

SHE KISSED ME AND I FELL ASLEEP:  
The Inter-clausal Expression of Efficient Cause

James B. Farr  
Summer Institute of Linguistics

0. Introduction

In this paper, I propose to explore the inter-clausal relationships that express efficient CAUSE (i.e., cause-effect relationships), using case grammar to disambiguate some of the problems that arise. My attention was focused on this problem by my field work in Korafe<sup>1</sup> and the insights I present here were gained through the stimulus of my study of some aspects of Korafe grammar. For this reason many of my examples are drawn from Korafe. However I feel the conclusions I arrive at are by no means limited to Korafe and may well be universal.

Most of us 'feel' when a statement expresses a cause-effect relationship and when it does not, but in my research and translation work I wanted a more rigorous tool that would define when efficient CAUSE had been entailed and when it had not and this paper is an effort towards this goal. To this end I have studied clause sequences, focusing especially on verbs and their case frames to demonstrate the occurrence of CAUSE. Keeping track of co-referentiality of cases (cases in the Fillmore sense, see Fillmore 1968) across clause boundaries has proved quite fruitful in doing this, as is explained below.

1. Korafe Sentence and Clause Level Grammatical Features

Korafe is an SOV language with the verb as the most important element of the clause structure. Like many Non-Austronesian languages in Papua New Guinea, Korafe has an elaborate medial verb system. Korafe medial verbs exhibit a double binary distinction: same actor versus different actor, and sequential action versus simultaneous action.

Same actor verbs often do not occur with any affixes manifesting the surface structure subject in person or number, or the tense. These verbs are called 'same actor' verbs, because their occurrence indicates that the subject of the following clause will be the same as the one for the immediate clause in which it occurs. Different actor verbs always demonstrate affixational agreement with the surface structure subjects of their clauses in person and number and are marked for a future-nonfuture tense distinction. The use of

a different actor verb indicates that the subject of the subsequent clause will differ from the subject of the clause in focus. However, Korafe different actor verbs do not indicate what person, number, or tense the subsequent verb will manifest.

Both same and different actor verbs have affixations marking either a sequential or simultaneous relationship between consecutive verbs. A same or different actor sequential verb indicates that the action expressed by the verb will overlap wholly or partially with the action expressed by the verb in the subsequent clause.

Final verbs are fully marked in their morphology for tense, mood, and agreement in person and number with the subject of the clause. They are used as sentence and embedded sentence boundaries. They always contrast with medial verbs and, unlike medial verbs, are unmarked for the following distinctions: same versus different actor and sequential versus simultaneous action. Because the space and scope of this paper do not permit anything like a full description of the Korafe verb system a short synopsis of one verb, and some examples illustrating verb usage are appended for the reader unacquainted with medial-verb languages.

## 2. Causation and Causative Surface Structures in Korafe

Traditionally there have been at least two topics subsumed under the name CAUSE. First is so-called final cause expressing the hoped-for result of an action or event, i.e. 'in order to' do this or that. Second is so-called efficient cause, i.e. cause-effect. It is this which I want to focus on, but first I wish to define it more closely by a quick look at what efficient CAUSE is not, namely final CAUSE.

### 2.1 Final Cause

In Korafe, final CAUSE is clearly marked in surface structure grammar except for some special cases of elision.<sup>2</sup> Final CAUSE can be marked in either of two ways. The first way is illustrated in example (1) below, by an embedded causative clause with the post-positional clitic -dae 'in order to'. Example (2) illustrates the second way, a final verb in the imperative mood followed by a final verb in the hortative mood. An alternative of this second surface structure is the replacing of the imperative form of the verb with a future sequential medial form as in example (3). (Note that a list of abbreviations used herein is included at the end of the paper.)

- |                                   |                 |
|-----------------------------------|-----------------|
| 1                                 | 2               |
| (1) Nu Tufi y-ari-dae             | erira.          |
| he Tufi go-infinitive-in.order.to | do.3s.present.F |

'He is doing in order to go to Tufi.' (He is getting ready to go to Tufi.)

- (2)  $\overset{1}{\text{Mut-u}}$   $\overset{2}{\text{b-aore!}}$   
 give-imperative.F get-3p.hortative.F  
 'Let them have (it)!' or 'Give (it) to them!'
- (3)  $\overset{1}{\text{Mut-oro}}$   $\overset{2}{\text{b-aore!}}$   
 give-imperative.F get-3p.hortative.F  
 'Let's let them have (it)!' or 'Let's give it to them!'

## 2.2 Efficient Cause

For the remainder of this paper I will focus on efficient CAUSE, first in Korafe and then more generally. In Korafe efficient CAUSE is not overtly marked in the surface structure and is consequently more difficult to describe. The surface structure vehicle for expressing efficient CAUSE is simply the juxtaposition of two clauses. In this CAUSE-EFFECT construction, the CAUSE is stated in the initial clause and the EFFECT in the second clause. The initial clause encoding the CAUSE must conclude with a medial different actor sequential verb. The EFFECT clause which invariably follows the CAUSE clause may conclude with either a medial or final verb form, i.e. it may occur sentence medially or sentence finally.

- (4)  $\overset{1}{\text{Ambe j-aoro}}$ ,  $\overset{2}{\text{d-uraira}}$ .  
 sago chop-1p.future.DA.SE fall-3s.procedural.F  
 'We chop the sago, and it falls.'
- (5)  $\overset{1}{\text{Nu Ata d-etiri}}$ ,  $\overset{2}{\text{ambududur-usira}}$ .  
 he Ata hit-3s.past.DA.SE die-3s.distant.past.F  
 'He hit Ata, and Ata died.'

Example (4) exhibits a rough equivalent to the single English verb 'to fell'. Example (5) gives the Korafe version of the oft used example 'to kill'.

- (6)  $\overset{1}{\text{Tisa gagara d-etiri}}$ ,  $\overset{2}{\text{numamo janje}}$   
 teacher girl hit-3s.past.DA.SE her.father esophagus  
 $\overset{2}{\text{eko usira}}$   
 bad do.3s.distant.past.F  
 'The teacher hit the girl, and her father got angry.'

- (7) <sup>1</sup> Ata amb-iri naoro sorara <sup>2</sup> usira.  
 Ata die-3s.past.DA.SE his.wife cry do.3s.distant.  
 past.F

'Ata died, and his wife mourned.'

Intuitively we may feel that examples (4) and (5) are more directly CAUSE-EFFECT than (6) and (7). However, if we transform any of the above EFFECT clauses into 'why' questions, i.e., 'Why did the sago (trees) fall?', 'Why did the father get angry?', etc., then the corresponding initial clauses provide the responses: 'Because they were chopped.', 'Because the teacher hit his daughter.', etc.

- (8) <sup>1</sup> Nu gagara d-etiri genembo eni ava <sup>2</sup> g-ido  
 he girl hit-3s.past.DA.SE man a that see-SA.SE  
<sup>3</sup>  
osa s-isira.  
 report say-3s.distant.past.F

'He hit the girl, and another man saw that and reported it.'

The causal relationship between clauses 1 and 2-3 in example (8) seems even more tenuous than the other examples. However, if asked why the report was made, most Korafe speakers (and indeed most people) would reply, 'beCAUSE the girl was struck.'

As stated above in this section the mere juxtaposition of clauses is in itself semantically ambiguous, and this construction does not always imply or communicate a CAUSE-EFFECT relationship between the clauses. Example (9) demonstrates this.

- (9) Noaro boka <sup>1</sup> mut-iri, <sup>2</sup> uj-usira.  
 his.wife loincloth give-3s.past.DA.SE wrap-3s.distant.  
 past.F

'His wife gave him a loincloth, and he put it on.'

The verbs in example (9) refer to a simple sequence of events. This example is taken from a text in which the context makes it clear that he had requested the loincloth from his wife and that the giving thereof in clause 1 in no way caused him to put it on in clause 2.

### 3. "Case Frames to the Rescue"

Since consideration of the surface structure alone does not capture the elements that encode CAUSE in Korafe, and since the essence of the problem lies in a semantic encoding across clause boundaries, I turned to case grammar (see Chafe 1970; Cook 1974;

Fillmore 1968) and to a study of co-referentiality between clauses. Because the field is so open and unsettled with regard to which cases are the cases to use, I have outlined a set which seemed to meet my needs. This is the first attempt to apply them to Korafe, and I do not regard this set as either final or complete.

Proposed List of Semantic Roles for Korafe

Agent	(A)	a volitional agent performing a conscious act which may or may not affect some other object or person
Benefactive	(B)	the person (institution, etc.) for which or on which an action is done
Experiencer	(E)	an animate being that is affected by an action or process and is aware of it
Instrumental	(I)	the inanimate means of accomplishing some action or starting some process when there is no volitional agent named
Object	(O)	the inanimate object which is affected by an action or process
Patient	(P)	an animate being which is affected by an action or process of which it is unaware

Using these cases, I studied a limited corpus of texts marking the sequence case frames, i.e., the double case frames showing the verbs and their associated cases in juxtaposed clauses. I inspected those which structurally indicate efficient CAUSE to see if some pattern emerged, and then I added some other clause sequence frames intuitively. Table 1 is a list of these. This list is not meant to be exhaustive, but to illustrate what I think is a very productive method. It is at this point that this paper ceases to be solely oriented towards Korafe. The remainder of the discussion should be just as pertinent to English, German, or to any other language as it is to Korafe.

Table 1 illustrates the relationship of the surface structure subject (S), object (O), and indirect object (IO)<sup>3</sup> to the deep structure cases as well as the case frames which must occur to entail (or not entail) CAUSE. The sequence case frames (a-i) each represent a possible configuration of two clauses. The verbs listed are only representative, and presumably any verb with that case frame would either entail CAUSE or not, as marked in the far right column labelled CAUSE. The co-referentiality of segments within the separate clauses is monitored, where pertinent, by the use of postscripts in parentheses, e.g., (x)...(x). For example, in (a), the experiencer in clause (1) is co-referential with nothing in clause 2, but in sequence case frame (b), the experiencer in clause (1) and the agent in clause 2 are co-referential.

These sequence case frames illustrate for most verbs the environments that encode efficient CAUSE. Some of the case frames in clause sequences seem in their surface structure to be suspiciously like those that encode CAUSE, but they either remain ambiguous at the deep structure level or else they do not encode efficient CAUSE.

Clause sequence case frames (e-h) definitely encode CAUSE, and they manifest some common characteristics:

1. The surface structure subject of the second clause is not realized by a deep structure agent case.
2. One of the cases in the first clause is co-referential with a case in the second clause.
3. In three of the four instances, the surface structure object of clause 1 is the surface structure subject of clause 2.

Table 1: Relationship of S, O and IO to Semantic Cases in Inter-Clausal Encoding of Causal and Non-Causal Sequences

	CLAUSE 1				CLAUSE 2			CAUSE ENTAILED
	S	O	IO	V	S	O	V	
a.	A/I	E(x)		hit	A(y)	E/O	hit	±
b.	A/I	E(x)		hit, greet	A(x)		run, leave	±
c.	A	P(x)		look at	A(x)		run, leave	-
d.	A	P(x)		look at	E(x)		fall, sicken	-
e.	A/I	E(x)		hit	E(x)		fall, sicken	+
f.	A/I	O(x)		knock, hit	O(x)		fall, break	+
g.	A	O(x)	B(y)	say	E(y)	O(x)	hear	+
h.	O(x)			fall	E	O(x)	be angry	+
i.	A/I	O(x)		hit	E(y)		be angry	±

Case frames (c-d), like (e-h), manifest co-referential case fillers across clauses, but do not entail CAUSE, presumably because of the inherent relationship of the patient case to its verb, i.e., no impression, even unconsciously, is made on the patient (P). In other words, the patient (P) by definition is unaware of and unaffected by any CAUSE operation on him. More will be said about the apparent ambiguity of case frames (a) and (b) below, but at this point, it should suffice to say that the agent case in the second clause seems to be decisive in producing this ambiguity. By definition, the agent (A) is acting of his own volition; therefore, his action cannot be the EFFECT of some previous CAUSE.

The similarity in structure between (d) and (e) bears further investigation. The only difference in deep structure is that the patient case occurs in the first clause of (d) and the experiencer case in the first clause of (e). Examples (10) and (11) in English correspond to (d) and (e) and illustrate them respectively.

(10) John looked at the girl; she fell down. Cf. (d)

(11) The rock hit the girl; she fell down. Cf. (e)

Example (10) does not encode CAUSE, but (11) does. A slight adjustment of example (10) can change it into an example of sequence case frame (e) as represented in example (12).

(12) John looked at the girl; she got scared.

In example (12), the girl has become an experiencer (E); the underlying semantics imply that she realized she was being watched. This realization converts 'her' case from patient (P) to experiencer (E) and facilitates the encoding of CAUSE in the clause sequence case frame (e).

A closer study of the three sequence case frames (a,b, and i) will produce a fuller understanding of their underlying semantic deep structure.

1	2
(13) <u>Ga-etiri</u> ,	<u>Etu</u> <u>sarig-useri</u> .
spear-3s.DA.SE	Etu.clan    split-3p.distant.past.F
'He speared (them), and the Etu clan scattered.'	

In examples (6), (8), and (13), there is obviously some cognitive process going on. In (6) and (13), this cognitive process is implied, and in (8), it is overtly stated. In (6), 'The teacher hit the girl, and her father got angry' presupposes that the father became aware of the event in some way, probably by seeing or hearing about it. In example (13), the surviving members of the clan perceived the situation and reacted by running away in a haphazard fashion. I therefore posit for examples (6), (8), and (13), a semantic deep structure with three clauses, not two clauses. (Example (8) has this overtly stated.) In surface structure this second clause expressing the cognitive process may or may not be overtly present. It would need further investigation, but I would think that this cognitive process would normally be expressed by a small, possibly finite, number of verbs. For the moment then we can replace (a), (b), and (i), from Table 1 with (A), (B), and (I) of Table 2.

Table 2: Modified Case Frames of Clause Sequences

	CLAUSE 1			CLAUSE 2			CLAUSE 3			CAUSE EN- TAILED
	S	O	V	S	O	V	S	O	V	
A.	A	0	hit(x)	E(y)	O(x)	hear,see	A(y)	±0	action verb	±
B.	A	0(y)	hit(x)	E(y)	O(x)	feel	A(y)		run,leave	+
I.	A	0	hit(x)	E(y)	O(x)	hear,see	E(y)		get angry, etc.	+

Notice that while the additional CLAUSE 2 in the deep structure does clarify the semantic input in these examples, the actual CAUSE-EFFECT relationship in all three of the clause sequence case frames (A), (B), and (I) is encoded in the interaction between clause 1 and clause 2 in each case. In other words, in clause sequence case frames (A), (B), and (I), CAUSE is encoded in clause 1 and EFFECT in clause 2. Clause 3 merely records a secondary action or (as in (I)) reaction. If clause 3 is deleted from (A) and (I), clauses 1 and 2 by themselves become a variant of sequence case frame (g). So, in actuality, binary clause sequence case frames are sufficient to encode CAUSE-EFFECT, and it is only when elision of the deep structure EFFECT clause confuses the picture that these three-clause sequence case frames may be useful in reconstructing what is occurring in the deep structure.

#### 4. Conclusion

Starting with Korafe and then generalizing I have shown that surface structure alone cannot formally indicate when CAUSE is entailed between two juxtaposed clauses. However a study of case frames coupled with co-referential arguments in clause sequences is proving fruitful in untangling what is going on semantically between clauses.



## APPENDICES

### I. Synopsis Of A Korafe Verb In Second Person Singular

sumb<sup>1</sup>-ari 'to run'

#### KORAFE-ENGLISH

#### TENSE/ASPECTS/MOOD

ere<sup>2</sup>-suf<sup>1</sup>-esa  
you.run(you.are.running)

Present, Indicative<sup>3</sup>

suf-umutasi  
you.ran.yesterday

Yesterday's Past,  
Indicative

suf-usesi  
you.ran

Distant Past, Indicative

sumb-esi  
you.ran.earlier.today

Today's Past, Indicative

sumb-aresa  
you.will.run

Future, Indicative

sumb-uraesa  
you.always.run

Procedural, Indicative

sumb-aetesu  
you.ought.to.(have).run

Subjunctive

sumb-ase  
may.you.run

Hortative

sumb-u<sup>4</sup>  
run!

Imperative

#### MEDIAL VERB FORMS

##### Same Actor

Sequential<sup>5</sup>  
sumb-udo<sup>4,6</sup>  
having.run

Simultaneous	Repetitive
<u>suf-use</u> <sup>6</sup>	<u>suf-udo</u> <sup>6</sup>
while.running	while.always. running

##### Different Actor

###### future

sumb-aso  
you.will.run

suf-uraso  
while.you.will.be.running

###### non-future

sumb-eso  
you.ran

suf-eso  
while.you.were.running

#### VERB SYNOPSIS NOTES

<sup>1</sup>Korafe verbs often have two stems: short process and long process. The stems for sumbari 'to run' are sumb- and suf-

respectively. The forms with short process stems occur in a shorter time period than the forms with long process stems.

<sup>2</sup> The morpheme ere- (also morphophonemically as -er- and re-) indicates that the action of the verb is repeated. It occurs obligatorily with present tense and may occur with other tenses if the repetitive aspect merits focus.

<sup>3</sup> To form the question mood, the final -a on verbs in the indicative mood is replaced by an -i. Where the indicative form of the verb already terminates in -i, there is no change.

<sup>4</sup> Korafe has three verb classes: 'e-verbs', 'i-verbs', and 'u-verbs'. These classifications are based on the characteristic vowel that occurs with the forms assigned the superscript 4. For sumbari the characteristic vowel is -u.

<sup>5</sup> There are a number of sequential durative forms, marked for person, number, and tense. These forms occur as both same actor medial forms and different actor medial forms. They usually indicate repetition of action as well as lengthy duration. However, these forms are rarely used, except with such verbs as furari 'to come', yari 'to go', irari 'to stay', and avari 'to sleep'.

<sup>6</sup> These forms are unmarked for person, tense, and number.

## II. Medial Verb Usage and Sentence Structure

The following examples (A1-A3) are included here to help the reader who is not familiar with medial verb languages.

A1. Na nanda bio ga-edo javo b-udo y-arena.  
<sup>1</sup> <sup>2</sup> <sup>3</sup>  
 I my hair spear-SA.SE bag get-SA.SE go-1s.future.

'I will comb my hair, get my bag, and go.'

In the first clause (ending at superscript 1), a same actor verb, unmarked for person or tense, occurs coupled with the overt subject, na 'I'. Clause 2 likewise has a same actor verb, but the subject is not mentioned, because the verb morphology dictates that the subject of clause 2 must necessarily be the same as that of clause 1. Clause 3, as the final clause, has a final verb which is marked first person singular co-referentially with the subject of clauses 1 and 2. This final verb also gives the overall tense for the sentence.

A2. Ava gos-use oju edo, suf-usira.  
<sup>1</sup> <sup>2</sup> <sup>3</sup>  
 that see-SA.S fear do.SA.SE run-3s.distant.past.F

'While looking at that, he became afraid and ran away.'

In example A2, the simultaneous form of clause 1 shows that the person became frightened in clause 2 while still performing the action of looking (clause 1). In this sentence, subject and tense are unmarked in any way until the final verb of clause 3.

1		2				
A3.	<u>Ambe</u>	<u>dadab-ari</u>	<u>ato</u>	<u>gurigh-edo,</u>	<u>avori,</u>	
	sago	end-3s.future-DA.SE	pith	gouge-SA.SE	OK	
	3		4			
	<u>y-ama</u>	<u>kaifa</u>	<u>ururoro,</u>	<u>uvu</u>	<u>gima</u>	
	go-SA.SE	pause	do.lp.future.DA.S	water	clear	
	5		6		7	
	<u>ari,</u>		<u>jigh-i</u>	<u>ghasagh-edo</u>	<u>avori,</u>	
	do.3s.future.DA.SE		hold-SA.SE	pour.out-SA.SE	OK	
	8		9		10	
	<u>ambe</u>	<u>gov-edo</u>	<u>b-u</u>	<u>y-ama,</u>	<u>usisi</u>	
	sago	scoop.out-SA.SE	get-SA.SE	go-SA.SE	strainer	
	11					
	<u>etoda</u>	<u>fit-iraera.</u>				
	on.top.of	put-ip.procedural.F				

'The sago will finish (falling), we will gouge out the pith, go and wait until the water clears, take it and pour it, scoop out the sago, get it and go, and put it on top of the strainer.'

This sentence, taken from a text on sago palm processing, is a long sentence, but only slightly longer than the average Korafe narrative sentence. Sentences with up to fifteen clauses are quite common.

## List of Abbreviations Used

A	agent	.	used to conjoin separate concepts defining one Korafe word in literal translation
B	benefactive		
DA	different actor	1s	first person singular
E	experiencer	1p	first person plural
F	final verb	3s	third person singular
I	instrument	3p	third person plural
O	object	-	used to show morpheme breaks of verb stems in Korafe text
P	patient	-	used in Table 1 and Table 2 to show that 'cause' is not entailed
S	simultaneous action		
SA	same actor	+	used in Table 1 and Table 2 to show that 'cause' is entailed
SE	sequential action	±	used in Table 1 and Table 2 to show that it is unclear whether 'cause' is entailed
( )	used to enclose example referent identification symbols (x) and (y) in examples	x,y	used in Table 1 and Table 2 to show whether referents in separate clauses are the same or different

## N O T E S

1. Korafe is a non-Austronesian language in the Binandere language family on the north coast of Papua in Papua New Guinea. There are approximately 2,000 Korafe speakers located in the Tufi Sub-Province and about 1,000 more living and working in other areas of Papua New Guinea. Korafe examples herein are in orthographic form. The only non-standard symbol is the digraph gh which represents the voiced velar fricative.
2. Many Papua New Guinea languages use the verbs 'say, speak' and/or 'do' as the vehicle to express cause. As used in Korafe at least, these forms are primarily an elided form of final CAUSE. Examples (a) and (b) are of this type:

- (a)  $\overset{1}{\text{Nu etiri}}$   $\overset{2}{\text{siror-usira.}}$   
 he do-3s.past.DA.SE be.born-3s.distant.past.F  
 'He made it come into being.' or 'He created it.'
- (b)  $\overset{1}{\text{Nu s-etiri}}$   $\overset{2}{\text{f-usira.}}$   
 he say-3s.past.DA.SE come-3s.distant.past.F  
 'He spoke, and he came.' or 'He told him to come.'  
 (note that the two 'he's' are not co-referential.)

Examples (a) and (b) actually represent a final CAUSE expression, in which the *-dae* 'in order to' clause has been elided. The complete non-elided form of example (b) is given as example (c):

- (c)  $\overset{1}{\text{Nu fur-are-dae}}$   $\overset{2}{\text{s-etiri}}$   
 he come-3s.hortative-in.order.to say-3s.past.DA.SE  
 $\overset{3}{\text{f-usira.}}$   
 come-3s.distant.past.F  
 'He said for him to come and he came.'

As can be seen from the free rendering, example (c) is analogous to the English "And God said, 'Let there be light,' and there was light." This construction is possible of course, but the more normal one would simply be, "God created light." Korafe speakers prefer using the shorter construction with *sari* 'to say, speak' and *ari* 'to do' and many Papua New Guinea languages have similar constructions.

3. I wish to use Table 1 to illustrate a universal semantic interplay between clauses. My labelling is for convenience's sake as is the fact that in the examples chosen the second clause in the table did not need a fourth indirect object (oblique or benefactive) slot.

## REFERENCES

- Chafe, Wallace. 1970. Meaning and the Structure of Language. Chicago: University of Chicago Press.
- Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge: M.I.T. Press.
- Cook, Walter A. 1974. 'Case Grammar and Generative Semantics', Georgetown University Working Papers, No. 8:1-28.
- Fillmore, Charles J. 1968. 'The Case for Case.' In E. Bach and R. Harms (eds.), Universals in Linguistic Theory. New York: Holt, Rinehart, & Winston. Pp. 1-90.
- Katz, Jerrold. 1964. 'Analyticity and Contradiction in Natural Language.' In Jerry Fodor and Jerrold Katz (eds.), The Structure of Language. Englewood Cliffs: Prentice Hall. Pp. 519-43.
- Lakoff, George. 1970. On the Nature of Syntactic Irregularity. New York: Holt, Rinehart & Winston.
- McCawley, James. 1970. 'English as a VSO Language', Language 46 (2): 286-298.