh Rel Fronting is probably a third. I haven't enough data to propose it here.

19. Topicalization apparently has no semantic impact other than the not yet well-defined area subsumed under the rubric 'focus'. This transformation as stated is wrong but in an irrelevant sense for the argument. If we allow the rule to operate selecting NP's arbitrarily from (f) we obtain:

(f) e alofa le tama i le teine
tns love the boy case the girl
(The boy loves the girl)

(f') o le tama_i e alofa (o'ia_i) i le teine

(f'') o le teine_i e alofa (iai_i) le tama

(f''') o le tama (o) le teine_i e alofa (iai_i)

(f''') o le teine (o) le tama_i e alofa (iai_i)

The (f'), (f''), (f''') are all interpreted as synonymous with (f), (f'''), however, has only the interpretation:

The girl loves the boy

However, from (g'), all versions are synonymous with (g).

(g) e mana'o le tama i le ma'a
tns want the boy case the rock
(The boy wants the rock)

(g') o le tama_i e mana'o (o'ia) i le ma'a

(g'') o le ma'a_i e mana'o (iai_i) le tama

(g''') o le tama (o) le ma'a_i e mana'o (iai_i)

(g''') o le ma'a (o) le tama e mana'o (iai_i)

Because there exists a selectional restriction specifying that the agent associated with 'mana'o' be [+animate], and only one of the NPs involved possesses that marking, (g''') is possible. The solution to restrictions on Topicalization are probably inseparable from the perceptual processing strategies used by native speakers.

20. It should be pointed out that in the majority of cases where an optional pro-form is possible, it is usually absent. Although, as was stated in the text, I know of no case where the presence of a pronoun causes a sentence to be judged ungrammatical, the informant has indicated that the presence of the optional pro-forms under discussion in some sentences is somewhat redundant and gives the impression of rather careful speech.

Further, given the analysis, Topicalization in Samoan is quite close if not identical to the English rule of Left Dislocation.

21. The Samoan data and the CSC, given the attitude expressed in (b) in the text, present an intriguing psycholinguistic problem. By subscribing to attitude (b), one commits oneself to claiming that there exists a psychological correlate to a formal characteristic of a syntactic rule. Specifically, one would be required to find the psychological difference between a single rule, r_i , and a sequence of rules, r_i through r_n , which although they are functionally equivalent (produce the same surface strings) differ formally in that r_i is a chopping rule and that characteristic is not present in any of the rules in the sequence r_j, \dots, r_n .