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Article abstract

This paper outlines the argument properties of Haitian Creole verbs, including intransitive, transitive, and ditransitive verbs, within a lexical framework which includes a level of Lexical Conceptual Structure and a level of Predicate Argument Structure. There is assumed to be a relatively free mapping relation between these two levels in order to explain the many possible variations in argument structure that most verbs exhibit. We see that there are at least two detransitivizing operations in Haitian Creole: one which operates freely and one which must be adverb-licensed. Transitive and ditransitive verbs are classified in terms of which of these operations they may undergo. The paper presents a description of Haitian Creole verb-types in Government and Binding theoretical terms and highlights several problems which Haitian Creole poses for future research.

PREDICATE ARGUMENT STRUCTURE IN HAITIAN CREOLE*

Diane Massam

0. Introduction

This paper provides an outline of the argument properties of verbs in Haitian Creole (HC) including verbs which exhibit so-called transitivity alternations[1].

This study has as its main purpose the development of a descriptive inventory of the argument properties of HC verbs, which is expressed in GB-theoretical terms. As the verb types are presented, central theoretical questions which are raised by the HC data are pointed out and discussed. The paper does not have as its aim the provision of solutions to these questions, instead, it attempts to provide a springboard for future work in HC syntax.

1. Background

1.1 The lexicon

The lexical properties of HC verbs will be presented using the view of the lexicon as outlined in Guerssel et al (1985) and others. Following these authors, it is assumed that there is in the lexicon a level of Lexical Conceptual Structure

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1. All discussions of the data for this paper were conducted in French, for the most part with Jean-Robert Cadely. When the translation of a sentence is crucial, I give the French translation provided by him, as well as my own English translation.

(LCS), where the lexical «meaning» of a verb is represented, making use of variables which stand for the various theta roles which a verb can assign[2]. In (1) we see two examples of LCSs for the English verbs *cut* and *hit*, taken from Hale & Keyser (1987).

(1) a. *CUT*
x produce linear separation in the material integrity of y, by sharp edge coming into contact with y.

b. *HIT*
x, moving, come forcefully into contact with y.

Furthermore, the assumption is that each verb also has associated with it a Predicate Argument Structure (PAS). The PAS is not perceived to be a completely fixed property of the verb, but rather to consist in the beginning only of a specified number of slots. We refer to this initial PAS as a «lexical» PAS. In most cases these slots are pre-marked as internal (in the sense of Williams, 1981), and thus constitute in essence the subcategorization frame of the verb, without categorial information. Complete, or «generated» PASs are then created by the operation of linking, which takes place between the minimally specified PAS and the variables in the LCS. The rule of linking consists of (2)[3].

(2) a. Link variables to specified slots.

b. (Link other variables to created slots.)

For each verb, then, there are a minimal number of required arguments. After these lexically required slots have been appropriately (eg. if internal, by a non-agent) filled, there are no constraints on which other variables do or do not get

2. Use is made in this study of several notions which were developed in previous studies of argument properties and transitivity alternations although none is adopted in its entirety. Works include Guerssel 1986; Guerssel, Hale, Laughren, Levin & White Eagle 1985; Keyser & Roeper 1984; Hale & Keyser 1986, 1987; Jackendoff, 1983; Rappaport & Levin 1986; Roberts 1985; Jaeggli 1986; and Baker, Johnson & Roberts 1989.

3. This view of lexical representation is drawn from the work of the authors cited, but it differs from them in various ways. For instance, for Guerssel et al (1985), the lexicon consists of an LCS and a Lexical Structure (LS), an abstract syntactic projection of the verb and its arguments. The LCS and the LS are related by linking rules formulated in terms of thematic roles, and the linked pair then constitutes a Predicate Argument Structure. The linking rule for English determines that the theme in the LCS be linked to the argument position in the LS. (The agent is added in the syntax in conformance with predication.) The linking rules have been loosened so that for a single verb there may be several PASs. This is because in HC (and to some extent in English), a verb with two internal arguments (e.g. a theme and a goal) may appear with one (either one) or both of its internal arguments. If it appears with both, either of the two (usually) may be the direct object, with the other appearing either as a second «direct object» or as an indirect object. An attempt is thus made to account for the fact that a single verb may appear in several different structures that are not transformationally derived.

linked. For example, a verb such as *break* in English or *kase* «break» in HC has one specified internal position that will always be filled by the theme variable, since the other variable (agent) cannot link to an internal position. The linking of the agent variable by (2b) is optional. If it is linked, a transitive structure results, and if it is not linked, an ergative structure results. The lexical entries, and the surface outcomes are provided in (3).

(3) *BREAK*

a. LCS (abbreviated): ...x...y...
Lexical PAS: (_)
Generated PAS 1: x (y)
Surface Outcome: The children broke the window

b. Generated PAS 2: (y)
Surface Outcome: The window broke

The view outlined here has the advantage of allowing for a number of possible D-structures to be generated from a single verb. This is desirable in HC, since linking possibilities in this language are generally quite free, as seen below.

(4) a. Timoun yo ap kase vè a
children Det-pl Asp break glass Det
«The children will break the glass»

b. Vè a ap kase
glass Det Asp break
«The glass will break»

(5) a. Jan ap chajè kamyon an ak mayi a
John Asp load truck Det with corn Det
«John is loading the truck with the corn»

b. Jan ap chajè mayi a nan kamyon an
John Asp load corn Det in truck Det
«John is loading the corn on the truck»

c. Mayi a chaje (nan kamyon an)
corn Det load in truck Det
«The corn is being loaded (on the truck)»

d. Kamyon an chaje (ak mayi a)
truck Det load with corn Det
«The truck is being loaded (with corn)»

A verb such as *put* or *mèt* «put» is different in that it has two required internal slots in its lexical PAS. The agent variable here is also optionally linked, yielding, in theory, the possibilities in (6)[4].

(6) a. John put the book on the shelf

b. *The book put on the shelf

c. Li mèt liv la sou tab la
She put book Det under table Det
«She put the book under the table»

d. *Liv la mèt sou tab la
book Det put under table Det

The fact that the alternate form is not possible here is not due to any constraints on (2), but rather, it is claimed, to independent syntactic (or, possibly semantic) requirements of the verb such as the Affectedness Constraint which will be discussed below.

1.2 Other assumptions

Other essential assumptions include conditions on chains, as in (7) which incorporates the Case Filter, and the Extended Projection Principle, which we state as in (8).

(7) Chain Conditions
a. Every A-position must be in a chain.
b. If C = (α_1 ... α_n) is a maximal CHAIN, then α_n occupies its unique theta position, and a_1 its unique Case marked position. (Chomsky, 1986 p. 137)

(8) Extended Projection Principle (cf. Chomsky, 1982, Rothstein, 1983)
a. Linked arguments must be projected, and they remain constant at all levels
b. Clauses must have subjects

4. The impossibility of **John put the table with the book* and the HC equivalent **Jan met tab la ak liv la* is presumably due to the Case array of the verb *put* and *met*, which does not include an inherent theme Case, where «inherent» refers to a Case that is tied to a (particular) theta role, as in Chomsky (1986).

The next section of the paper deals with HC verbs and examines their argument taking properties. Initially, single argument verbs are discussed; later sections take up the question of two- and multiple-argument-taking verbs (and hence transitivity alternation structures). To avoid confusion, the terms «one-variable verb» and «two-variable verb» are used rather than «one-argument verb» and «two-argument verb», since, given the existence of transitive alternation structures, a two-variable verb may have either one or two arguments.

2. One-variable verbs

Single-variable verbs are those for which the LCS contains only one variable. Empirically, they are those which are found only in sentences with one argument. There are two basic types of single-variable verbs.

(9) Verb Types
A. Single external argument
B. Single internal argument

Type A verbs are exemplified in (10).

(10) A. a. Li ap sote
She Asp jump
«She is jumping»

b. Li ap estènen
he Asp sneeze
«He is sneezing»

The theory of argument structure outlined in Part 1 predicts that single-variable verbs should divide into two types: 1) those for which there is a single (agent) variable, such as in (10a), and perhaps (10b), and 2) those for which there is a single (non-agent) variable, such as in (11).

(11) a. Li rive
he arrive
«He arrived»

b. Rete twa æ
remain three hour
«There are three hours left»

2.1. Single external argument verbs

In (10) above, the first group of verbs is essentially unproblematic as seen in (12).

(12) *SOTE*

LCS:	...x...
Lexical PAS	
Generated PAS	x

The linking between the variable and the lexical PAS takes place, creating a generated PAS with one argument, which is labelled external. This linking is theoretically optional, since the lexical PAS contains no slots. However, linking is required if Projection is then to take place. Here, Move Alpha does not apply. There are other verbs with sentential external arguments which are not so straightforward: for instance, the verb *posib* «be possible». This verb appears as in (13).

(13) a. Li posib pou Jan vini
3ps possible COMP John come
«It's possible that John will come»

b. *POSIB*

LCS:	...x...
Lexical PAS:	_
Generated PAS:	x

This verb is considered to take an external sentential argument which is then extraposed, with its trace being spelled out as *li*. This view is adopted since *posib* differs from other expletive subject verbs (to be discussed below) that appear with a null expletive, rather than with *li*. The two types of structures can be differentiated if the null expletive is limited to non-theta positions, and hence, *posib* is considered to assign a theta-role to its subject position. (See Vinet, 1987 for further discussion of HC expletives.) If this view is correct, the external argument position in HC is arguably not limited to elements bearing the agent theta role, and hence must be lexically specified in at least some cases, in the way shown in (13b).

2.2. Single internal argument verbs

The second group of verbs, as in (11b), is more complex. Several verb types are found in this group; it is divided according to the syntactic classes of their arguments.

(14)

VERBS	COMPLEMENT CATEGORY			
	NP	CP (COMP=pou)	CP (COMP=null)	SC
RIVE 'arrive'	yes	no	no	no
RETE 'remain'	yes	yes	no	yes
MANKE 'lack,miss'	yes	?	no	yes
GEN 'have'	yes	yes	no	yes
SANBLE 'seem'	no	no	yes	?
FOK 'necessary'	no	no	yes	?

Examples follow, which will be discussed below.

(15) a. Jan rive
John arrive
«John is arriving»

b. *Rive pou li vini
arrive COMP he come

c. *Rive li vini

d. *Rive yon nèg nan kamyon an
arrive a man in truck Det

(16) a. Rete twa zè
remain three hour
«Three hours remain»

b. Rete pou li vini
Remain COMP he come
«It remains that he come»

c. *Rete li vini

d. Rete twa nèg nan kamyon an
Remain three man in truck Det
«There remain three men in the truck»

(17) a. Manke yon ploum
lack a pen
«A pen is lacking»

b. ?Manke pou Jan vini
Lack COMP John come
«It is John's arrival that is missing»

c. *Manke Jan vini

d. Manke sèl nan manje a
Lack salt in dinner Det
«There is salt lacking in the dinner»

(18) a. Gen yon poblèm
Have a problem
«There is a problem»

b. Gen pou Jan vini
Have COMP John come
«John must (has to) come»

c. *Gen Jan vini

d. i. Gen twa nèg nan kamyon an
Have three men in truck Det
«There are three men in the truck»

ii Mari gen yon sè
Mary have a sister
«Mary has a sister»

(19) a. *Sanble yon poblèm
seems a problem

b. *Sanble pou Jan vini
seems COMP John come

c. Sanble Jan vini
«It seems that John is coming»

d. ?Sanble yon nèg nan kamyon an
seems a man in truck Det
«There seems to be a man in the truck»

(20) a. *Fòk yon plim
necessary a pen

b. *Fòk pou Jan vini
necessary COMP John come

c. Fòk Jan vini
«It is necessary for John to come»

d. ?Fòk twa nèg nan kamyon an
Necessary three men in truck Det
«It is necessary for there to be three men in the truck»

Some preliminary remarks are in order. The verb *manke* also has a use as a psych-verb, and as such will not be discussed in this paper. In many cases there are definiteness effects, as can be inferred from the examples chosen. Finally it is noted that in all cases where the argument is expressed internally, the subject position contains a null expletive. It is considered that this null element is licensed only in non-thematic positions.

Considering verbs which appear with an NP argument, the theory predicts that these internal arguments might appear as external arguments (by way of Move Alpha, since the external position is a non-thematic position), or as internal arguments in structures appearing with expletive subjects. Thus one expects to find not only (15a-18a), but also (21).

(21) a. *Rive yon nèg
arrive a man

b. *Twa zè rete
three hour remain

c. *Yon nèg manke
a man lack

d. *Yon poblèm gen
a problem have

Interestingly, these options appear to be non-existent. In the case of (presumably) unaccusative verbs such as *rive*, movement of the object to subject seems to be obligatory. On the other hand, the other verbs (*rete, manke, gen*) appear to disallow movement of the internal argument to subject position so that it must appear after the verb[5].

Let us now consider CP-argument verbs, first those appearing with a *pou* complementizer. Such verbs, which have sentential internal arguments, appear with a null expletive. However, a variant is possible in many cases which is loosely comparable to a raising to subject construction. This is shown in (22).

(22) a. Jan rete pou li vini
John remain COMP he come
«What's left is for John to come»

b. ?Jan manke pou li vini
John lack COMP he come
«What's missing is for John to come»

c. Jan gen pou li vini
John have COMP he come
«John has to come»

Such structures are also possible with verbs taking null COMP complement clauses.

(23) Jan sanble li pa isi
John seem he not here
«John seems not to be here»

These sentences are considered to contain the same verbs as those in the sentences (16-19), i.e. verbs which do not assign a theta-role to their subjects. The

5. One possible line of analysis here would be to claim that movement of an NP from object to subject position is always required, and that the internal argument of verbs such as *rete, manke,* and *gen* is in fact a small clause with a null predicate. Alternatively, such NP movement is never required, in which case *rive* is not an unaccusative verb in HC.

motivation for this is first that there is a mandatory coreference relation between the matrix subject and the *li* pronoun subject of the embedded clause, and second that, given sentences such as (23), where «John» is unseen by and perhaps unknown to the speaker, it seems implausible that *John* receives a theta-role from the verb. Thus, such structures must involve a sort of raising. However, this raising is not directly comparable to raising in languages such as English, since it is seen to occur from a tensed clause with, in some cases, an overt complementizer, and since it leaves a pronoun copy (obligatorily). Nor is it comparable to raising in languages such as Niuean, Kipsigis, Moose Cree, among others, since in these languages raising from finite clauses is possible from positions other than subject. (See Jake & Odden 1979, James 1984, Seiter 1980, and Massam 1985 for discussion of raising in these languages). In HC only the embedded subject can (must) be coreferential with the matrix subject as seen by (24), which has been rejected by the HC speakers with whom I have consulted. Rivero & Sainz (1986) discuss languages such as Modern Greek which have the same raising characteristics as HC, however their analysis rests on a morphological richness which does not appear in HC. Deprez (1988) analyzes HC raising structures with *sanble*, considering a predication relation to hold between an element fronted in the lower clause and the subject of the lower clause, with the former then undergoing raising to matrix subject position. Of interest here also is Lappin (1984), who discusses sentences such as (25).

(24) *Jan sanble Mari renmen li
John seem Mary like him

(25) John seem as if/like he is unhappy

Note that (22b) involving raising with *manke* is judged as almost ungrammatical. This may be attributed to the fact that *manke* with a CP argument without raising is also considered questionable, as in (17b), with a verb such as *rete* being preferred. These data, then, provide evidence for considering *sanble*, *rete*, and *gen* as generated with a single thematic argument that is in an internal position at D-structure. The problem posed by such structures then is the determination of the role of the (arguably) non-thematic subject and of the nature of its relation with the pronoun in the embedded clause.

With respect to the verb *fòk*, there is little to say. It does not allow raising, so that (26) is ungrammatical.

(26) *Jan fòk li vini
John necessary he come

There is no discernable reason for its ungrammaticality and the question is left to a further analysis of HC raising constructions in general.

As for verbs taking small clause complements, raising is permitted for most of them, and, interestingly, this raising does not leave a copy. Hence, it would appear to resemble raising to subject from small clauses, as found in other languages. One unexpected fact is that *gen* does not allow such raising. Other properties of this verb are discussed in Sterlin (1988).

(27) a. Twa nèg rete nan kamyon an
Three men remain in truck Det
«Three men remain in the truck»

b. Sèl manke nan manje a
Salt lack in dinner Det
«Salt is missing in the dinner»

c. *Yon nèg gen nan kamyon an
A man have in truck Det

We have presented in this section a variety of HC verbs for each of which the LCS contains a single variable. HC is like other languages in including verbs which appear with this single argument externally (verbs with agents and some verbs with sentential arguments), and verbs which appear with this single argument internally. Verbs of this latter class which take nominal complements appear with this NP internally if they also may take a small clause argument. The verb *rive* appears with its nominal argument externally, and does not take a small clause complement. Verbs which take sentential internal arguments may or may not appear in an alternate "raising-like" structure. Theoretical questions which arise from this outline of HC verb types involve the characterization of unaccusativity (for example: Is *rive* an unaccusative verb in HC, and whether it is or not, how is its status learned?), the status of NP-movement in the language, and the nature of the expletive/argument relation.

3. Two-variable verbs

The two-variable verb class includes all verbs which always appear with two arguments, and all verbs which may appear with either one or two arguments. In each group there are two major subsets, as seen below[6].

(28) A. Invariably two-argument verbs
  a. Indirect object (which may alternate as a direct object, with meaning change)
  b. Invariably transitive

B. Variable Verbs
  a. 'object drop'
  b. 'subject drop'

Examples of each type follow.

(29) A. a. li tire sou Jan (li tire Jan)
She shoot on John
«She shoots at John» («She shoots John»)

A. b. li wè mòn yo
He see mountain Det-pl
«He sees the mountains»

li koute muzik la
He listen music Det
«He listens to music»

B. a. Mari li liv la
Mary read book Det
«Mary reads the book»

Mari li souvan
Mary read often
«Mary reads often»

6. There is some overlap between verbs which can appear without their objects and verbs which can appear without their agent, a fact which has not been incorporated into the discussion of verb classes in this paper. Also there is potential overlap between verbs which have a direct object/indirect object alternation and those which appear without their agent. This is discussed for other languages in Guerssel et al (1985).

B. b. Pilot la kraze avyon an
pilot Det crash plane Det
«The pilot crashed the plane»

Avyon an kraze
Plane Det crash
«The plane (is) crashed»

Avyon an ap kraze
Plane Det Asp crash
«The plane is crashing/will crash»

About the verbs in (28 and 29.A.a) and (28 and 29.B.a) little will be said here. The verbs in A.a. raise interesting questions with respect to Case theory and its relation to thematic roles since they might be considered to have a Case array that includes two Cases: accusative and inherent (that is, related to a certain thematic role, possibly partitive, and assigned by a preposition), where the realized form of the prepositional inherent Case assigner might vary, depending on the meaning of the verb. Such questions are not unique to HC, however. The lexical PAS of such a verb, for example, *tire* «shoot», would be as in (30). (See Guerssel et al, 1985 for some discussion of similar alternations in other languages.)

(30) *TIRE*

LCS:	...x...y...
Lexical PAS: [+CASE] Accusative, inherent	( )
Generated (transitive) PAS:	x (y)

Verbs of type B.a. are currently the subject of much discussion[7]. In languages there are several types of null objects, including those for which there is arguably no overt syntactic position, such as the type found in HC.

3.1 Transitivity alternations

Turning now to the verbs in (28 and 29.B.b.), we find that they may or may not appear with their external argument present at D-structure. The resulting S-structure is one where the argument usually associated with the internal position appears as an external argument. In languages such as English, such constructions

7. Papers on null object phenomena include Authier, 1988, Bouchard 1987, Huang, 1984, Massam & Roberge 1989, Rizzi 1986, and Roberge 1987.

divide into syntactic classes normally referred to as passive, adjectival passive, ergative and middle.

(31) a. The plane was crashed by the pilot

b. The plane remained uncrashed

c. The plane crashed

d. The plane crashes easily

In HC, things are much less clear cut, at least superficially. There is no morpheme such as *-en* and no verb *to be* hence there is no construction conforming to the English passive structure with its optional «by-phrase». Since passive structures involve, following Jaeggli (1986) and Baker et al (1989), an agentive morpheme in INFL, the absence of passive in HC can be attributed to the absence of such a morpheme (which may in turn be related to the absence of nominal elements in INFL in HC). There is no clear cut distinction between adjectives and verbs in HC (for example, there is no copular verb, so that adjectives may appear in «verbal» positions; see Filipovitch, 1987), so that we cannot clearly distinguish an «adjectival» construction. Neither is there, in this case as in English, a morphological distinction between middle constructions and ergative constructions. There appears to exist only a simple NP1 V NP2/NP2 V alternation.

A closer look at verb types with respect to TAs however, does reveal divisions. There are three classes of verbs.

(32) a. verbs which do not undergo TAs (Class A.b)

b. verbs which undergo TAs only if adverb licensed

c. verbs which undergo TAs

These classes will be discussed below.

3.1.1. Ergative/Adjectival Constructions

The verbs of class (32c), when appearing in intransitive structures, correspond to French and English structures that are adjectival or recent past (when appearing

without the aspect marker *ap*), and passive and/or ergative future and/or progressive (when appearing with *ap*). This was seen above for the verb *kraze*; other examples follow, with the French translations provided by J.-R. Cadely and with my English translations. It is difficult in many cases to determine the exact sense of each sentence, due to the ambiguities which exist both in HC and in the French (and ultimately in the English) translations. In addition, the use of *ap* brings subtle changes in meaning which deserve detailed attention.

(33) a. Pilot la kraze avyon an
pilot Det crash plane Det

Avyon an kraze
«L'avion est écrasé»
«L'avion s'est écrasé»
«The plane has crashed»
«The plane is/has crashed»

Avyon an ap kraze
«L'avion est en train d'être écrasé»
«L'avion est en train de s'écraser»/«L'avion s'écrase»
«L'avion s'écrasera/ va s'écraser»
«The plane is being crashed»
«The plane is crashing»
«The plane is going to crash» (FUTURE PREFERRED)

b. Jan kase vè a
John break glass Det

vè a kase
«Le verre est cassé»
«Le verre s'est cassé»
«The glass is/has broken»
«The glass broke»

Vè a ap kase
«Le verre est en train d'être cassé»
«Le verre est en train de se casser»/«Le verre se casse»
«Le verre se casssera / va se casser»
«The glass is being broken»
«The glass is breaking»
«The glass is going to break» (FUTURE PREFERRED)

c. Jan nètwaye kay la
John clean house Det

Kay la nètwaye
«La maison est nettoyée»
«The house is clean» / «The house has been cleaned»

Kay la ap netwaye (demann)
«La maison est en train d'être nettoyée»
«La maison va être nettoyée (demain)»
«The house is being cleaned»
«The house will be cleaned (tomorrow)»
«The house will be clean (tomorrow)»

d. Jan kupe pen an
John cut bread Det

Pen an kupe
«Le pain est coupé»
«The bread is cut» / «The bread has been cut»

Pen an ap kupe
«Le pain est en train d'être coupé»
«Le pain va être coupé»
«The bread is being cut»
«The bread is going to be cut»

There are many verbs that appear in similar sets of sentences. Among them we find the verbs in (34). (See also Sylvain 1936 for a list of such verbs, although his classifications of particular verbs differ at times from those in this paper.)

(34)

anfanse «drive into»	apaye «weave»	achte «buy»
antere «bury»	bale «sweep»	bati «build»
brase «grind»	bouche «cork»	bouke «tire»
bwè «drink»	detri «destroy»	devalize «steal»
devalue «devalue»	ekri «write»	fonn «melt»
jwènn «find»	kaye «curdle»	kontredi «contradict»
fule «compress»	li «read»	manje «eat»
prepare «prepare»	ranpli «fill»	renmen «love»
chire «tear»	tate «feel»	vide «empty»

The different interpretations of, for example, *kase* and *kraze*, as opposed to *netwaye* and *kupe*, are considered as a function of translation, which is to say that there is no ergative (*se*) form of *nettoyer* and *couper* in French; hence a passive

translation is used, as opposed to the French verbs *casser* and *écraser*, for which an ergative is possible. The different translations do not reflect a true difference in the structures of the sentences with these verbs. Whether there is a «true» difference in HC between the non-stative and the stative forms is part of the general question of the relationship between adjectives and verbs in HC. It is considered here that there is no true difference and that the adjectival and ergative sentences above correspond to a single operation of TA, which can result in either a stative (adjective) or active meaning, depending on the context and on whether the progressive morpheme is used. Thus, there are not two different processes, one corresponding to adjectival passive and the other to ergative formation in English. It should be noted that there do exist a few verbs that appear to resist an active meaning, so that the presence of *ap* always renders a future and never a progressive sense. However, the same holds for these verbs in their transitive use; hence the intransitive sentence is not necessarily adjectival, but it may also be ergative, with the impossiblity of *ap* as progressive being due to its punctual sense rather than to stativity.

(35) a. Jan ap refize tab la
John Asp refuse table Det
«John will refuse the table»
*«John is refusing the table»

Tab la refize
«The table is/has been refused»

Tab la ap refize
«La table va être refusé (à ce prix)»
«The table will be refused (at that price)»
*«La table est en train d'être refusé»
*«The table is being refused»

b. Jan ap zwènn repons la
John Asp find answer Det
«John will find the answer»
*«John is finding the answer»

Repons la zwènn
«La reponse est trouvé»
«The answer is/has been found»

Repons la ap zwènn
«La reponse va être trouvé»
«The answer will be found»
*«La reponse est en train d'être trouvé»
*«The answer is being found»

We now turn to the syntax of HC TAs of type (32c). Recall that verbs, after linking their specified slots, are free to link, or not to link the remaining variables in their LCS. In the case of two-variable verbs, the optionally linking argument will usually be the external argument. Hence, an ergative form will result from a generated PAS of the form in (36).

(36) LCS: x y
Generated PAS: (y)

Following Hale & Keyser (1986, 1987), such verbs are considered to have no value for the feature [±CASE], symbolized as [α CASE]. The lexical PAS of an ergative verb is then reformulated as (37).

(37) Lexical PAS: [α CASE] (_)

In closing this section, it should be pointed out that there are a few verbs in HC for which two forms exist: one transitive and one intransitive.

(38) a. Fèm na fè yon timoun
woman Det make a baby
«The woman had a baby»

Timoun na fèt
baby Det made
«The baby was born»

b. grèv la enkyete Jan
strike Det worry John
«The strike worried John»

Jan enkyè
John worry
«John is worried»

c. li agrandi kay la
he enlarge house Det
«He made the house bigger»

d. timoun yo grandi
child Det-pl grow
«The children grew»

3.1.2. Non-alternating verbs

Verbs which do not undergo any form of TA, that is verbs of class (32a) will now be considered. (See Sylvain, 1936 for a larger list, which is not entirely the same as that of the consultants' of this study.)

(39) bo «kiss» di «say» evite «avoid»
kute «hear» mande «demand» pote «carry»
predi «predict» pouswiv «follow» rayi «hate»
chare «imitate» chache «search for» tann «wait for»
wè «see»

An examination of the list shows that it consists largely of verbs of perception, saying, and mental attitude. Verbs of these types fall into the class of verbs described as «non-affecting»[8]. Such verbs generally include verbs of perception, cognition, and mental attitude, and they exhibit characteristic behaviour in various languages. To account for various aspects of their behaviour, Jaeggli (1986) has proposed (40).

(40) Affectedness Constraint (Jaeggli 1986)
If a complement of X is unaffected, it is impossible to eliminate the external theta role of X.

Jaeggli's constraint explains why such verbs cannot form ergative structures, since, in the terms of this paper, these verbs do not have the option of not linking their agent. Thus, the D-structure (41) required for ergative forms cannot be generated for such verbs.

(41) __ [V NP]
[-CASE]

8. The notion of affectedness is also discussed in Anderson 1979, Fiengo 1980, Jaeggli, 1986, and Tenny 1987.

There are some problems, however, with differentiating in terms of affectedness the verbs in (34) which undergo alternations, with those in (39) which do not. Note for example that the verb *renmen* «love» is classified as an alternating verb, whereas *rayi* «hate» is a non-alternating verb. Along similar lines, it seems possible for some verbs to idiosyncratically disallow alternation. For example, the verbs *kale* «beat», *koronp* «corrupt» in HC also disallow transitivity alternations, although they do not seem to be less affecting than verbs such as *tate* «feel». Other distinctions familiar in the literature, (such as, for example delimitingness as discussed in Tenny, 1987) also fall short of clearly characterizing the two groups of verbs. It is clear then that further semantic study should be made of the groups of verbs in (34) and (39). With respect to *bo* «embrace», which likewise might not be considered a non-affecting verb, we note that it requires a plural subject when intransitive, i.e. it is inherently a reciprocal verb, and hence might belong to a separate class of verbs which do not allow non-linking of their external variable, although both its internal and external variable may be linked to a single argument position.

(42) a. Mari bo Jan
«Mary embraces John»

b. Y ap bo
They Asp embrace
«They are embracing»

c. *Mari bo
Mary embrace

3.1.3. Middle constructions

We are now left with verbs which appear in middle constructions, but not in ergative structures. This class appears to be quite small in HC. Examples follow:

(43) a. Mari aprann lang na
Mary learn/acquire language Det

*Lang na (ap) aprann

Lang na aprann fasil(man)
«The language acquires/learns easily»

b. Jan moke timoun yo
John annoy child Det-pl

*Timoun yo (ap) moke

Timoun yo moke fasil(man)
child Det-pl annoy easily
«The children annoy easily»

c. Grèv la enkyete Jan
strike Det worry John

*Jan (ap) enkyete

Jan enkyete fasil(man)
«John is easily worried»

d. Mari tande muzik la
Mary listen music Det

*Muzik la (ap) tande

Muzik la tande fasil(man)
«The music listens to easily»

e. Jan swiv kou a
John follow course Det

*Kou a (ap) swiv

Kou a swiv fasil(man)
«The course follows easily»

Interestingly, the above verbs correspond also to those considered in many languages to be non-affecting verbs, that is, verbs of perception and mental attitude.

The problem now is as follows: If these verbs fall into the class considered in HC to be non-affecting verbs, we can explain why they do not appear in ergative structures. We cannot, however, subsequently explain why they do appear in middles, since other non-affecting verbs, as in (44), do not appear in such structures.

(44) a. *Muzik la koute fasil(man)
music Det hear easily

b. *Mari rayi fasil(man)
Mary hate easily

c. *Mònn yo wè fasil(man) (nan sole a)
mountain Det-pl see easily in sun Det

If, on the other hand, we consider these verbs not to be members of the HC non-affecting class, we cannot explain why they do not appear in ergative structures, as was seen above.

In HC, then, as in English and other languages, there appear to be three classes of verbs, with respect to their ability to appear in structures without their usual external argument. This is seen below, where glosses are used in place of HC words for ease of comparison.

(45)

	No TA	TA if Adv	Simple TA
HC	avoid	acquire	cut break
	carry	follow	eat crash
	demand	listen	destroy melt
	hear	mock	drink tear
	predict	worry	read
	say		

Eng	avoid	acquire	carry	cut	break
	demand	listen	follow	eat	crash
	hear		mock	destroy	melt
	say		worry	drink	tear
				read	

We can see that there exist the same basic groups, which are partially characterizable in semantic terms with respect to the degree of necessity of participation of the «agent». It is interesting that the two languages do not syntactically divide these loose semantic classes in the same way, so that English classes perception verbs, verbs of saying, and certain verbs of mental attitude together as non-alternating, and groups other verbs of mental attitude together as being licensed in adverbial constructions; while HC classes only some verbs of perception, mental attitude, and verbs of saying into the non-alternation class, and other verbs of perception and mental attitude into the adverb-licensed class. On the other end of the scale, HC classes verbs such as *cut, eat,* and so forth, and verbs

such as *crash* and *melt* together as undergoing simple transitivity alternations, while English divides them into two classes, middle and ergative, as is seen above.

HC, then, as English, poses the theoretical problem of how to explain the different behaviour of the three classes of verbs. (On this topic see Hale & Keyser, 1986, 1987, and Massam, 1987)

4. Three variable verbs

We now turn to an examination of three variable verbs in HC. There are five types of verbs which take more than one internal argument. (Note that it is not claimed that there is no subtle meaning changes between different argument arrays.)

(46) Verb Classes (1=theme, 2=other [goal, source, location])

I.	NP1 PP2		(dèblaye «clear», simèn «sow», afonse «drive»)
	NP2 PP1		
II.	NP1 PP2		(chaje «load», bure «stuff», dèbusaye «clear»)
	NP2 PP1		
	NP2 NP1		
III.	NP1 PP2		(vann «sell», montre «show», rakonte «tell», anonse
	NP2 NP1		«announce», bay «give»)
IV.	NP1 NP2	NP2 NP1	(peye «pay», montre «teach»)
	NP1 PP2	NP2 PP1	
V.	NP1 PP2	(mèt «put»)	

These are exemplified below.

(47) I. Li simèn angre a na jaden an
He sow fertilizer Det in garden Det

Li simèn jaden an ak angre a
He sow garden Det with fertilizer Det
«He sowed the fertilizer in the garden»

II. Li chaje mayi a nan kamyon an
She load corn Det in truck Det

Li chaje kamyon an ak mayi a
She load truck Det with corn Det

Li chaje kamyon an mayi a
She load truck Det corn Det
«She loaded the truck with corn»

III. Li montre plim na ba nèg la
He show pen Det to man Det

Li montre nèg la plim na
He show man Det pen Det
«He showed the pen to the man»

IV. Li peye mèt kay la 100 pyas
She pay landlord Det 100 p

Li peye mèt kay la ak 100 pyas
She pay landlord Det with 100 p
«She paid the landlord (with) 100 p»

V. Li met liv la sou tab la
He put book Det on table Det
«He put the book on the table»

4.1 Ergative formation

Almost all of these verbs may appear with only one (either one) of their internal arguments. Exceptions are *met* «put», which needs both arguments, and *vann* «sell», *montre* «show», *rakonte* «tell», and *anonse* «announce», which allow only the theme to stand alone. *Bure* with only its theme gives an idiomatic reading «to have lots of». With three-variable verbs, as with two-variable verbs, we find subdivisions with respect to their ability to undergo TAs. When these verbs appear with only one internal argument, they divide as do verbs with two variables. This is seen below, where *montre* and *chaje* are used as examples.

(48) Cannot undergo TA: *montre* «teach», *montre* «show», *bay* «give»

a. Li montre matematik
She teach mathematics

b. Li montre timoun yo
She teach children Det

c. *Matematik la (ap) montre

d. *Timoun yo (ap) montre

(49) Can undergo TA: all others

a. Li chaje kamyon an
He load truck Det

b. Li chaje mayi a
He load corn Det

c. Kamyon an (ap) chaje
truck Det Asp load

d. Mayi a (ap) chaje
corn Det Asp load

When these verbs appear with two internal arguments, they behave as follows (where the italicized argument can appear as subject, with the other argument appearing internally):

(50) I. *NP1* PP2 (*dèblaye* «clear», *simèn* «sow», *afonse* «drive»)
NP2 PP1

II. *NP1* PP2 (*chaje* «load», *bure* «stuff», *dèbusaye* «clear»)
NP2 PP1
NP2 NP1

III. *NP1* PP2 (*vann* «sell», *rakonte* «tell», *anonse* «announce»)
NP2 NP1

IV. NP2 NP1 (peye «pay»)
NP2 PP1

V. NP1 PP2 (this class contains only the non-affecting verb *met* «put»)

Examples using only one verb from each class (I-IV) of the resulting ergative structures are shown below:

(51) a. Jaden an simèn ak angre a
garden Det sow with fertilizer Det

Angre a simèn na jaden an
fertilizer Det sow in garden Det

b. Mayi a chaje na kamyon an
corn Det load Det truck Det

Kamyon an chaje ak mayi a
truck Det load with corn Det

c. Rad la vann ba Mari
dress Det sell "to" Mary

d. Mèt kay la peye ak 100 pyas
landlord Det pay with 100 pyas

From (50) we can see that the first NP, regardless of its theta role, can become the subject of the verb in its intransitive form, provided that the second internal argument appears as a PP, and not as an NP. This is in accord with the view of ergativity proposed above. Since the verb must be [-CASE] for the ergative movement to take place, the second NP is unable to receive Case directly from the verb, and must appear within a PP. Thus it seems that the verbs above are [αCASE] verbs, that is to say that they fall into the class of ergative verbs.

An examination of transitivity alternations with three variable verbs allows us to determine several characteristics of ergative formation in HC. From the data above, we see that ergative formation has the following properties:

(52) HC Transitivity Alternations
a. Only affected arguments may become subjects.
b. The theta role of the final subject is not relevant.
c. There may be no NP/VP in the ergative structure.

(52a) is illustrated by the fact that there is a group of verbs that fall into the class of non-affecting verbs which cannot undergo ergative formation. (52b,c) are seen by the fact that each of *NP1* and *NP2* in the sentences above can become the subject if it is the first NP in an NP PP sequence. It is interesting to note that HC ergative formation is different in its properties from any externalizing operation in English.

(53) English Ergatives (Keyser & Roeper, 1984; Hale & Keyser,1986, 1987; Roberts, 1985)
a. Only affected objects may become subjects. (=HC)
b. Themes, only, may become subjects. (≠HC)
c. There is no NP/VP in the final sentence. (=HC)

*The mountains are seeing
*The pipe is stuffing with tobacco
*Tobacco is stuffing the pipe

(54) English Middles (as above)

a. Only affected objects become subjects.	(=HC)
b. Themes, only, may become subjects.	(≠HC)
c. There is no NP/VP in the final sentence.	(=HC)

*The mountains see well on a clear day
*The wagon loads well with hay
*The pipe stuffs tobacco well

(55) English Adjectival Passive (Levin & Rappaport, 1986)

a. Can operate on non-affected objects.	(≠HC)
b. Can operate on non-themes.	(=HC)
c. There is no NP/VP in the final sentence.	(=HC)

The mountains remained unseen
The pipe remained unstuffed with tobacco
*The pipe remained stuffed the tobacco

(56) English Passives (Jaeggli, 1986; Baker et al, 1989)

a. Can operate on non-affected subjects.	(≠HC)
b. Can operate on non-themes.	(=HC)
c. An NP/VP can appear in the final sentence.	(≠HC)

The mountains are seen rarely
Mary was given the book

It appears that ergative formation in HC collapses ergative and adjectival passive formation in English, both with respect to the sense of the output and the properties listed above.

4.2 «3-1 Advancement»

There is another type of transitivity alternation possible in HC. Ergative formation does not allow a final structure that contains an internal NP/VP. We do, however, find sentences such as (57).

(57) a. Mayi a (ap) chaje kamyon an
«Le maïs surcharge (surchargera) le camion»
«The corn fully loads (will do so) the truck»

b. 100 pyas (ap) paye mèt kay la
«100 piastre suffisent (suffiront) pour payer le proprietaire»
«100 p. is (will be) enough to pay the landlord»

There are two possible approaches here. We might consider phrases as in (57) to fall under the ergative operation, in which case, the characteristics given above for the latter, such as affectedness, absence of NP/VP in final structure, and so forth, must be altered. Alternatively, we might consider the phrases in (57) to involve another syntactic operation, which would fall under the general rubric of «instrumental advancement»; or «3-1 Advancement» of Relational Grammar. Structures such as (58b) do in fact arise when an instrumental appears as a subject in alternation with an agent.

(58) a. Li chofe kay la ak fou a
He heat house Det with oven Det
«He heated the house with the oven»

b. Fou a chofe kay la
oven Det heat house Det
«The oven heated the house»

The phrases in (57) receive unique readings, which is reflected in the translations. Their readings differ from the readings of the forms that are here called ergative, which were examined above. The operation involved in the sentences in (57) is thus considered to be different from the one addressed in this paper. Hence, it should be noted that in delineating the properties of ergative formation in HC structures such as these are not considered.

4.3 Middles

The properties of middle constructions, when formed on three-variable verbs, cause problems, as it is difficult to determine if the sentence under examination is to be considered as a middle form or as an ergative form where the adverb modifies an inherent property of the derived subject. The same problem exists in English for middle forms derived with verbs that can form ergatives, as in the following sentence, which is either ambiguous or vague in failing to distinguish a modified ergative phrase and a middle phrase.

(59) The glass broke easily.
(i.e., It was easy for someone to break the glass. or, The glass was fragile.)

The schematized facts are provided below. Adverbs used were *byen* «well» and *fasil(man)* «easily», and these are labelled B and F.

(60)	VERB	FORM	WITH ADV	WITH *ap* and ADV
	vann	NP1 V	B: OK	B: OK
			F: OK	F: OK
		NP1 V PP2	B: *	B: OK
			F: OK	F: *
	simen	NP1 V	B: OK	B: OK
			F: OK	F: OK
		NP1 V PP2	B: ?	B: --
			F: OK	F: OK
		NP1 V NP2	B: *	F: *
			F: *	F: *
		NP2 V	B: OK	B: OK
			F: *	F: OK
		NP2 V PP1	B: *	B: OK
			F: *	B: OK
		NP2 V NP1	B: *	B: *
			F: *	F: *
	peye	NP2 V	F: OK	F: OK
		NP2 V NP1	B: *	B: *
			F: *	F: *
		NP2 V PP1	B: *	B: *
			F: *	F: OK
		NP1 V	B: *	B: *
			F: *	F: OK
		NP1 V NP2	B: *	B: *
			F: *	F: OK
	chaje	NP1 V	B: OK	B: OK
			F: OK	F: OK
		NP1 V PP2	B: *	B: OK
			F: OK	F: OK
		NP1 V NP2	B: ?	B: OK
			F: ?	F: OK
		NP2 V	B: *	B: OK
			F: OK	F: OK
		NP2 V NP1	B: *	B: OK
			F: *	F: OK
		NP2 V PP1	B: *	B: OK
			F: *	F: OK
	bure	NP1 V	B: OK	B: OK
		NP1 V PP2	B: OK	B: OK
		NP2 V PP1	B: OK	B: OK
			F: OK	F: OK
		NP1 V NP2	B: *	B: *

There are many aspects of middle formation with three variable verbs which involve the Case marking system of HC and which deserve further study. Here we will make only the following observations and suggestions.

If we consider only forms without *ap*, it appears that an adverb is impossible if an NP appears internally. This was the case also for ergative formation. NP2 seems to be able to appear as subject in an adverb modified phrase only if there is no other internal argument present in the sentence. However, these generalizations are weakened by the fact that the verb *bure* «stuff» does allow an NP2 subject with a PP1 internal argument, and by the fact that the verb *chaze* «load» is judged odd but not ungrammatical with an NP1 subject and an internal NP2 argument. Furthermore, we can see that the addition of the aspect marker *ap* has a profound effect on grammaticality judgements, since almost (but not quite) all of the sentences with *ap* are accepted as grammatical. An examination of the chart presented above will allow the reader to determine that it is difficult to decide what factors are influencing the judgements. It is possible that the individual characteristics of each verb play a role, in terms of what class, in the sense of (46), the verb is in (which presumably relates to its semantic and its Case marking properties). At any rate, a generalization from these data is not currently possible and they are included simply for completeness.

5. Conclusion

This paper has attempted to give an initial classification of verb types in HC with respect to their argument-taking properties. We have examined verbs with a single argument, two arguments, and three arguments. In particular, we have attempted to describe the facts surrounding transitivity alternations in HC, dividing these into various types, such as «object drop», ergative, 3-1 Advancement, and middle. In doing this, we have been working within a theory of argument structure and transitivity alternations as developed by others, which we have modified as required. We have considered that the lexicon consists of LCSs and PASs that are associated by means of a linking process which is itself only partially constrained. The impossiblity of some of the sentences that might result from such free linking is explained by means of Case theory and the Affectedness Constraint.

In many ways this work represents a preliminary stab at delineating and characterizing the various types of verbs which are found in HC. The work is intended to raise more questions than it solves, but it is hoped that it allows for a preliminary understanding of HC argument structure and provides an outline of the central issues in the area which are of interest for further research.

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