JARAWARA VERB CLASSES

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Submitted to the Graduate Faculty of

Arts and Sciences, Department of

Linguistics, in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2003

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ABSTRACT

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This is a study of three argument structure alternations in Jarawara, a South American Indian language, roughly corresponding to the following English alternations: (1) the locative alternation (*Jack sprayed paint on the wall* vs. *Jack sprayed the wall with paint*); (2) the unspecified object alternation (*Mike ate the cake* vs. *Mike ate*; and (3) the causative alternation (*the log rolled* vs. *Brian rolled the log*

Dixon (1999b) includes an analysis of these phenomena of Jarawara verbs based on a functional-typological perspective. The approach in this dissertation is based on a lexical semantics informed by generative grammar, and takes its inspiration especially from Pinker (1989), Levin (1993), and Levin and Rappaport Hovav (1995). According to this approach, argument structure alternations are sensitive to syntactic and/or semantic features of verbs, and are thus helpful in determining verb classes. No attempt is made to establish formal classes for Jarawara verbs, but the three alternations studied are shown to be sensitive to broad semantic features. In addition to generalizations and discussions of theory, a list is provided of the verbs which participate in each alternation, divided into tentative subclasses, with detailed data for each alternating verb in an appendix. This study, like Dixon's, relies on texts and spontaneous utterances rather than on elicited data.

ACKNOWLEDGMENTS

This research was generously supported from beginning to end by SIL International. I am also grateful for partial support through a National Science Foundation grant to Daniel L. Everett, SBR-9631322, 'Finalizing Documentation and Description of Three Family Isolates of Western Brazil.'

In the following pages I have found it necessary to disagree with some of R.M.W. Dixon's positions on Jarawara. But I cannot fail to also recognize my great debt to him as the source of a great deal of my knowledge of Jarawara.

Ultimately all the credit (but none of the blame) must go to the One who created both human language and our ability to think about it. As the apostle Paul wrote to the Corinthians,

> τί δὲ ἔχεις ὃ οὐκ ἔλαβες; εἰ δὲ καὶ ἔλαβες, τί καυχᾶσαι ὡς μὴ λαβών;
>
> 'What do you have that you did not receive? And if you did receive it, why are you boasting as though you had not received it?'

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CHAPTER 1

INTRODUCTION

1.1 The alternations. This is a study of alternating verbs in Jarawara. More specifically, it is a study of verbs that participate in alternations involving argument structure. Argument structure alternations have been a topic of recent interest in both generative and functional linguistics. Notable examples are Levin's (1993) catalogue of argument structure alternations in English; Pinker's (1989) in-depth discussion of several of these alternations; and Dixon and Aikhenvald's (2000) recent collection of case studies representing a variety of languages. The main topic of Dixon's (1991) grammar of English is verb classes and the syntactic environments in which verbs from the various classes are found. In Role and Reference Grammar (e.g. (Van Valin, Jr., and LaPolla 1997)) a great deal of attention is devoted to alternations involving argument structure. The term ARGUMENT STRUCTURE ALTERNATION stems from the observation that the 'same' verb may be associated with a different number of arguments in different uses, and/or there may be changes in the grammatical relations of the arguments. For example, the English predicates *load hay onto the truck* and *load the truck with hay* are considered to be a manifestation of a specific argument structure alternation (called the locative alternation), because of the alternation in the mapping of the nominals *truck* and *hay* to the object and adjunct relations in such pairs of examples. Since there are many other verbs

that behave in a similar way (e.g. *pack, stuff*), it is considered to be an alternation and not just an idiosyncratic fact about *load.*

Some researchers have used argument structure alternations as criteria for distinguishing verb classes, most notably Pinker (1989) and Levin (1993). They have noticed that there are semantic and/or syntactic features shared by all the verbs that participate in a given alternation. These features are said to define verb classes.

In this dissertation I do not attempt anywhere near a complete study of verb classes in Jarawara. What I do is to make a detailed study of several argument structure alternations, and show that these may be used to begin to discern features that define classes of Jarawara verbs. One alternation is illustrated in the two pairs in (1) and (2) below. Because of the semantic nature of the verbs that participate in this alternation, I call this the LOCATIVE ALTERNATION.[1]

(1) a. Faya wati mee tisa nemetemoneke
faya wati mee tisa na -hemete -mone -ke
so arrow.M 3P.S.F shoot AUX -FP.N+F -REP+F -DECL+F
fahi, titisa yaa.
fahi titisa yaa
then bow.F ADJ
'They shot arrows with bows.'

b. aba mee otaa tisa na otake.
aba mee otaa tisa na otaa -ke
fish.M 3P.O.F 1EX.S.F shoot.with.arrow AUX+F 1EX.S.F -DECL+F
'We shot fish (with bow and arrow).'

The verb *tisa na*[2] which is common to both examples of the first pair means 'shoot' (1a) or 'shoot with an arrow' (1b), depending on whether the object is a theme (i.e. an arrow in (1a)) or a goal (fish in (1b)).

(2) a. Fowa bore tibana?
fowa bore ti- na -bana
manioc.M pull.out 2SG.S.F- AUX -FUT
'Are you going to harvest manioc?' (Lit., 'Are you going to pull manioc out?')

b. Bamana mase bore ne
Bamana mase bore na+M
(man's name).M currasow.M pull.out AUX+M
'Bamana pulled (the feathers out of) the currasow.'

In (2), the verb *bore na* means 'pull out' (2a) or 'pull out from' (2b), depending on whether the object is a theme (i.e. manioc tubers in (2a)) or a source (a currasow bird in (2b)). There is thus an alternation between the object being a theme in one alternant and a goal or source in the other alternant.

A second alternation is similar, the main difference being that there is also a transitivity difference. All the examples in (1) and (2) above are transitive, but in (3) the (a) example is intransitive, and only the (b) example is transitive. The object of (3b) can be characterized as a goal. These verbs, too, can be characterized semantically as locative verbs, so I call this the TRANSITIVIZING LOCATIVE ALTERNATION.

(3) a. mee haa na mee
mee haa na mee
3P.S.F call AUX+F 3P.S.COORD
'They called out.'

b. Haa one
haa o- na+M
call 1SG.S.F- AUX+M
'I called him.'

This alternation is similar to the unspecified object alternation in English (cf. *eat (an apple)*), since it sometimes appears that the intransitive alternant is formed by the deleting the object from the transitive alternant. With this label I am focusing on the fact that the deleted object is a goal, and in fact this can also be said for the English alternating verbs, as I discuss in chapter 4.

A third alternation (4) is similar to the one in (3) in that there is a difference in transitivity. But in (3) the intransitive subject (3a) corresponds to the transitive subject (3b), whereas in (4) it is the transitive object (4b) that corresponds to the intransitive subject (4a). That is, the one who calls is the subject in both (3a) and (3b); but the entity that rocks is the object in (4b) and the subject in (4a). I call the alternation in (4) the CAUSATIVE ALTERNATION, because the transitive alternant can be seen as a causative of the intransitive alternant.

(4) a. Kaho behe naka.
kaho behe na -ka
car.M rock AUX.CONT -DECL+M
'The car is rocking back and forth.'

b. Kanawa otaa behe narake.
kanawa otaa behe na -hara -ke
canoe.F 1EX.S.F rock AUX -IP.E+F -DECL+F
'We rocked the canoe from side to side.'

In the following tables I list the verbs that I have encountered so far that participate in each one of these alternations. In Table 1, I list the verbs of the locative alternation, with examples of typical arguments that can be objects for each of the alternants. For each verb, two meanings are listed, the first being the meaning when the object is a theme, followed by the meaning when the object is a goal or source. In this table and in Tables 2 and 3 below, the numbers in parentheses refer to examples in the Appendix. The verbs are divided into several semantically cohesive subgroups.

Table 1. Verbs of the Locative Alternation

	VERB	OBJECT IS THEME	OBJECT IS GOAL/SOURCE
A.	Verbs of Propelling		
	fora na 'shoot out of a blowgun/shoot with a blowgun'	blowgun dart (21)	animal, e.g. monkey (22)
	koro na 'throw ~ plant/fish'	manioc (69)	water (70)
	saa na 'shoot/shoot with an arrow'	arrow (86)	fish (87)
	sao na 'throw (to fish)/throw a net into'	net (90)	water (91)
	sii na 'blow out/spray something onto'	blood (out of nose) (94)	mosquitoes (spraying poison) (95)
	tisa na 'shoot/shoot with an arrow'	arrow (110)	fish; water (111)
	wisa na 'bail out/throw water on'	water (in a canoe) (128)	person (129)

	kaa na 'misfire/misfire on'	gun (39)	animal that is missed (40)

Table 1 (cont.)

B.	Verbs of Putting		
	nawata 'fasten/fasten something on'	strap (on a basket) (124)	person (on whom a magical stone is put) (125)
	nawitare 'put on/put something on'	something to be weighed (37)	scale (38)
	kehemo 'hide/hide from'	object hidden (57)	person hidden from (58)
	kiyo na 'rub/rub something on'	cream (65)	body part (66)
C.	Verbs of Manipulating/Advancing		
	kero na 'fashion into something/fashion something into'	clay (59)	pot, noisemaker, etc. (60)
	kari na 'wave/wave on'	brand (49)	water (illuminated by brand) (50)
	wari na 'turn/turn against'	screw (116)	cotton (caused to burn by revolving stick) (117)
	kawa na 'push along/poke'	toes (along edge of hammock) (53)	fish (with a stick) (54)
	baa na 'hit with a hammer/nail down'	nail (7)	piece of cloth (8)
	ori na 'paddle/paddle in'	canoe (83)	water (84)
D.	Verbs of Speaking		
	a-ate na 'ask for or about/ask something of'	thing asked for or about (1)	person request made of (2)
	haa na 'call for/call'	thing called for (24)	person called (25)
	hiyara 'speak about/speak to'	subject of speech (27)	person spoken to (28)
	kamina 'tell about/tell something to'	subject of speech (41)	microphone (42)
E.	Verbs of Removing		
	bore na 'pull out/pull something out of'	tubers (15)	bird (feathers) (16)
	howe nawaha 'wipe off/wipe clean'	feces (31)	buttocks (32)
	sota na 'take off/undress'	clothing (98)	person undressed (99)
	wii na 'dig up/dig'	dirt; roots (126)	hole (127)
F.	Verbs of Giving		

	mari na 'feast on/give a feast for'	food (76)	people invited to feast (77)

In Table 2 are listed the verbs that participate in the transitivizing locative alternation. For each verb the intransitive meaning is listed first, followed by the transitive meaning. Typical arguments that fill the object slot or examples of such arguments are listed in the last column. The object is a goal for all the verbs.

Table 2. Verbs of the Transitivizing Locative Alternation

	VERB	EXAMPLES OF OBJECTS
A.	Verbs of Speaking	
	haa na 'call out /call' (23, 25)	person called
	hiyara 'speak/speak to' (26, 28)	person spoken to
	hora na 'cry out in anger/yell at' (29, 30)	person one is angry at
	kowa na 'whistle/whistle at' (73, 74)	person or animal whisted at
B.	Verbs of Locomotion	
	fiya nama 'pass by, coming' (19, 20)	house, etc., that is passed by
	kana na 'run/run after' (45, 46)	person who is run after
	yaka na 'walk/visit' (130, 131)	person visited
C.	Miscellaneous Verbs of Contact	
	afi na 'bathe/fish with hands in' (3, 4)	water
	karima 'hit against something/suffer from' (51, 52)	person affected by heat of sun, sickness
	kinarisa 'fall over/fall on top of' (63, 64)	person something falls on
	kobo na 'arrive/meet' (67, 68)	animal or person who is met
	nowi na 'drip/drip on' (80, 81)	person or thing dripped on
	ori na 'paddle/paddle in' (82, 84)	water
D.	Bodily Processes	
	mii na 'defecate/defecate on' (78, 79)	person on whom fly's eggs are laid
	saa na 'vomit/shoot with an arrow' (85, 87)	fish
	soo na 'urinate/urinate on' (96, 97)	person urinated on
E.	Verbs of Seeing	
	awa 'see' (5, 6)	what is seen
	kii na 'look/look at' (61, 62)	what is looked at
F.	Benefactive/malefactive Verbs	
	mari na 'have a feast/have a feast for' (75, 77)	people invited to feast
	wahiya 'hide/hide from' (112, 113)	person hidden from

In Table 3 I list the verbs I have found so far that participate in the causative alternation. For each verb, the intransitive meaning(s) is(are) listed first, followed by the transitive meaning or meanings.

Table 3. Causative Alternating Verbs

A.	Verbs of Manner of Motion
	behe na 'rock' (9, 10)
	behe nawaha 'twist/turn over' (11, 12)
	koro nisa 'touch down/cause to fall down' (71, 72)
	setero nawaha 'fall head first/flip over end to end' (92, 93)
	taba nisa 'descend/stick in the ground' (100, 101)
	tani nisa 'slide/take off (pants)' (102, 103)
	tawi na 'glide down/cause to flutter' (104, 105)
	teko na 'have waves/make waves' (106, 107)
	wariri na 'spin' (118, 119)
B.	Verbs of Spatial Configuration
	bere na 'be on top/put on top' (13, 14)
	kamo nawahama 'be curled/double over' (43, 44)
	kaya na 'lie across/lay across' (55, 56)
	yoro na 'sit, stand (dual S)/put in place (dual O)' (132, 133)
C.	Verbs of Being
	ee na 'be like/call' (17, 18)
	iha 'be located, come into existence/have, take' (33, 34)
	ihawaha 'have a turn/take' (35, 36)
	wata 'be in place, be born, exist/put in place' (122, 123)
D.	Mental States
	tisa 'hurt/cause to hurt' (108, 109)
E.	(Unclassified)
	kanawana 'begin/teach' (47, 48)
	waka na 'be shattered/knock down' (114, 115)
	wasi 'get caught/find' (120, 121)
	saa tosa 'free/be free' (88, 89)

In a recent paper, Dixon (1999b) presented analyses of these kinds of alternating Jarawara verbs from a functional-typological perspective. The analyses I present in this dissertation draw more from a generative perspective. I believe they offer better generalizations about the Jarawara data, and suggest a more satisfying comparative point of view as well.

This dissertation is organized as follows. In the remainder of this first chapter I discuss Dixon's approach to the phenomena, and then lay out the methodology I have used to gather data. In chapter 2 I outline the theoretical points of view that I adopt. Chapter 3 is an introduction to basic aspects of Jarawara morphology and syntax. The two locative alternations are covered in chapter 4, and the causative alternation in chapter 5. Chapter 6 is a summary of the ground I have covered and of what remains to be covered. In the appendix I list examples showing the participation of each verb in each alternation.

1.2 Dixon's approach. In his recent paper, Dixon (1999b) uses data from Jarawara as evidence to support the particular functional-typological approach to the linking of semantic arguments to syntax which he adopts. The phenomena which are the subject of this dissertation are all discussed in Dixon's paper, as the examples from his paper listed below show.[3,4] Example (5) corresponds to my (1) and (2) above, (6) corresponds to (3), and (7) corresponds to (4).

(5) a. Faya wati mee tisa
faya wati mee tisa
so arrow.M 3P.S.F shoot
nemetemoneke fahi.
na -hemete -mone -ke fahi
AUX -FP.N+F -REP+F -DECL+F then
'They shot arrows.'

b. aba mee otaa tisa na otake.
aba mee otaa tisa na otaa -ke
fish.M 3P.O.F 1EX.S.F shoot.with.arrow AUX+F 1EX.S.F -DECL+F
'We shot fish with bow and arrow.'

(6) a. Faya Motobi ori
faya Motobi ori
so (man's name).M paddle
nareka fahi.
na -hare -ka fahi
AUX -IP.E+M -DECL+M then
'Then Motobi paddled.'

b. Faa otaa ori na,
faha otaa ori na
water.F 1EX.S.F paddle AUX+F
'We paddled.' (Lit., 'We paddled the water.')

(7) a. Awita wasibote
awita wasi -bote
fish.SP.M get.caught -QUICKLY
nemari amaka,
na -himari ama -ka
AUX -FP.E+M EXT -DECL+M
'An awita fish got caught (on a hook) right away.'

b. kobaya yomee mee wasia
kobaya yomee mee wasi+F
collared.peccary.M dog.M 3P.S.F find+F
'The dogs found a peccary.'

Dixon notes that for the pair in (5), both of which are transitive, the object may be the arrow that is shot (5a) or the fish that are shot at (5b). For the pair in (6), Dixon notes that (6a) is intransitive whereas (6b) is transitive. Furthermore, the intransitive subject of (6a) corresponds to the transitive subject of (6b); in both the subject references the person or persons who are rowing. This is in

contrast to (7), in which there is a correspondence between the intransitive subject, the fish in (7a), and the transitive object, the peccary in (7b). Dixon calls verbs that alternate as in (6), S=A verbs (S being intransitive subject, and A transitive subject), and those that alternate as in (7), S=O verbs; the idea is that for an S=A verb, the intransitive subject corresponds to the transitive subject in the two uses of the verb, while for an S=O verb, there is a correspondence between the intransitive subject and the transitive object in the verb's two uses. For Dixon, S=A and S=O are the two kinds of 'ambitransitive' verbs. The other S=A verbs which he lists are *mii na* 'defecate on/defecate', *soo na* 'urinate on/urinate', and *saa na* 'vomit on/vomit'. The other S=O verbs he mentions are *kamina* 'tell about/be told', *sika na* 'pour/be poured', *fata na* 'push/explode', *wete na* 'tie up/return', and *behe na* 'turn over'.

In addition to (5a) and (5b) above, Dixon gives one more example with the same verb, *tisa na* 'shoot with an arrow' (8). In this example, the object is the water the arrow is shot into (8).

(8) Faa ee tisa nene,
faha ee tisa na -hene
water.F 1IN.S.F shoot.with.arrow AUX -IRR+F
'We aren't fishing.' (Lit., 'We aren't shooting the water.')

From examples like these, Dixon concludes that Jarawara is a language in which there is great fluidity in the correspondence between semantic roles and syntactic functions. The other verbs which he cites in this respect are *ori na*

'paddle' (for which the O may be either the canoe or the water), *hiyara* 'speak' (the O may be either the subject spoken about or the person spoken to), *kamina* 'tell' (the O may be either the subject told about or the person something is told to), *mii na* 'defecate' (the O may be either the excrement or the surface which is defecated on), and *rara na* 'push with the foot/sew' (the O may be either the sewing machine or the clothes that are made).

Dixon compares Jarawara to English and to the Australian language Dyirbal, proposing to classify them according to a semantic typology of verbs. Dyirbal is a 'nature-of-argument' type of language, meaning that 'verbs are taken to describe a kind of action with respect to the (articulation of) types of participants that are involved.' Jarawara, in contrast, is a 'nature-of-action' type of language, meaning that 'verbs are taken to describe a kind of action per se.' English is said to fall somewhere between the extremes of the continuum. The syntactic consequences which Dixon points to are the following: First, with respect to the phenomenon in example (5) and (8) above, Jarawara verbs have great fluidity, both in the number of verbs that exhibit the phenomenon, and the degree of fluidity of each verb. In contrast, Dyirbal has virtually no verbs like this, and English has a 'few odd examples.' And secondly, very few Dyirbal verbs are ambitransitive, either S=A or S=O, whereas English has a number of ambitransitive verbs, and Jarawara has many.

In this dissertation I do not consider whether there may be a continuum of languages such as Dixon proposes, based on the semantics of verbs. Also, I do not control Dyirbal, so I do not comment on it. It is clear, though, that there are

several significant problems with Dixon's approach, with regard to the English and Jarawara data. In this introductory section I focus on these problems, and in the rest of the dissertation I show that a better understanding of the Jarawara can be obtained without the need for the new theoretical constructs which Dixon proposes.

Beginning with the phenomenon illustrated in examples (1), (2), (5), and (8) above, I don't believe Dixon gives an accurate characterization of either English or Jarawara with respect to these verbs. He cites the English alternating verb *load,* saying that 'examples like this are relatively rare in English, as compared with Jarawara.' But Pinker (1989) lists 34 locative alternating English verbs. Levin (1993) lists 49 verbs in the *spray/load* alternation, four in the *clear* alternation, 56 in the *wipe* alternation, and 35 in the material/product alternation. I have listed 27 Jarawara verbs in Table 1; there are undoubtedly other alternating verbs that I have not seen yet, but I am sure there is not the difference between Jarawara and English that Dixon asserts, with respect to the number of alternating verbs. Furthermore, the fluidity of Jarawara verbs that Dixon proposes also does not exist. He gives two kinds of evidence for fluidity, one being the non-correspondence of semantic roles from one verb to another, and the other being the fact that supposedly several different semantic roles may be referenced by the O for a single verb. I believe, on the contrary, that for all the alternating Jarawara verbs, the object may be identified as a theme in one alternant and as a goal or source in the other alternant (or exceptionally, some other location), just as they can in English. Table 1 is suggestive in this respect,

and in chapter 4 I go into more detail concerning thematic roles. Dixon gives a single example of a verb for which he says that the O can reference three different semantic roles, and I have repeated his examples in (1) and (4) above. The fact is, though, that both the fish and the water that the fish are in may be considered to be goals, while the arrow is a theme.

Turning to the alternation in examples (3) and (6) and in Table 2 above, these are the verbs which Dixon calls S=A verbs. As Dixon points out, some of these are the same verbs that exhibit the first alternation. I believe there is a reason for this, and that is that the object may always be characterized as a goal. As I discuss in detail in chapter 4, this also seems to be a characteristic of English verbs in the unspecified object alternation, cf. *Mike ate the cake* vs. *Mike ate.* In English these verbs are typically verbs of consumption or creation, and I believe that something that is consumed or created may be seen as a goal. In fact some locative verbs also alternate in this way in English, just as in Jarawara. This is why I have called it the TRANSITIVIZING LOCATIVE ALTERNATION. Dixon says almost nothing about any semantic similarity among these verbs, except to note that the three verbs which describe the expelling of material from the body are S=A verbs.

The category of S=O verbs is the most problematic part of Dixon's theory. I believe that the verbs Dixon includes in this category actually exhibit two different alternations, and in chapter 5 I give full justification for this point of view. Of the S=O verbs that Dixon lists, we can separate out *wasi* 'find/get caught', *fata na* 'push/explode', *wete na* 'tie up/return', and *behe na* 'turn over' as causative

alternating verbs. For these verbs, the transitive alternant may be characterized as a causative of the intransitive alternant, and I have listed them in Table 3 above.[5] But the other two S=O verbs that Dixon refers to, i.e. *kamina* 'tell about/be told' and *sika na* 'pour/be poured', exhibit a different alternation, that is a detransitivizing operation very much like a passive. This is why Dixon characterizes 'the great majority' of transitive verbs as S=O, whereas I have included only a relatively small number of alternating verbs in Table 3.

If the detransitivizing operation and the causative alternation are separate phenomena, we might expect both to apply to the same verb. This does appear to be the case. The transitive verb *yoro na* 'put (two) in place' (9a) may be detransitivized to mean 'be put in place' as in (9b). But this verb is also a causative alternating verb, with the intransitive alternant meaning '(two) stand or sit' (9c). The verb *yoro na* is intransitive in both (9b) and (9c), but the two meanings are quite different. In (9b) the subject is acted upon, whereas in (9c) the subject is doing something.

(9) a. Saree yoro tinahi ahi,
sarehe yoro ti- na -hi ahi
dart.F put.in.place 2SG.S.F- AUX -IMP+F here
owinibana.
o- ini -bana
1SG.POSS.F- tooth+F -FUT
'Put in two blowgun darts, to be my teeth.'

b. Faya ini yoro ni hawa toa
faya ini yoro na.NFIN hawa to- ha
so tooth+F put.in.place AUX.NFIN finished CH- AUX+F
'after her two teeth had been put in'

c. Tee yoro niyahi.
tee yoro na+F -yahi
2P.S.F sit/stand AUX+F -DIST.IMP+F
"'You two stay here.'"

A very similar kind of difference in English is suggested by the sentences *the book was lost* and *Tom was lost.* The first sentence is a passive, and it is implied that someone lost the book. The second sentence is not a passive, and it is not implied that anyone lost Tom.

Because Dixon's only criterion is the correspondence of the intransitive subject and transitive object, he thus conflates two separate phenemena of Jarawara into one S=O category. In chapter 5 I give additional details regarding this distinction.

For Dixon it is very important to determine whether a verb is S=A or S=O. That is, for him they are mutually exclusive groups of verbs. No reason is given why this should be true, and in fact it is not true, nor should it be. When detransitivized verbs are considered together with the causative alternators in Table 3 (as Dixon does consider them), there are clearly S=A verbs which are also S=O. The verb *awa* 'see', for example, is an S=A verb by Dixon's criterion, since when it occurs in intransitive sentences, the intransitive subject may correspond to the transitive subject. In both the transitive sentence in (10a) and the intransitive sentence in (10b), for example, the subject is the one who sees. However, in the intransitive in the second clause of (10c) the subject of *awa* is

what is seen. The conclusion is that *awa* can be either S=A (10a,b) or S=O (10a,c), because the intransitive subject may correspond either to the transitive subject (10b) or to the transitive object (10c). Another verb like this is *kobo na* 'meet', which in addition to having the S=A intransitive meaning 'arrive', also has the S=O intransitive meaning 'be met'.

(10) a. Mee hawi ee awabanake.
mee hawi ee awa -habana -ke
3P.POSS.F trail+F 1IN.S.F see -FUT+F -DECL+F
'"Let's look at their path."'

b. Okoro tikanawani yaa
okoro ti- ka- na- wana+F yaa
glasses.F 2SG.S.F- COMIT- CAUS- stick+F ADJ
tinoko awahabana tike.
ti- noko awa -habana ti- ke
2SG.POSS.F- eye see -FUT+F 2SG.POSS.F- DECL+F
'When you wear glasses, you will see better.' (Lit., '…your eyes will see.')

c. maka era wai teemone amake,
maka era wai na -tee -hamone ama -ke
snake.F 1IN.O bite AUX -HAB -REP+F EXT -DECL+F
watari awahaaro.
watari awa -haaro
dream see -RC+F
'If a person dreams about a snake, it means that one will bite him.' (Lit., 'A snake bites us, if its dream is seen.')

It might be added that this sort of classification doesn't work for English, either. Take the transitive verb *cook,* for example, which has (at least) two kinds of intransitive uses, as in *I cooked for two hours* and *the beans cooked for two*

hours. The first sentence would make *cook* an S=A verb in Dixon's view, but according to the second example it is an S=O verb.

In this dissertation I adopt Levin's (1993) position that there is no need for the lists of verbs that participate in alternations to be mutually exclusive, since alternations may be based on different respective semantic or syntactic features. It so happens that the lists of verbs in Tables 2 and 3 are mutually exclusive, but this is probably just a coincidence and would probably not be true if more data were analyzed.

Another problem with Dixon's approach is his emphasis on verb roots. The fact is, the semantic and syntactic character of a verb in different derivations changes, so there is no reason to expect that a particular root will participate in a particular alternation in all its possible derivations. An obvious example is the morphological causative referred to above. There are two verbs in Table 1 which are morphological causatives, *nawata* 'fasten/put something on' and *nawitare* 'put on/put something on'. It is not the intransitive roots *wata* 'be' and *ita* 'sit' that alternate, but the morphological causatives. It is stems that alternate, not roots. It is not completely clear in Jarawara which suffixes are derivational and which are inflectional (there is a group near the root which is clearly derivational, and a group far from the root which are clearly inflectional, but there are a number in the middle which are as yet of unclear status), and this may be the reason for Dixon's emphasis. But this problem cannot simply be ignored in a discussion of alternating Jarawara verbs. In this dissertation I distinguish between derivational

and non-derivational affixes the best I can, and I am careful to only compare examples containing the same derivational stem of the verb being discussed.

To summarize, although Dixon (1999b) has correctly pointed out the fact that a number of Jarawara verbs alternate, his generalizations are faulty in several respects: (1) the lists of alternating verbs are not mutually exclusive as he says they are; (2) the alternations do not involve roots as he says, but stems; (3) there are semantic generalizations which can be made about the lists of alternating verbs which he misses; and (4) his S=O verbs actually represent two different phenomena, an alternation and a construction. In fact the novel categories S=O and S=A are both unnecessary and inaccurate.

In the body of this dissertation which follows, I discuss each of these alternations in detail. I take an approach that can be characterized as that of lexical semantics informed by generative grammar, inspired by works such as (Pinker 1989), (Levin 1993), and (Levin and Rappaport Hovav 1995). The basic insight of this approach is that argument structure alternations are able to point both to verb classes and to the semantic and syntactic features on which they are based.

1.3 Methodology. The database for this study consists primarily of unelicited data, of various types: (1) Spontaneous utterances which I have written down as I have heard them in natural situations, a total of over 3400 utterances,[6] collected during a total of about three and one-half years' residence in a Jarawara village;[7] (2) a corpus of recorded and transcribed spoken texts, mostly traditional stories

and accounts of personal experiences (a number of these recorded and transcribed by R.M.W. Dixon, who has kindly made them available to me); and (3) written texts of various types by Jarawara authors. These written texts are mostly contained in three books for Jarawara readers published informally by Youth With a Mission.

I have used elicitation on occasion, but mostly to clarify unelicited data. For example, I will often elicit a sentence in a different person or gender to clarify what the underlying form of the verb root is, or to see if there is an underlying auxiliary. I almost never elicit sentences by saying something like, 'How do you say X in Jarawara?' or 'Can I say Y Jarawara sentence?' There are at least three kinds of problems with this kind of elicitation. First, I have a context in my head, and the Jarawara speaker has a context in his head, but there is no telling how much the two contexts match. Secondly, there is the problem of the artificiality of such contexts, since the utterance is not tied to a real event. And thirdly, the language of elicitation itself may skew the data given by the consultant. Everett, in his paper on monolingual fieldwork (2001), notes, for example, that an marked constituent order given in a response to a question in a second language must be considered suspect, because the consultant may be following the order of the language of elicitation. And Juffs (1996) observed that Mandarin speakers living in Canada were willing to accept alternations of locative verbs that monolingual speakers in China were not willing to accept.[8] I have taken these precautions because I am not a native speaker of Jarawara; I have been able to get to the place where I can converse, and I read Jarawara well; but I am not a fluent

speaker. But even if I did consider myself a fluent speaker, introspection would not be a good source of data, since the structure of Jarawara is so different from that of European languages. Introspection by native speakers is highly valued in current research in generative linguistics, but it does not apply in this situation, since I am not a native speaker of Jarawara, and the native speakers are not linguists. Some of the consultants I have worked with have quite sophisticated knowledge of their language, but they are not trained in making the kind of subtle judgments that are necessary in this kind of study.

When I ask a Jarawara if it is possible to say a certain sentence, and he says no, this is valuable information. It probably means the sentence is ungrammatical, although it is not certainly so. If, however, he says that the sentence is all right, this does not tell me very much. Since I am an outsider, it might just mean that the sentence is better than other worse things I could say. This may sound like a joke, but it is not. What English speaker in speaking with foreigners has not let certain things pass just because it would be 'picky' to correct every little thing?

Jarawara men have regular contacts with Brazilians living in nearby communities, and in recent years they have even had a Brazilian nurse living in one of their villages who does not speak their language. Through these contacts they have gained enough Portuguese to be able to talk about routine kinds of subjects. But I believe that a monolingual approach produces the best results. Everett (2001) proposes that monolingual fieldwork has three advantages: '(i) quality control over the process of data collection; (ii) purity of data collected; and

(iii) replicability of the data.' He goes as far as to recommend that 'monolingual fieldwork should not be restricted to only those environments in which other methods are not available but that it should be the method of choice, wherever the linguist is able.' It is undoubtedly in recognition of this fact that Levin and Rappaport Hovav (1995) assembled an entire corpus which they list in a separate bibliography for the purpose of searching for uses of verbs. This for English, their native language, a language in which introspection could be used. The fact is, it is more valuable to be able to say that a particular verb was actually used in a particular way in a natural context, than to say that the linguist thought introspectively that a particular use was grammatical, or that someone agreed that the verb could be used that way when the linguist suggested it.

Since almost all the argument structure alternations I treat in this study involve alternations in transitivity, something needs to be said about how I determine the transitivity of a clause. In Jarawara the presence of two NPs in preverbal position, where neither is marked as an adjunct, is a good indicator of transitive status. While it is true that in texts most transitive clauses either the subject or object NPs or both are non-overt (cf. section 3.6), it is also true that it is possible to 'undelete' non-overt NPs in elicitation. In fact, in a few examples in the text of this study I have supplied non-overt NPs, e.g. *Bamana,* the subject NP in (2a) above, to make it easier for the reader to distinguish between transitive and intransitive clauses. In the appendix, however, all examples are exactly as they were heard.

By adding the information from overt NPs to the pattern of verbal

agreement, it is usually clear whether a given clause is an intransitive, an A-construction, or an O-construction. These two constructions, which I discuss in some detail in chapter 3, are analyzed by Dixon (2000a) as being both transitive, whereas other researchers have proposed for the equivalent constructions in other Arawá languages that there is a change in transitivity from one construction to the other. For Jamamadí, which is very closely related to Jarawara, Campbell (1985) proposed that the equivalent of the O-construction is passive while the A-construction is active. For Madija, which is more distantly related, Wright (1988) analyzed the equivalent of the A-construction as an antipassive, with the O-construction being transitive. In my M.A. thesis (Vogel 1989) I followed Wright's line of analysis. Dixon (2000a) has shown that both the antipassive and the passive analyses are untenable. It is especially hard to overcome the fact that there is person agreement for both subject and object at the beginning of the verb for both the A-construction and the O-construction. There does seem to be some kind of structural difference between the two constructions, but it is hard to pin down exactly what it is. In any case, this does not affect the transitivity status of the verbs I consider in this study, since any A-construction may be changed into an O-construction and vice-versa.

Since I have thus approached the subject inductively, and since I am not a native speaker of Jarawara, the data I have been able to collect are obviously incomplete. This is especially true in the sense that certainly a significant number of other verbs participate in the alternations which I have not yet seen.

I have worked with several different Jarawara men, but the ones who have answered most of my questions are first of all, Okomobi, the chief of Casa Nova village; and to a lesser extent two of his brothers, Botenawa and Kakai, and Botenawa's son, Bibiri. The recorded texts are from about 8 different men, and the unelicited utterances are from a wide variety of speakers. I am very grateful for all the help the Jarawaras have given me with their language, and I must say they have been very willing and patient instructors.

CHAPTER 2

THEORETICAL APPROACHES TO ARGUMENT STRUCTURE ALTERNATIONS

2.1 Basic concepts. In this chapter I lay out the theoretical concepts I relate the Jarawara data to in this dissertation. In this first section I introduce the basic tools provided by generative theory. In section 2.2, I discuss two of the generative theories of the linking of arguments to syntax. In section 2.3, I lay out the theory of argument structure alternations and verb classes espoused by Pinker (1989) and Levin (1993).

Generative syntacticians have come to agree that almost all syntactic relations can be subsumed under the three basic categories of head, complement, and specifier. Phrases at all levels are expansions of heads, which may be lexical (e.g. V(erb) or functional (e.g. T(ense)). At the initial level a head is associated with a phrase in the complement relation. The conjunction of a head and its complement in turn may be associated with another phrase at the next level, i.e. a specifier. Arguments are typically either complements or specifiers of heads, since they are phrases.

In addition to these relations there is also the adjunct relation. A phrase may be adjoined to a head-complement combination. In English prepositional phrases and adverbial phrases are adjuncts.

In this dissertation an ARGUMENT is a noun phrase which is subcategorized, or required, by a verb. In generative grammar ARGUMENT STRUCTURE has come to represent a classification of arguments on which syntax is based, but which does not itself constitute a level of syntax. There are two distinctions that are commonly made, according to whether arguments are internal or external (Williams 1981), and direct or indirect (Marantz 1984). Subjects are external arguments, and objects, which can be direct or indirect, are internal arguments. Under this terminology, an adjunct which is subcategorized by the verb is an indirect internal argument.

Since these relations are structurally defined, argument structure is basically the same as D-structure, the underlying level of syntax, the main difference being that at D-structure constituents are ordered according to the parameters of a specific language, whereas at argument structure they are not ordered.[9] Most generative researchers accept the idea that the head-complement and specifier-head orderings (and subsets of these) can vary from language to language, so that a particular argument structure could be shared by two languages, but could be realized by two different D-structure orderings.

2.2 The linking problem. One of the great benefits of the idea of argument structure as distinct from surface syntax is that part of the LINKING problem is solved. That is, we can now explain the semantic similarity between the object of transitive *break* and the subject of intransitive *break.* Both are direct internal arguments, but the direct internal argument of intransitive *break* moves to surface

subject position simply because subjects are required, and there is no external argument to occupy the subject position. That is, intransitive *break* is UNACCUSATIVE (Perlmutter 1978, Burzio 1986).

This much is accepted by most recent generative approaches to linking. In other respects, though, there are significant differences from one approach to another. In this section I would like to highlight two of the main approaches which I believe help to understand the Jarawara data. One approach can be characterized as a thematic role-based approach, while the other is based on the idea of a set of ordered linking rules.

2.2.1 The thematic role-based approach. In early generative grammar, it was proposed that verbs be classified according to the semantic roles their arguments could be associated with. Various lists of such THEMATIC ROLES were proposed, a particularly influential one being that of Jackendoff (1972) (based on Gruber's (1965) earlier research), which listed the following roles as central:

(11) Jackendoff's thematic roles.

a. Agent - instigator of an action
b. Theme - the object asserted to have a particular location or to be changing location
c. Location - where the theme is
d. Source - what the theme is moving from
e. Goal - what the theme is moving to

According to this view, verbs are prototypically motion events, and relations which do not involve literal motion are seen to involve motion in a metaphorical

way. This idea is formalized as the THEMATIC RELATIONS HYPOTHESIS. According to this idea, for example, possessed items are seen as themes.

Many kinds of problems have been encountered as researchers have tried to use this and other such lists of thematic roles to account for the linking of arguments to syntax. An obvious problem is highlighted by locative alternating verbs in English. If thematic roles can account for linking, then how is it that the theme can be linked to the object for one alternant, while it is the goal or source that is linked to the object in the other alternant? One approach is to redefine theme, and this is what Baker (1997) has done. He cites the contrasts in (12), noting that the telicity of the sentences is determined wholly by the definiteness of the object and not at all by the definiteness of the oblique argument, independent of what the linking is of the physical roles.

(12) a. John sprayed this wall with paint in an hour / (#)for an hour. (OK, but atelic)
b. John sprayed paint onto this wall #in an hour / for an hour.
c. John sprayed subway cars with this can of paint #in an hour/ for an hour.
d. John sprayed this (whole) can of paint onto subway cars in an hour /#for an hour

The theme role is thus no longer defined in relation to motion; it is redefined as the argument that determines the telicity of the sentence.

Baker also redefines the agent relation, noting that Levin and Rappaport Hovav's (1995) term 'internal cause' is more accurate. This is to account for the linking of the experiencer to subject in verbs like *fear.* Baker also refers to Dowty's (1991) theory of canonical agents and patients. An experiencer, being

sentient, is more like a canonical agent than the argument corresponding to the stimulus. The same ideas are used to account for the apparent reversal in the linking of *frighten.* The argument linked to subject is not always an agent, cf. *dogs frighten Peter*; but it is always a cause.

Finally, all locative arguments are combined by Baker into one, including benefactives and recipients. He ends up with only three core thematic roles: agent/causer, patient/theme, and path/location. Using these three roles, he is able to propose the Uniformity of Theta Assignment Hypothesis (UTAH),[10] according to which grammatical functions should be completely predictable from thematic roles.

(13) *The Uniformity of Theta Assignment Hypothesis* (UTAH)
Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

I believe there is some value in an approach that values thematic roles, even a more 'pure' version of the approach based on locality such as that of Jackendoff (1972), as opposed to Baker's modified approach. The Jarawara data highlight the fact that it is locative verbs that alternate, and not other kinds of verbs. That is, the alternating verbs are those for which the thematic roles can be characterized as theme and goal/source, and not other thematic roles. In Jarawara there is a morphological derivation, involving the comitative prefix *ka-,* which can apply to transitive verbs, introducing a argument as object which is different than the 'normal' object argument. The role of the introduced object

argument is not easy to characterize across all cases, but it definitely may not be characterized consistently in terms of locality. There seems to be something special about the roles of theme and goal/source that permits them and not other roles to alternate as the object of monomorphemic transitive verbs. I discuss this contrast in detail in chapter 4.

2.2.2 The linking rule approach. Levin and Rappaport Hovav (1995) advocate a quite different approach. They propose linking rules, such as the Immediate Cause Linking Rule (14) and the Directed Change Linking Rule (15).

(14) *Immediate Cause Linking Rule*
The argument of a verb that denotes the immediate cause of the eventuality described by that verb is its external argument.

(15) *Directed Change Linking Rule*
The argument of a verb that corresponds to the entity undergoing the directed change described by that verb is its direct internal argument.

To see how these rules work, consider the verb *run.* This is an agentive verb, and so it is normally unergative, since the Immediate Cause Linking Rule links its argument to the external argument position. However, Levin and Rappaport Hovav (1995) show that *run* is unaccusative when used with a directional phrase, e.g. *run to the store.* When a directional phrase is present, the Directed Change Linking Rule applies, linking the argument to the direct internal argument. But the argument is still agentive, so there must be an

ordering of the two rules, i.e. the Directed Change Linking Rule takes precedence over the Immediate Cause Linking Rule.

Linking rules are claimed to be universal, but the ordering among linking rules may be subject to parametric variation. Levin and Rappaport Hovav cite data on French from Labelle (1992), who claims that certain change of state verbs, such as *casser* 'break', should be classified as unergative, because they select the auxiliary *avoir* 'have'. Labelle contrasts these with other change of state verbs, which select the auxiliary *être* 'be' and should be classified as unaccusative. There is a meaning difference: the unergatives are 'internally driven transformations of an entity' that unfold naturally 'without control from external factors,' in contrast to the unaccusatives, for which this is not the case. The idea is that only the Directed Change Linking Rule applies to the unaccusative verbs, whereas both the Directed Change and the Immediate Cause Linking Rules apply to the unergatives. But differently than in English, in French the Immediate Cause Linking Rule takes precedence.

One of the benefits of this approach is that it can explain in an insightful way why there are not transitive causative alternants of unergative verbs such as *laugh* in the languages of the world. Levin and Rappaport Hovav (1994) explain that such a verb would have two arguments, the causer and the person laughing, competing for a single argument position, that of the external argument, since both can be considered immediate causes. They also argue that morphological or periphrastic causatives, in contrast, may apply to unergatives, because 'the causative morpheme or verb comes with its own argument structure, so that the

Immediate Cause Linking Rule does not have to associate two arguments from a single argument structure with the same argument structure position.'[11] This prediction is born out in Jarawara in two ways. First, there are no monomorphemic causative transitives that are causatives of unergatives, as I discuss in chapter 5. The intransitive alternants of causative alternating verbs are almost all stative verbs, as suggested in Table 3. Secondly, Jarawara has a morphological causative, and it may be applied to unergatives, including in fact *haahaa na* 'laugh' (16a), which with the morphological causative becomes *haahaa niha* 'cause to laugh' (16b).

(16) a. Faya tiki hinemetemoneke,
faya tiki hi- na -hemete -mone -ke
so tickle OC- AUX -FP.N+F -REP+F -DECL+F
haahaa nabonehe.
haahaa na -habone -DUP
laugh AUX -INT+F -DUP.RC
'Then he tickled her, so she would laugh.'

b. Kamo kanawa horo ne sone
Kamo kanawa horo na+M sona+M
(man's.name).M canoe.F drag AUX+M fall+M
owa haahaa nihareka.
owa haahaa niha- na -hare -ka
1SG.O.F laugh CAUS- AUX -IP.E+M -DECL+M
'Kamo fell while pulling the canoe, and he made me laugh.'

2.3 Argument structure alternations and verb classes. The basic theory of argument structure alternations and verb classes which has inspired my research on Jarawara is that embodied by Pinker's (1989) study of English alternations and Levin's (1993) catalogue of English alternations and verbs classes. These

two do not agree on every point, of course, but they respresent what is in many ways a common approach. In section 2.3.1, I lay out this general approach, and then in sections 2.3.2 through 2.3.4 I discuss approaches to the English alternations that I believe are similar to the alternations I have found in Jarawara. I will refer to the English examples in (17) - (24).

(17) *Spray/Load* Alternation

a. Jack sprayed paint on the wall.
b. Jack sprayed the wall with paint.

c. Bill loaded cartons onto the truck.
d. Bill loaded the truck with cartons.

(18) *Wipe* Alternation

a. Helen wiped the fingerprints off the wall.
b. Helen wiped the wall.

(19) *Clear* Alternation

a. Henry cleared dishes from the table.
b. Henry cleared the table of dishes.

(20) Dative Alternation

a. Bill sold a car to Tom.
b. Bill sold Tom a car.

(21) Benefactive Alternation

Martha carved a toy for the baby.
Martha carved the baby a toy.

(21) *Through/with* Alternation

a. Alison pierced the needle through the cloth.
b. Alison pierced the cloth with the needle.

(22) Material/Product Alternation

a. Martha carved the piece of wood into a toy.
b. Martha carved a toy out of the piece of wood.

(23) Unspecified Object Alternation

a. Mike ate the cake.
b. Mike ate.

(24) Causative alternation

a. The box opened.
b. I opened the box.

c. The log rolled.
d. Brian rolled the log.

e. The horse galloped past the barn.
f. I galloped the horse past the barn.

2.3.1 The general approach. The central thesis of the approach represented by Pinker (1989) and Levin (1993) is that the lexicon is organized. Furthermore, argument structure alternations are a window that allows us to see some of the structure of the lexicon. The idea is that there are semantic or syntactic features in common among all the verbs that participate in a particular alternation, which are referred to in the alternation. These are held to be universal features. A good illustration of this idea is Pinker's Table 4.11 on p. 107, which is reproduced as Table 4 below. The anticausative alternation referred to in the table is exemplified in (24a,b) above, and the other alternations are exemplied in (25) though (28) below.

Table 4. Subclasses of transitive action verbs and alternations.

ALTERNATION	SUBCLASS	EXAMPLES OF VERBS
Conative	+motion, +contact	hit, cut, *break, *touch
Part-possessor ascension	+contact	hit, cut, *break, touch
Contact locative	+motion, +contact, -effect	hit, *cut, *break, *touch
Middle	+effect	*hit, cut, break, *touch
Anticausative	+effect, -contact, -motion	*hit, *cut, break, *touch
VERB	ELEMENTS IN SEMANTIC STRUCTURE DEFINING SUBCLASS MEMBERSHIP	
hit	motion, contact	
cut	motion, contact, effect	
break	effect	
touch	contact	

(25) Conative alternation

a. Mary cut the bread.
b. Mary cut at the bread.
c. *Nancy touched at the cat.

(26) Part-possessor ascension

a. Sam cut Brian's arm.
b. Sam cut Brian on the arm.
c. *Jim broke Tom on the leg.

(27) Contact locative

a. I hit the bat against the wall.
b. I hit the wall with the bat.
c. *I cut the knife against the bread.

(28) Middle

a. I broke the glass.
b. The glass breaks easily.
c. *This wire touches easily.

This table suggests that verb classes are based on semantic features. According to this view, verb classes exist at various levels. One can speak of '*hit* verbs', meaning all the verbs that are [+motion, +contact], or one may speak of [+contact] verbs, which would be all the verbs like *hit, cut,* and *touch.* At first glance, Levin's approach appears to be different, since she establishes about 200 classes of English verbs that appear to be more discrete and narrowly defined. Like Pinker, though, she establishes the classes on the basis of argument structure alternations. The main difference is that she does not base the verb classes on features extracted from the alternations. Also, Levin's focus is more on the verb classes, whereas Pinker's is more on the alternations.

Lexical exceptions to rules are treated somewhat differently by Levin as opposed to Pinker. Once Levin establishes her verb classes, she recognizes that these are not completely determined by the alternations. She recognizes that, while all the verbs in a given class may participate in some alternations, it is a fact that only some of the verbs participate in other alternations. She does not attempt explanations for this. For example, she defines *roll* verbs as *drift, drop, float, glide, move, roll, slide,* and *swing.* She notes that all the members of the class may occur with or without a directional phrase, cf. *the ball rolled (down the hill)*; and none of the verbs may participate in the locative preposition drop alternation, cf. *the ball rolled *(down) the hill.* But although most of the verbs have causative variants, cf. *Bill rolled the ball down the hill,* this is not true of all

the members of the class, e.g. *glide,* which can only be intransitive. As I discuss in the next section, Pinker is not willing to admit lexical exceptions, but instead proposes verb classes that are narrower.

2.3.2 The locative alternation. Levin (1993) takes a more global approach to locative alternating verbs, including all the forms of the alternation, whereas Pinker (1989) focuses more narrowly on the *spray/load* verbs (cf. below). Levin characterizes the alternation as involving a locatum - 'a substance or entity whose location is changed' - and a location. The English verbs she includes in each form of the alternation are as follows.

(29) *Spray/load* alternation

Brush, cram, crowd, cultivate, dab, daub, drape, drizzle, dust, hang, heap, inject, jam, load, mound, pack, pile, plant, plaster, ?prick, pump, rub, scatter, seed, settle, sew, shower, slather, smear, smudge, sow, spatter, splash, splatter, spray, spread, sprinkle, spritz, squirt, stack, stick, stock, strew, string, stuff, swab, ?vest, ?wash, wrap

(30) *Clear* alternation

Clear, clean, drain, empty

(31) *Wipe* alternation

a. Means subclass: bail, buff, dab, distill, dust, erase, expunge, flush, leach, lick, pluck, polish, prune, purge, rinse, rub, scour, scrape, scratch, scrub, shave, skim, smooth, soak, squeeze, strain, strip, suck, suction, swab, sweep, trim, wash, wear, weed, whisk, winnow, wipe, wring

(32) *With/against* alternation

Bang, bash, batter, beat, bump, butt, dash, drum, hammer, hit, kick, knock, lash, pound, rap, slap, smack, smash (where no effect is implicated), strike,
tamp, tap, thump, thwack, whack

(33) *Through/with* alternation

Dig, jab, pierce, poke, prick, stick

Pinker (1989), in contrast, focuses only on the *spray/load* alternation, but his treatment is more detailed. He notes that some of the verbs seem to have the *into/onto* form as basic, whereas other verbs seem to have the *with* form as basic. The evidence for this is that for most of the alternating verbs, one of the locational arguments is optional. For example, it is possible to say *he piled the books,* omitting the locational goal (the container), but it is not possible to say **he piled the shelf,* omitting the locational theme (the content). *Pile* is therefore considered to be basically a CONTENT-ORIENTED verb, and is seen to be similar to other verbs that occur in the *into/onto* construction but that are nonalternating. In the same way, *stuff* is considered to be a CONTAINER-ORIENTED verb, because it is possible to omit the theme argument and say *he stuffed the turkey,* but it is not possible to omit the goal argument and say **he stuffed the breadcrumbs.*

With some alternating verbs, both locational arguments are optional, as in *he loaded the gun* and *he loaded the bullets.* But Pinker maintains that in such cases, one of the sentences is elliptical (in this case the second one), and that

therefore the other one is basic. Also, there are a few verbs for which both locational arguments are obligatory. These verbs are not used to determine semantic subclasses, but are assigned to subclasses which are determined by the other verbs.

In this way Pinker divides all the verbs that can occur in either or both of the two constructions into two groups, content-oriented verbs and container-oriented verbs. Within each of these groups Pinker separates alternating from non-alternating verbs, and he finds that within these it is possible to separate verbs into semantically coherent subclasses, as follows (based on (Pinker 1989:126-7)).

Content-oriented or *into/onto* verbs:

1. Alternating. Simultaneous forceful contact and motion of a mass against a surface. Includes *brush, dab, plaster, rub, slather, smear, smudge, spread, streak.*

2. Alternating. Vertical arrangement on a horizontal surface. Includes *heap, pile, stack.*

3. Alternating. Force is imparted to a mass, causing ballistic motion in a specified spatial distribution along a trajectory. Includes *inject, spatter, splash, splatter, spray, sprinkle, squirt.*

4. Alternating. Mass is caused to move in a widespread or nondirected distribution. Includes *bestrew, scatter, sow, strew.*

5. Alternating. Involves a static arrangement of a linear object along a surface. *String* is the only verb in this subclass. (Pinker does not actually say this is a content-oriented verb, but it clearly is by his criterion.)

6. Nonalternating. A mass is enabled to move via the force of gravity. Includes *dribble, drip, drizzle, dump, ladle, pour, shake, slop, slosh, spill.*

7. Nonalternating. Flexible object extended in one dimension is put around another object (preposition is *around*). Includes *coil, spin, twirl, twist, whirl, wind.*

8. Nonalternating. Mass is expelled from inside an entity. Includes *emit, excrete, expectorate, expel, exude, secrete, spew, vomit.*

9. Nonalternating. Verbs of attachment, which imply the existence of an intermediate instrument object or substance holding objects together. Includes *attach, fasten, glue, nail, paste, pin, staple, stick, tape.*

Container-oriented or *with* verbs:

1. Alternating. A mass is forced into a container against the limits of its capacity. Includes *cram, crowd, jam, stuff, wad,* and the wadding sense of *pack.*

2. Alternating. A mass of a size, shape, or type defined by the intended use of a container (and not purely by its geometry) is put into the container, enabling it to accomplish its function. Includes *load, pack* (what one does to suitcases), *stock* (what one does to shelves).

3. Alternating. A flexible object conforms to (at least) part of the shape of an object along two or more orthogonal dimensions (preposition is *around*). *Wrap* is the only member of this subclass.

4. Nonalternating. A layer completely covers a surface. Includes *deluge, douse, flood, inundate, bandage, blanket, coat, cover, encrust, face, inlay, pad, pave, plate, shroud, smother, tile, line, edge, fill, occupy.*

5. Nonalternating. Addition of an object or mass to a location causes an esthetic or qualitative, often evaluative, change in the location. Includes *adorn, burden, clutter, deck, dirty, embellish, emblazon, endow, enrich, festoon, garnish, imbue, infect, litter, ornament, pollute, replenish, season, soil, stain, taint, trim.*

6. Nonalternating. A mass is caused to be coextensive with a solid or layerlike medium. Includes *interlace, interlard, interleave, intersperse, interweave, lard, ripple, vein, drench, impregnate, infuse, saturate, soak, stain* (what one does to wood), *suffuse.*

7. Nonalternating. An object or mass impedes the free movement of, from, or through the object in which it is put. Includes *block, choke, clog, dam, plug, stop up, bind, entangle, lash, lasso, rope.*

8. Nonalternating. A set of objects is distributed over a surface. Includes *bombard, blot, dapple, riddle, speckle, splotch, spot, stud.*

The initial division into content-oriented and container-oriented verbs is important for at least two reasons. First, it permits Pinker to say that two different derivations are involved in this alternation, based on the difference in directionality. That is, since the *into/onto* construction is considered to be basic for the content-oriented verbs, these verbs are considered to be derived when they occur in the *with* construction. In the same way, since the *with* construction is considered to be basic for container-oriented verbs, they are considered to be derived when they occur in the *into/onto* construction.

Secondly, the initial division into content-oriented and container-oriented verbs captures an additional fact about the syntactic behavior of the verbs. In this way, the speaker of English who knows the semantics of a verb knows not only if it is alternating or not; s/he also has a very good idea, if it is an alternating verb, whether the goal or the theme can be omitted.

Rappaport and Levin (1988) do not accept the division between content-oriented and container-oriented locative verbs, but propose a single semantic representation for all the verbs (cf. below). But there does seem to be additional evidence for this division which Pinker does not mention, from Chinese and from English. As discussed in (Juffs 1996), the Mandarin equivalents of content-oriented verbs behave differently from the equivalents of container-oriented verbs. When the verbs are used as bare roots, the equivalents of alternating English content-oriented verbs also alternate in Mandarin; but the equivalents of alternating English container-oriented verbs do not alternate in Mandarin,[12] when they are used as bare roots. The English evidence not mentioned by Pinker is

aspectual. As suggested by example (12a) from (Baker 1997) above, alternating content-oriented verbs such as *spray* may be telic or atelic in the goal-object alternant, when the object is definite. But this is not true of alternating container-oriented verbs such as *load.* For these verbs, when the goal-object alternant is used with a definite object, the sentence can only be telic, cf. *Bill loaded the truck with cartons in an hour/*for an hour.*

Pinker proposes that content-oriented and container-oriented verbs are BROAD CONFLATION CLASSES. This means that for all content-oriented verbs, there is a common thematic core that basic for both alternating and non-alternating subclasses. A different thematic core is basic for all the container-oriented verbs. So why is it that some verbs alternate, and others do not? Pinker's answer is that this is not just that there are unprincipled lexical exceptions. He proposes that each broad conflation class may be further divided into NARROW CONFLATION CLASSES; these are the subdivisions listed above. Some narrow conflation classes alternate, while others do not. There is thus a principled way of accounting for the non-alternating verbs. Belonging to a broad conflation class is a necessary condition for a verb to alternate, but belonging to a narrow conflation class is a sufficient condition.

This idea seems to find some support in the Jarawara data, in that the broad conflation classes that the alternation applies to in Jarawara appear to be broader than the English classes. For the Jarawara verbs, the notions of content and container are relevant to only a minority of the alternating verbs. The really relevant categories appear to be broader concepts such as theme, goal, manner,

and change of state. It appears that the English broad conflation classes are a proper subset of the Jarawara broad conflation classes. This could be interpreted to mean that the broad conflation classes are actually the same in the two languages, but that there are other classes of non-alternating locative verbs that Pinker does not mention. In fact he entertains this possibility, saying, for example (pp. 125-6), that 'there are several other nonalternating classes not listed here at all because their meaning is even more removed from the notion of putting an object into or onto a surface or container, for example, verbs of applying force (*push, shove, force,* etc.).' The Jarawara data are also support for Levin's inclusion of the *wipe* and *clear* alternations along with the *spray/load* alternation together under the heading of locative alternation, and her inclusion of the *with/against* and *through/with* alternations with these under the more general heading of 'alternations involving arguments within the VP'. In English different prepositions are used for these various alternations, but this difference does not exist in Jarawara, as I explain in chapter 4.

The basic thematic core which Pinker associates with content-oriented verbs is '*X* causes *Y* to move into/onto *Z,*' while the basic thematic core he associates with container-oriented verbs is '*X* causes *Z* to change state by means of moving *Y* into/onto it.'[13] This means that non-alternating classes are defined as those verbs that are associated with only one of these thematic cores, while alternating classes are those which are associated with both thematic cores. He proposes that there is a rule transforming one thematic core into the

other. Two rules are involved, one for content-oriented verbs and one for container-oriented verbs, the latter being the reverse of the former.

The semantic representations for locative alternating verbs offered by Rappaport and Levin (1988) are quite similar to Pinker's. The example they give is for *load* (34):

(34) a. LOAD: [*x* cause [*y* to come to be at *z*]/LOAD]
b. LOAD: [[*x* cause [*z* to come to be in STATE]]
BY MEANS OF [*x* cause [*y* to come to be at *z*]/LOAD]

This representation is broader than Pinker's, and probably can be applied to all of Levin's (1993) locative alternating verbs, as well as those of the *with/against* and *into/through* alternations. Unlike Pinker, Rappaport and Levin do not commit themselves to the existence of a rule or rules relating the two representations. They do observe, however, that (34b) subsumes (34a). In a more recent paper (Rappaport Hovav and Levin 1998) they suggest that more complex representations may be built from simpler ones but not the reverse, but they do not apply this reasoning specifically to the locative alternation.

As noted above, Pinker states more clearly that the locative alternation involves a lexical derivation, or two derivations going in opposite directions, to be more precise. Pinker points out that similar alternations are often morphologically marked in other languages. I agree that this fact does point to the existence of universal components of meaning that are syntactically relevant, as Pinker says. I'm not so sure, though, that this supports the analysis of the locative alternation as a (covert) lexical derivation. The Jarawara data seem to

support, rather, the idea that there are constraints on monomorphemic verbs that do not apply to morphologically derived verbs. In section 2.2.1 above I mentioned the contrast (discussed in detail in chapter 4) between the locative alternation and a derivation with the comitative prefix *ka-.* Whereas the locative alternation appears to refer to the thematic roles of goal and source, this is not true in any regular way for the derivation with *ka-.* If the locative alternation distinguishes monomorphemic verbs from a morphological operation, then it appears not to be itself a covert morphological operation. Certainly the components of semantic structure are one of the sources of morphology in the languages of the world. It may be that this is just a question of words, but it appears to me that this is not the same thing as saying that argument structure alternations count as morphology.

In fact there appear to be constraints on the argument structures of monomorphemic verbs which do not apply to derived verbs. We have seen above the universal constraint which bars the existence of monomorphemic verbs which are transitive and causative meaning something like **cause to laugh,* whereas verbs with such meanings do exist which are derived by causative morphology. Similarly, there appears to be a constraint which limits the alternation in the linking of arguments to the direct object position to an alternation between theme and location; but this constraint applies to monomorphemic verbs and not to derived verbs. In each case the morphological derivation is similar to the argument structure alternation but is less constrained. Whereas Pinker (1989) concludes that argument structure alternations are

limited to what is available in the universal stock of morphological operations, I would rather propose that some morphological operations, at least, appear to draw their inspiration from argument structure alternations involving monomorphemic verbs. The morphological operations appear to take the meaning of an argument structure alternation and add to it or broaden it, widening its application.

2.3.3 The unspecified object alternation. When one compares the English verbs of the unspecified object alternation (35) with the Jarawara verbs I have characterized as participating in the transitivizing locative alternation (Table 2), the verbs do not appear to have much in common beyond the fact that there is a change in transitivity and a correspondence between the transitive subject and the intransitive subject.

(35) Unspecified object alternation (Levin 1993)

Bake, carve, chop, clean, cook, crochet, draw, drink, dust, eat, embroider, hum, hunt, fish, iron, knead, knit, mend, milk, mow, nurse, pack, paint, play, plow, polish, read, recite, sew, sculpt, sing, sketch, sow, study, sweep, teach, type, sketch, vacuum, wash, weave, whittle, write

Whereas the English verbs are mostly verbs of creation, this is not true of the Jarawara verbs. For Jarawara, the verbs are semantically much closer to the transitive locative verbs in Table 1, with several verbs participating in both alternations.

In chapter 4 I propose that there is some common ground between the English and Jarawara alternating verbs, in that for both groups the object of the transitive alternant may be characterized as a goal. For the English verbs this sounds surprising, but when we take a closer look, we see that several also participate in the locative alternation, namely *sow, pack,* and *plow.*[14] Furthermore, I would list *paint* as a non-alternating container verb, even though Pinker (1989) does not list it as such.[15] The interesting thing is that all four of these are verbs that can occur with goal-objects. In contrast, none of Pinker's non-alternating content verbs participate in the unspecified object alternation; these are precisely the locative verbs which cannot occur with a goal-object.

I have not seen anyone proposing in the literature that the object of the English transitive alternants should be considered a goal. But the object of a verb of creation is a kind of goal. There is a hint along these lines in Jackendoff's (1990) discussion of verbs of material composition such as *build,* where he says that some of these verbs permit the expression of either a source or a goal, cf. *build a house out of bricks/build bricks into a house.* We may also cite Levin's (1993) discussion of the total transformation alternation, cf. *the witch turned him into a frog/the witch turned him from a prince into a frog.* She calls the initial state a 'source' and the final state a 'goal' for these verbs. If we accept this kind of reasoning, we can consider the object of *bake* a goal because it specifies a final state, while the object of a verb of consumption such as *eat* may be considered a source because it specifies an initial state. With these

considerations in mind, it appears that the alternating Jarawara and English verbs can be seen as having something in common.

2.3.4 Causative alternating verbs. According to Pinker, there are three narrow-range rules for the causative alternation; but if one considers each of these three subclasses of verbs to be a separate alternation, there is no need for narrow-range rules. The three subclasses are anticausatives or inchoatives such as *break* (24a,b), non-agentive verbs of manner of motion such as *roll* (24c,d), and verbs of locomotion such as *gallop* (24e,f).

Levin (1993) separates the *gallop* verbs from the rest, calling the alternation involving them the 'induced action' alternation. She notes (p. 31), as Pinker also does, that 'in the transitive causative use, the verb must be accompanied by a directional phrase. Even if such a phrase is not overtly expressed, it is understood. For instance, *Sylvia jumped the horse* means that Sylvia jumped the horse over something; it cannot mean that Sylvia made the horse jump in place.' This constitutes a syntactic difference, which is strong evidence for this being a separate alternation. Levin (p. 31) also notes that 'often in the transitive variant the causer is understood not only to cause the causee to move but also to be accompanying the causee,' and for this reason the alternation is also called the 'accompanied causation' alternation. She notes, however, that this meaning component is not present in a sentence such as *the scientist ran the rats through the maze.* Even in this case, though, the presence of the scientist does seem to be assumed, so maybe the label is all right.

Levin and Rappaport Hovav (1995:111) add that in the transitive uses of *gallop* verbs 'the referent of the direct object….maintains a degree of agentiveness that is uncharacteristic of the objects of verbs that usually participate in the causative alternation.' This fact is troublesome for their theory of linking, since as noted above, the theory predicts that intransitive verbs for which the subject is an immediate cause should not have transitive variants. The way these verbs are dealt with (Rappaport Hovav and Levin 2000) is that, unlike the *break* and *roll* verbs, the transitive *gallop* verbs are considered to be derived from the intransitive variants. This derivation is considered to be similar to morphological causatives in other languages, and the marking corresponding to the causative morphology is the directional phrase. As noted above, morphological causatives may apply to intransitive verbs for which the subject is an immediate cause, i.e. unergatives. It seems strange, though, to say that a directional phrase can correspond to causative morphology, since such phrases are not otherwise associated with causation in English. We may also observe that the directional phrase may be said to make the intransitive verb unaccusative, since in English the Directed Change Linking Rule takes precedence over the Immediate Cause Linking Rule. We might expect that, if this analysis is correct, then in French we should not find *gallop* type verbs which have transitive alternants. This is because as stated above, according to Levin and Rappaport Hovav (1995), in French the Immediate Cause Linking Rule takes precedence over the Directed Change Linking Rule. Since the *gallop* type verbs

would thus be classified as unergative even with a directional phrase, they should not be able to have transitive alternants.[16]

Levin and Rappaport Hovav (1995) reserve the label causative alternation for the *break* verbs and the *roll* verbs. What distinguishes these from other verbs is that they are externally caused whether transitive or intransitive. This is why *gallop* alternating verbs are not included in the alternation, since when intransitive they are not externally caused. For the same reason Levin and Rappaport Hovav exclude from the causative alternation such pairs as transitive and intransitive *hang*; even though the transitive alternant is causative, the intransitive alternant is not necessarily externally caused. The representation offered (Levin and Rappaport Hovav 1995) for both the transitive and intransitive versions of the alternating verbs is (36).

(36) Externally caused verbs of change of state

[[x ACT] CAUSE [BECOME [y <*STATE*>]]]

The verbs which Levin and Rappaport Hovav (1995) include in the causative alternation are characterized in (37), and the *gallop* alternating verbs which Levin (1993) lists are in (38).

(37) Externally caused verbs of change of state

a. *Roll* verbs: bounce, drift, drop, float, glide, move, roll, slide, swing, coil, revolve, rotate, spin, turn, twirl, twist, whirl, wind

b. *Break* verbs: break, chip, crack, crash, crush, fracture, rip, shatter, smash, snap, splinter, split, tear

c. *Bend* verbs: bend, crease, crinkle, crumple, fold, rumple, wrinkle

d. Cooking verbs: bake, boil, cook, fry, grill, heat, poach, roast, scald, steam, stew, toast (and many others)

e. Others: alter, awake, blast, burn, burst, change, chill, close, collapse, collect, compress, condense, contract, corrode, crumble, decompose, decrease, defrost, degrade, diminish, dissolve, divide, double, drain, enlarge, expand, explode, fade, fill, flood, fray, freeze, fuse, grow, halt, heal, heat, ignite, improve, increase, inflate, light, loop, mature, melt, multiply, pop, reproduce, rupture, shrink, sink, soak, stretch, submerge, taper, thaw, tilt, tire, topple, unfold, vary, warp (and many others)

   Zero-related to adjective: blunt, clean, clear, cool, crisp, dim, dirty, double, dry, dull, empty, even, firm, level, loose, mellow, muddly, narrow, open, pale, quiet, round, shut, slack, slim, slow, smooth, sober, sour, steady, tame, tense, thin, triple, warm

   Change of color: blacken, brown, crimson, gray, green, purple, redden, silver, tan, whiten, yellow

   -en verbs: awaken, brighten, broaden, cheapen, dampen, darken, fatten, gladden, harden, hasten, heighten, lengthen, lessen, loosen, moisten, ripen, sharpen, shorten, soften, straighten, strengthen, sweeten, thicken, tighten, toughen, weaken, worsen (and others)

   -ify verbs: acidify, calcify, dehumidify, intensify, magnify, petrify, purify, putrefy, solidify (and others)

   -ize verbs: Americanize, crystallize, decentralize, demagnetize, democratize, depressurize, destabilize, energize, equalize, fossilize, harmonize, magnetize, neutralize, oxidize, polarize, pulverize, regularize, stabilize, vaporize, westernize (and others)

   -ate verbs: accelerate, agglomerate, attenuate, coagulate, decelerate, degenerate, deteriorate, detonate, disintegrate, dissipate, evaporate, incubate, operate, proliferate, propagate, vibrate (and others)

(38) *Gallop* alternating verbs

canter, drive, fly, gallop, jump, leap, march, race, run, swim, trot, walk

The fact that the representation in (36) is said to apply to both the transitive and intransitive alternants is important. Combined with the first clause (39a) of Rappaport Hovav and Levin's (1998) Argument Realization Condition, the prediction is that externally caused verbs of change of state will be morphologically marked when they are intransitive, to reference the argument that is deleted before the surface syntax but present in the event structure.

(39) Argument Realization Condition

a. There must be an argument XP in the syntax for each structure participant in the event structure.
b. Each argument XP in the syntax must be associated with an identified subevent in the event structure.

In (Levin and Rappaport Hovav 1995) they call this operation 'lexical binding', and note that it occurs before the level of argument structure. They contrast this operation with syntactic binding, the operation that produces a passive, noting that in a passive the deleted argument is syntactically active and therefore present at argument structure.

The prediction that the intransitive alternant of causative pairs should be morphologically marked is not born out in English, as Rappaport Hovav and Levin (1998) admit, but they point to many other languages in which the intransitive alternant of *break* type verbs is marked morphologically. It appears at first glance that this prediction is not born out in Jarawara, since the intransitive alternants in Table 3 are not morphologically marked. It is interesting, though,

that the verbs in Table 3, unlike *break*, are not accomplishment verbs aspectually, whereas Rappaport Hovav and Levin (1998) equate accomplishment verbs with externally caused verbs of change of state. In fact some Jarawara verbs do alternate in the way predicted by Rappaport Hovav and Levin, including *baka na* 'break' (40a), which is *baka tona* (40b) when intransitive. The extra morpheme is the prefix *to-,* which has 'change of state' as one of its two main meanings.[17]

(40) a. Kimi mee baka na
kimi mee baka na
corn.M 3P.S.F break AUX+F
'They broke off the ears of corn.'

b. Yifari ate baka toneke,
yifari ate baka to- na -ne -ke
banana.F stalk.F break CH- AUX -CONT+F -DECL+F
kanahi kaaro.
kanaha+F kaaro
heavy+F BECAUSE.OF+F
'The banana plant is breaking under the weight of the bananas.'

In chapter 5 I show that for most causative alternating verbs in Jarawara, the intransitive alternants can be characterized as statives, and not events.

In fact *roll* verbs in English are not accomplishments, either, and in my view this is a problem for Levin and Rappaport Hovav (1995) having included them in the causative alternation as they have defined it. They discuss the aspectual classification of these verbs on page 71 and conclude that they are not stative but activities. On page 72 they note that they are not verbs of change of state, there is no idea of 'become' in their meaning. Also, Rappaport Hovav and

Levin (2000:273) recognize that without a goal phrase, *roll* verbs are atelic. But as we have seen above, they define the alternating verbs of the causative alternation as verbs of change of state, with BECOME as part of their semantic representation (36). As noted above, while Pinker includes *roll* verbs in the causative alternation, he offers a separate narrow range rule to apply to *roll* verbs. Also, he labels the *break* verbs as 'anticausative', in recognition of the fact that the transitive alternant seems to be basic and intransitive derived; but he does not call *roll* verbs anticausative.

2.4 Summary. According to Baker (2001:204), 'the area of lexical semantics is perhaps the most problematic and least-developed area of contemporary linguistics.' I concur with this opinion. The theories I have referred to do not really tell us why argument structure alternations exist. But they give us certain expectations about the kinds of things we expect to find in other languages. In the remainder of this study I show that many of these expectations are fulfilled when we look at Jarawara. As I outline in the next chaper, Jarawara is typologically quite different than English and other Indo-European languages. And yet when it comes to argument structure alternations, there are many similarities, which I delineate in chapters 4 and 5, along with some differences which are within what is predicted by the theories. As in English and many, if not all, other languages, Jarawara has argument structure alternations, and the groups of verbs which alternate may be characterized semantically. Jarawara has locative verbs for which the object is alternately linked to a theme or a

location. The semantic range of the groups of alternating verbs is wider than that of the English groups, but this is predicted by the Thematic Relations Hypothesis. Jarawara has verbs which can optionally omit their object. On the surface the groups of verbs involved don't seem to have much in common with the groups of English verbs. But the theory of thematic relations seems to offer a clue. Jarawara has causative alternating verbs. The largest group of English alternating verbs is excluded from the Jarawara alternation, but this is predicted by one theory. And the alternating Jarawara verbs are semantically quite similar to the remaining English verbs. And in general the data from Jarawara, as that from English, seems to point to the existence of constraints on the argument structures of monomorphemic verbs.

The goal of the generative approach to language is to explain how children are able to acquire a language (Chomsky 1957, C. L. Baker 1979). According to Juffs (2000), an important part of this problem is 'the acquisition of verb meaning and the way such knowledge relates to syntax'; and one kind of study which is needed is 'detailed descriptive studies of the links between verb semantics and morpho-syntax in non-Indo-European languages'. In this dissertation I provide such a detailed descriptive study of one non-Indo-European language, and relate it to generative theories of lexical semantics. I believe that in looking at argument structure alternations in Jarawara, we can see a little better what the essence is of such alternations in English and other well-known languages.

CHAPTER 3

BASICS OF JARAWARA MORPHOLOGY AND SYNTAX

3.1 Introduction. As a preliminary to the detailed presentation of the Jarawara data in chapters 4 and 5, this chapter is a brief outline of Jarawara morphology and syntax. It is based mostly on R.M.W. Dixon's published papers on Jarawara and Arawá languages (1995, 1999a, 1999b, 2000a, 2000b, 2001, 2002, 2003); (Dixon and Vogel 1996). Where I depart significantly from Dixon's views based on my own fieldwork, I note this.

The Jarawaras are a small Amazonian tribe of about 160 people, living in the municipality of Lábrea in the state of Amazonas, Brazil. They live in seven small villages in the area of the Cainã river and one of its branches, the Apituã stream, also known as the Igarapé Preto. The area of their reservation, which they share with the Jamamadí Indians, is near the west bank of the Purus River, upstream from the town of Lábrea.[18] The only road in the area is at Lábrea, on the other side of the Purus -- in fact, this is the end of the Trans-Amazon Highway. Consequently, the Jarawara villages are fairly isolated, although not nearly as isolated as some other Indian villages in the region which are much further away from the Purus. The Purus is a very large river, being one of the main southern tributaries of the Amazon.

Because of their isolation, the Jarawaras have maintained a fairly traditional lifestyle. They produce all their own food by gardening, fishing, hunting, and gathering. Through several decades of contacts with Brazilians,

they have come to wear clothes and no longer live in communal longhouses. Jarawara is spoken exclusively in the villages, and Jarawaras are not ashamed to speak their own language in front of Brazilians. They are increasingly bilingual in Portuguese, though, as their contacts with Brazilians increase.

3.2 Linguistic affiliation. Jarawara is one of three dialects of what we might call the Madi language, along with Jamamadí and Banawá. (The term Madi is used only by linguists and not even by all of them; the Indians do not recognize a common name for the three dialects.) Madi is a member of the small Arawá family of southwestern Amazonia, which also includes Paumarí, Dení, Madiha (Kulina), and Sorowahá. For discussions of the Arawá family, see (Dixon 1995), Appendix A, and (Dixon 1999a). In what follows I will usually refer to Jarawara as if it were a language rather than a dialect, purely for the sake of convenience.

3.3 Phonology. The phonemic inventory of Jarawara consists of 11 consonants and four vowels. The main allophone for each phoneme is displayed in Tables 5 and 6, and where a different orthographic symbol is used in interlinear examples, this is in parentheses.

Table 5. Jarawara consonant phonemes.

	bilabial	apico-dental	apico-alveolar	lamino-palatal	dorso-velar	glottal
stop	**b**	**t**		**j(y)**	**k**	
voiceless fricative	**ɸ(f)**		**s**			**h**
nasal	**m**	**n**				
liquid			**ɹ(r)**			
semi-vowel					**w**	

Table 6. Jarawara vowel phonemes.

	front	back
high	**i**	**ɯ(o)**
mid	**e**	
low	**a**	

Allophonic variation includes the following: *b, t,* and *k* may be voiced or voiceless; *j* is a laminal semi-vowel, and it has a lamino-palatal stop variant [ʄ]; ɹ is a rhotic flap, and it has a lateral [*l*] allophone; and ɯ is unrounded,[19] with a mid allophone [ɤ]. The glottal fricative *h* is nasalized, and *w* is simultaneously dorso-velar and bilabial. The orthography is mostly phonemic, the main kind of exception being that not all orthographic *y*'s and *w*'s represent underlying phonemes; some are automatic transitions between vowels.

As is evident in a comparison of the underlying forms with the surface forms in the interlinear examples (i.e. the second and first lines, respectively), a number of phonological rules are operative in Jarawara. It is, however, not necessary to describe most of these here. The symbol *I* is used in underlying

forms to indicate a morphophoneme which on the surface is realized as *i* or *e*, depending on whether the number of moras preceding it in the phonological word is even or odd, respectively.

The main reason I have included the line for underlying forms is that there are morphophonemic rules that delete certain vowels or sequences. Most significant among these rules for this study are those that delete the prefix *to-* 'CHANGE OF STATE/AWAY'[20] and the auxiliary *na* under certain conditions. I will not detail all these rules or all the reasoning behind the analyses, but will limit myself to a couple examples here. The verbal prefix *to-* is deleted whenever there is either of the subject prefixes *o-* '1SG', *ti-* '2SG', or *hi-* 'O-CONSTRUCTION'.[21] There is no indication on the surface of the underlying *to-* in (41a), for example.

(41) a. Habai owawitematibe
habai o- to- awa -witI -mata+F -beya
friend.M 1SG.S.F- AWAY- see -OUT -SHORT.TIME+F -IMMED+F
'"I'm going to see our friend."'

b. Totowawite tinahi.
DUP- to- awa -witI ti- na -hi
DUP- AWAY- see -OUT 2SG.S.F- AUX -IMP+F
'Go look!'

It becomes clear that the *to-* is there, though, when the same verb is used with reduplication to give the idea of 'a little' (41b). Since with reduplication the subject prefix *ti-* is shifted to the auxiliary *na* that accompanies reduplication, the verbal prefix *to-* not only appears on the surface, but is even reduplicated.

The auxiliary *na* is deleted in a number of different contexts, and one of them is shown in (42), i.e. when it is preceded by any of the person prefixes *o-, ti-,* or *hi-* and followed by the suffix *-mata* 'SHORT TIME'. A comparison with (41b) makes this clear. Reduplication requires an auxiliary *na* (41b), but in (42) the auxiliary is deleted in the context of the suffix *-mata*.

(42) A-awa omatibe.
DUP- awa o- na -mata -beya
DUP- see 1SG.S.F- AUX -SHORT.TIME -IMMED+F
'I'm going to look.'

3.4 Word classes. The main word classes in Jarawara are verbs and nouns, with a small class of adjectives. Verbs may be divided into inflecting and non-inflecting classes, inflecting verbs being those which take prefixes and suffixes directly, and non-inflecting verbs being those which require that prefixes and suffixes be attached to an auxiliary. The verb *awa* 'see' in (41a) above is an inflecting verb, and in the example both a prefix and suffixes are attached to the root. This verb can be contrasted with the root *tiki* 'tickle' in (43), which is non-inflecting, being associated with the auxiliary *na.* In (43) both a prefix and several suffixes are attached to the auxiliary *na,* and it is ungrammatical to attach them to the root *tiki.*

(43) Faya tiki hinemetemoneke,
faya tiki hi- na -hemete -mone -ke
so tickle OC- AUX -FP.N+F -REP+F -DECL+F
haahaa nabonehe.
haahaa na -habone -DUP
laugh AUX -INT+F -DUP.RC
'Then he tickled her, so she would laugh.'

Almost all non-inflecting verbs are associated with the auxiliary *na,* but a few are associated instead with the auxiliary *ha,* for example *maa* 'be tired' in (44).

(44) maa ohara oke
maa o- to- ha -hara o- ke
tired 1SG.S.F- CH- AUX -IP.E+F 1SG.S.F- DECL.F
'I was tired.'

There are thus three morphological classes of verbs, the non-inflecting verbs, the non-inflecting verbs that take the auxiliary *na,* and the non-inflecting verbs that take the auxiliary *ha.* In this study whenever a verb is non-inflecting, I refer to it with the auxiliary it is associated with. For the verbs just exemplified, I use the notation *tiki na* and *maa toha,* respectively. (I use *toha* rather than *ha* because the auxiliary *ha* always requires the derivational prefix *to-.*) These are in contrast to *awa* 'see', which does not require an auxiliary.[22]

It could be that 'auxiliary' is not the best term for *na* and *ha* when they have this function of marking a morphological class of verbs,[23] but I don't have a good idea for a better term. Although the auxiliaries *na* and *ha* belong to the same formal system in that both mark morphological classes of verbs, *ha* does seem to have semantic content, in contrast to *na* which apparently does not.

First, we may observe that the small group of verbs (Table 7) which I have seen with *ha* are a semantically cohesive group.

Table 7. Non-inflecting verbs with *ha.*

afi toha	'be wet'
bisa toha	'be dirty'
ebe toha	'be opened'
hawa toha	'be ready'
hete toha	'be tight'
kita toha	'be full'
kori-kori toha	'be bald'
kowisa toha	'hurt'
maa toha	'be tired'
siri toha	'be cold'
tafo toha	'be soft'
tai toha	'be ahead'
tanako toha	'be sweaty'

It appears that we might want to characterize these either as verbs of change of state, or else as stage-level statives (i.e. temporary states, cf. (Carlson 1977)); or maybe there are some of each. It is clear that none are transitive, whereas for the other two classes there are many transitive and many intransitive verbs among the members of each class. There does not seem to be any semantic cohesiveness among the members of the other two classes, which are the two major classes, i.e. the inflecting verbs and the non-inflecting verbs which take *na*.

Furthermore, almost all of the non-inflecting verbs with *ha* may be related to verbs of one of the other two classes. For example, *afi na* 'bathe' is obviously related to *afi toha* 'be wet', and *siri* and *siri toha* are both glossed as 'be cold'.[24] There are also a few such relationships between the other two classes (e.g. *hiwa* 'be hot' and *hiwa na* 'be heated by'), but extremely few compared to the total

numbers of verbs in the classes.[25] These phenomena seem to indicate that, whereas the auxiliary *na* is just a marker of a purely morphological class, the auxiliary *ha* should probably be considered the marker of some kind of operation. More research is needed in this regard.

Consistent with this idea is the fact that for new verbs that are borrowed from the national language, Portuguese, the only class that they can be borrowed into is the non-inflecting class with *na,* e.g. *tefe na* 'owe', from Portuguese *dever.*

Nouns are the other major open word class. Nouns are masculine or feminine, and these categories are straightforward when applied to people. Most mammal species are masculine, and most lower animal species are feminine. Plant species are divided about half and half between masculine and feminine. Most inanimate objects are feminine. A subclass of nouns numbering about 150 have rather special characteristics because they may be inalienably possessed. Inalienable possession is used for body parts and other relations that may be conceived of as part-whole relations. Inalienable possession is used, for example, for the relation of a tree and its fruit, as in (45a). But it is also used for the more abstract spatial relation of 'behind', as in (45b). In this example, the NP is *yobe bofe,* with *bofe* 'below' inalienably possessed by *yobe.* The postposition *yaa* is applied to the whole NP, making it an adjunct.

(45) a. Awa boni hiyateera amake.
awa boni hiya -tee -ra ama -ke
tree.F fruit+F bad -HAB -NEG+F EXT -DECL+F
'That fruit (lit., tree fruit) isn't good (to eat).'

b. Kobaya waaka, yobe bofe yaa.
kobaya waa -ka yobe bofe yaa
collared.peccary.M stand -DECL+M house.M below.F ADJ
'The peccary is under the house.'

Unlike nouns in general, inalienably possessed nouns do not have inherent gender; rather, the NP gets its gender from the possessor. In (45a), for example, the NP *awa boni* 'tree fruit' is feminine (as evidenced by the fact that the verbal suffixes *-ra* 'NEG' and *-ke* 'DECL' show feminine agreement), and this is because *awa* 'tree' is feminine. If a masculine possessor is used, the NP is masculine, as in (46). In this example, the declarative ending *-ka* is masculine, because the subject NP is masculine. This, in turn, is because the possessor *sirikaa* 'rubber tree species' is masculine.

(46) Sirikaa bono bata tee amaka.
sirikaa bono bata na -tee ama -ka
rubber.tree.SP.M fruit+M explode AUX -HAB EXT -DECL+M
'Rubber tree fruits pop open.'

These examples also show another special characteristic of inalienably possessed nouns, and that is that they often have separate feminine and masculine forms. The noun translated 'fruit' in the above sentences, for example, has two forms, *boni* (45a) and *bono* (46), and these agree for gender with the possessor in each case. In contrast, *bofe* 'below' (45b) has only one form, even though it, too, is alienably possessed; and nouns that are not inalienably possessed such as *sirikaa* 'rubber tree' have only one form.

The syntax of inalienable possession may be contrasted with that of alienable possession, used for most relationships we would call possession in English. For NPs involving alienable possession, the gender of the NP is determined not by the possessor, but by the possessed item. In (47a), for example, the gender of the subject NP *Manoware kaa yobe* 'Manoware's house' is determined by the possessed item *yobe* 'house'. This is made clear by a comparison with (47b), since in this example the possessed item *kanawa* is feminine. In each case, the tense-modal and mood suffixes in the verb agree in gender with the possessed item, and not with the possessor.

(47) a. Manoware kaa yobe
Manoware kaa yobe
(man's.name).M POSS house.M
hawa toareka.
hawa to- ha -hare -ka.
finished CH- AUX -IP.E+M -DECL+M
'Manoware's house is finished.'

b. Botenawa kaa kanawa hawa toarake.
Botenawa kaa kanawa hawa to- ha -hara -ke
(man's.name).M POSS canoe.F finished CH- be -IP.E+F-DECL+F
'Botenawa's canoe is finished.'

These examples also show another difference between inalienable and alienable possession, and that is that alienable possession is marked by the possessive particle *kaa.*

Besides verbs and nouns, there is also a small class of adjectives, only about fifteen in number. These may be used both as modifiers in NPs, e.g. *bote* 'old' in (48a), and as predicate nominals, e.g. *yati* 'new' in (48b). The vast

majority of meanings which are conveyed by adjectives in languages with a large adjective class are conveyed by verbs in Jarawara, e.g. *amosa* 'good' in (48c).

(48) a. Yara bote era haa ka.
yara bote era haa na -ka
Brazilian.M old 1IN.O call AUX -DECL+M
'"The old Brazilian is calling us."'

b. Tika korasao yati
ti- kaa korasao yati
2SG.POSS.F-POSS heart.F new
tohawaabana tike.
to- ha-waha -habana ti- ke
CH- be-CHANGE -FUT+F 2SG.POSS.F- DECL+F
'"Your heart is going to become new."'

c. Awa amosake haaro, yifobana.
awa amosa -ke haaro yifo -bana
wood.F good -DECL+F DEM+F firewood.F -FUT
'That wood is good for firewood.'

There is also a suffix that derives adjectives from verbs, i.e. *-bote* 'VERY'. In (49), for example, the verb *tama* 'be many' is made into an adjective.[26] It is not common for adjectives to be derived in this way.

(49) Aba tamabote mee mee tiwari
aba tama -bote mee mee tiwa -ri
fish.M many -VERY 3P.O.F 3P.S.F carry -DIST
kanemetemone, wawasi yaa.
ka- na -hemete -mone wawasi yaa
COMIT- AUX -FP.N+F -REP+F fish.trap.F ADJ
'They carried a whopping lot of fish home in their fish traps.'

3.5 Overview of the Jarawara sentence. In the remaining sections of this chapter I discuss some of the aspects of Jarawara syntax and morphology that are particularly relevant to this study, but first it is useful to have a general idea of what a Jarawara sentence looks like.

The typical mark of a sentence in Jarawara is a main clause which has tense-modal[27] and mood morphemes. In (50), for example, the tense-modal suffix is *-hara* '1P.E+F', marking immediate past tense, eyewitness evendentiality, and feminine agreement; and the mood marker is *-ke,* indicating declarative mood and feminine agreement.

(50) Faa fowaharake.
faha fowa -hara -ke
water.F swell -1P.E+F -DECL+F
'The stream has risen.'

Very often a sentence contains other clauses which are 'subordinate' in the sense that they are not marked with mood, and usually not with tense-modals. These probably should sometimes be considered coordinated clauses and sometimes relative clauses, but it is sometimes difficult to tell which analysis is better. These may occur either preceding the main clause or in a right-dislocated position following it. In (51), for example, the main clause *tara okanara oke* 'I tripped' is preceded by another clause, *yaka ona* 'I was walking,' which has neither tense-modal nor a mood morphology.

(51) Yaka ona tara
yaka o- na tara
walk 1SG.S.F- AUX+F trip
okanara oke.
o- to- ka- na -hara o- ke
1SG.S.F- CH- COMIT- AUX -IPE+F 1SG.S.F- DECL+F
'While walking, I tripped.'

This may be contrasted with (52), which contains a clause following the main clause in the right-dislocated position. The right-dislocation is indicated both by a pause after the main clause (marked by a comma), and by the suffix *-haaro/-haari*[28] in the right-dislocated clause.

(52) a. maka era wai teemone amake,
maka era wai na -tee -hamone ama -ke
snake.F 1IN.O bite AUX -HAB -REP+F EXT -DECL+F
watari awahaaro.
watari awa -haaro
dream see -RC+F
'If a person dreams about a snake, it means that one will bite him.'
(Lit., 'A snake bites us, if its dream is seen.')

The two positions of the 'subordinate' clauses in the above two examples are interchangeable. That is, (51) has the same meaning with the order *tara okanara oke, yaka ona owa* (where *owa* is the first person singular equivalent of the right-dislocated marker *-haaro/-haari*), and (52) has the same meaning with the order *maka watari awa era wai teemone amake.* The 'subordinate' clause in these two examples should probably be analyzed as relative clauses.

These may be contrasted with (53), which has a different kind of clause preceding the main clause. In (53) the main clause is *otara mee babari nineke*, and the clause preceding it, *otaa hiyarabone,* probably should be considered in

some sense coordinate. In this case the order of the two clauses may not be switched; that is, the first clause may not be right-dislocated.

(53) Otaa hiyarabone otara mee
otaa hiyara -habone otara mee
1EX.S.F speak -INT+F 1EX.O.F 3P.S.F
babari nineke.
DUP- bari na -ne -ke
DUP- block AUX -CONT+F -DECL+F
'We couldn't talk (because of the visitors).' (Lit., 'We wanted to talk (but) they hindered us.')

The right-dislocated slot is also available for other kinds of constituents besides clauses, for example particles like *waha* 'now' in (54).

(54) Manira tafi nofawahake, waha.
Manira tafa.NFIN nofa -waha -ke waha
Manira.F eat.NFIN want -CHANGE -DECL+F now
'Now Manira wants to eat.'

Adjuncts, which may be NPs or clauses, may occur in either position. The most common kind of adjunct is marked by *yaa*. The marking is the same whether the constituent comes before the main clause or follows it in the right-disclocated position, but if it is in the right-disclocated postion, there is a pause between it and the main clause. The following examples show both NP adjuncts and clausal adjuncts in both positions. In (55a) the NP adjunct *fara mee tabori yaa* 'at their own village' precedes the main clause. In (55b) the NP adjunct *Rabira yaa* 'to Lábrea' is right-dislocated. In (56a) the clausal adjunct *okoro tikanawani yaa* 'if you wear glasses' precedes the main clause, and in (56b) the

clausal adjunct *bahi toke yaa* 'when the sun goes down' is right-dislocated. In all cases the ordering of the two constituents may be reversed while maintaining the same meaning.

(55) a. fara mee tabori yaa mee kobo
fara mee tabori yaa mee kobo
same+F 3P.POSS.F place+F ADJ 3P.S.F arrive
nemetemoneke.
na -hemete -mone -ke
AUX -FP.N+F -REP+F -DECL+F
'They arrived at their own village.'

b. Barako tokisebonaka, Rabira yaa.
Barako to- kisa -hibona -ka Rabira yaa
Branco.M AWAY- descend -INT+M -DECL+M Lábrea.F ADJ
'Branco is going to go downstream to Labrea.'

(56) a. Okoro tikanawani yaa
okoro ti- ka- na- wana+F yaa
glasses.F 2SG.S.F- COMIT- CAUS- stick+F ADJ
tinoko awahabana tike.
ti- noko awa -habana ti- ke
2SG.POSS.F- eye see -FUT+F 2SG.POSS.F- DECL+F
'When you wear glasses, you will see better.' (Lit., '…your eyes will see.')

b. Ee kobo towitiahabone eeke,
ee kobo to- na -witI -habone ee -ke
1IN.S.F arrive AWAY- AUX -OUT+F -INT+F 1IN.S.F -DECL+F
bahi toke yaa.
bahi to- ka+M yaa
sun.M AWAY- motion+M ADJ
'We will arrive there tomorrow afternoon.' (Lit., '…when the sun goes.')

With this basic introduction to the Jarawara sentence, we may now focus on the clause and its constituents.

3.6 Jarawara and parameters. In the Principles and Parameters model of grammar (Chomsky 1981, Chomsky and Lasnik 1993), Universal Grammar (UG) consists of a series of invariable principles and variable parameters, and a particular grammar is the result of a particular combination of settings of the parameters. Learning the grammar of a language consists in setting each one of the parameters correctly. Parameters are not grammatical rules, but are more basic settings which have effects in various parts of the grammar.

Baker (1996) has proposed that the most basic[29] parameter of UG is the polysynthesis parameter. A polysynthetic language is characterized as having noun incorporation and being head-marking rather than dependent-marking (Nichols 1986). For a head-marking language, the grammatical status of arguments is referenced by verbal agreement, whereas a dependent-marking language has case marking of NPs. There is no noun incorporation in Jarawara, so it is not fully polysynthetic. There is a certain amount of polysynthesis in Jarawara, though, in that the language is basically head-marking rather than dependent-marking. There is subject and object agreement, accomplished by a combination of preverbal clitics and verbal prefixes. These are set out in Table 8. (Table 8 only shows person agreement at the beginning of the verb. There is also person agreement at the end of the verb, and this is discussed below.)

Table 8. Person agreement at the beginning of the Jarawara verb.

PERSON	OBJECT AGREEMENT	SUBJECT AGREEMENT
1SG	owa	o-
2SG	tiwa	ti-
3SG	∅	∅
1IN	era	ee
1EX	otara	otaa
2P	tera	tee
3P (A-construction)	mera ~ mee	mee
3P (O-construction)	mee	mee

Agreement for intransitive clauses is straightforward: for singular subjects there is a prefix (57a), and for plural subjects a clitic (57b); and there is no marking for third person singular agreement (57c). For non-inflecting verbs, prefixes are attached to the auxiliary following the root (58a), but clitics are located before the root for all verbs, whether inflecting (57b) or non-inflecting (58b,c).

(57) a. okoma,
o- ka -ma
1SG.S.F- motion -BACK+F
'I came home.'

b. Otaa kakeke.
otaa ka -kI -ke
1EX.S.F motion -COMING -DECL+F
'We are coming.'

c. kame
ka -ma+M
motion -back+M
'He came home.'

(58) a. Yaka ona
yaka o- na
walk 1SG.S.F- AUX+F
'I was walking.'

b. mee yaka na,
mee yaka na
3P.S.F walk AUX+F
'They walked.'

c. Otaa maa toa
otaa maa to- ha
1EX.S.F tired CH- AUX+F
'We were tired.'

For transitive clauses we may note, first of all, that object agreement is farther away from the verb than subject agreement (59). This is unexpected, given that in generative grammar the object is held to be the complement of the verb, making up the VP, whereas the subject is the specifier of the VP.

(59) Otara mee wete naroke.
otara mee wete na -haro -ke
1EX.O.F 3P.S.F tie.up AUX -RP.E+F -DECL+F
'They tied us up.'

However, this may have to do with the fact that some of the agreement markers are clitics rather than prefixes. Clitics are known to have freedom to move whereas suffixes are not. It is still surprising to have object agreement outside of subject agreement, but this would be much more surprising if both agreement markers were prefixes. I leave for future research the exact mechanism that is responsible for this ordering in Jarawara.

The subject agreement markers for transitive clauses (Table 8) are the same as those discussed above for intransitive clauses. When we come to object agreement, however, there is one difference between two constructions, which Dixon (2000a) has labelled the A-construction and the O-construction. I will continue to use these labels for the sake of convenience, even though I do not adopt Dixon's entire analysis. (The labels are due to the fact that the 'syntactic pivot' for the A-construction is the subject, whereas the syntactic pivot for the O-construction is the object.) The difference in person agreement between the two constructions is that the A-construction the object agreement clitic for third person plural is optionally *mee* (60a) or *mera* (60b) (when both subject and object are third person), but for the O-construction it can only be *mee* (61). That is, the form *mera* is never used in an O-construction.

(60) A-constructions

a. yima mera waka nematamonaka.
yima mera waka na -himata -mona -ka
Yima.M 3P.O kill AUX -FP.N+M -REP+M -DECL+M
'He (Saba) killed some Yimas.'

b. yima mee siba nematamonaka,
yima mee siba na -himata -mona -ka
Yima.M 3P.O.F search.for AUX -FP.N+M -REP+M -DECL+M
yima mee tabiyo.
yima mee tabiyo
Yima.M 3P.POSS.F absence
'He (Saba) looked for the Yimas.'

(61) O-construction

Mee waka hinemetemoneke.
mee waka hi- na -hemete -mone -ke
3P.O.F kill OC- AUX -FP.N+F -REP+F -DECL+F
'He killed them.'

We may also note that the O-construction (61) is marked as such by the prefix *hi-*[30] and by gender agreement with the object at the end of the verb. In (61) both the far past tense suffix *-hemete* and the reportive suffix *-mone* agree in gender with the feminine object.[31] In contrast, the A-constructions in (60) have no *hi-* and have gender agreement with the subject.[32]

There is not space here to get into all the details of the A-construction and O-construction. It appears, though, that one of the things that may be going on with these two constructions is that one is head-marking whereas the other is dependent-marking. Baker (1996, 2001) entertains the possibility that a single language might have both settings for this parameter, and he cites Chichewa (Bresnan and Mchombo 1987) and Slave (Rice 1989) as examples. There are several assymetries between the two Jarawara constructions that are consistent with the idea that only the O-construction is head-marking, whereas the A-construction is dependent-marking:

(1) I have noted above that the form *mera* is only allowed in the A-construction. As it turns out, there is an object marker *-ra* attached to NPs, which also is only used in the A-construction (62). This marker is rare, and seems to be going out of use. This can be considered a case marker.

(62) A-construction

Maro hawine botera Okomobi kaminaka.
Maro hawine bote -ra Okomobi kamina -ka
Mário.M trail+M old -O (man's.name).M tell.about -DECL+M
'Okomobi is telling about Mário's old trail.'

(2) Since there is so much agreement in the Jarawara verb, not surprisingly third person arguments are often not represented by overt NPs. In A-constructions, the subject NP is often non-overt, as in (63a). In this example the NP *awa* 'garden' refers to the object, and the subject, a man, is referenced by the masculine gender agreement in the verb but not by an NP. But for the O-construction, *both* subject and object NPs are very often non-overt (63b). The only time an object NP may be non-overt in the A-construction is when the object is referenced by *mee,* as in (63c).[33] Even in this context, though, it is much more common for there to be an object NP, as in (63d). And if the object is not referenced by *mee,* the object NP of an A-construction must be overt, as in (63a). This means that the object NP of an A-construction has a different status than the object NP of an O-construction.

(63) a. A-construction

faya awa wati
faya awa wati
so tree.F plan.against
kanematamonaka fahi.
ka- na -himata -mona -ka fahi
COMIT- AUX -FP.N+M -REP+M -DECL+M then
'Then he went after the garden (to burn it).'

b. O-construction

Hinawarisemetemoneke.
hi- na- waa -risa -hemete -mone -ke
OC- CAUS- stand -DOWN -FP.N+F -REP+F -DECL+F
'He set her on the ground.'

c. A-construction

Faya mee mee awamemetemone mee
faya mee mee awa -ma -hemete -mone mee
so 3P.O.F 3P.S.F see -BACK -FP.N+F -REP+F 3P.S.F
amake fahi.
ama -ke fahi
EXT -DECL+F THEN
'Then they saw the others.'

d. A-construction

Aba mee mee ware.
aba mee mee warI
fish.M 3P.O.F 3P.S.F cook
'They cooked the fish.'

(3) As I have mentioned above, there can be gender agreement at the end of the verb in addition to the person agreement at the beginning of the verb. There can also be person agreement at the end of the verb. The details of gender and person agreement at the end of the verb are quite complex, and there is not space to delineate them here (but see (Dixon 2000a)). But there is a difference between the two transitive constructions that is relevant here, and that is that only for the O-construction can there be agreement with both the subject and the object at the end of the verb. For the A-construction there may only be agreement with the subject, not the object.[34] In both the following examples, the

subject is third person and the object is first person. (64a) is an O-construction, and at the end of the verb there is agreement with both the subject and the object. The tense suffix *-hare* agrees in gender with the subject, and the first person prefix *o-* attached to the mood morpheme *ke* agrees in person and number with the object. (64b) is an A-construction. As with the O-construction in (64a), the tense suffix agrees in gender with the subject. But in the A-construction (64b) there is no agreement with the object at the end of the verb, nor can there be. The pattern of agreement in the O-construction is thus fuller, and this kind of difference is expected if the O-construction is head-marking, whereas the A-construction is dependent-marking.

(64) a. O-construction

bote	owa	itahare		oke	
bote	owa	ita	-hare	o-	ke
sting-ray.M	1SG.O.F	pierce	-IP.E+M	1SG.O-	DECL+F

'A sting-ray stung me.'

b. A-construction

Fowa	owa	kinarisahareka.			
fowa	owa	kina	-risa	-hare	-ka
manioc.M	1SG.O.F	hit	-DOWN	-IP.E+M	-DECL+M

'The manioc fell on top of me.' (Situation: I fell when I was carrying manioc on my back.)

According to this analysis, the fact that a subject NP may be non-overt in both the O-construction and the A-construction would have a separate explanation for each construction. For the O-construction, this would be due to the fact that it is head-marking, whereas for the A-construction, it would be

explained by the fact that Jarawara has a positive setting for the null subject parameter ((Chomsky 1981), (Rizzi 1982)). It is true, of course, that the subject is not exactly null in the A-construction, since it is represented by pronominal clitics and prefixes. But these appear not to have the status of phrases as the subject phrase does in English or French. For the prefixes this is obvious. For the clitics, we may observe they cannot be expanded, and their ordering is fixed, both with respect to each other and with respect to the verb.

Next I consider the head parameter (Chomsky 1981, 1986). It has been proposed that in contrast to English there are some languages in which heads follow their complements, e.g. Japanese (Kuno 1973). Jarawara appears to be like Japanese rather than English in this respect. First, the verb follows the object NP. While for the O-construction I have implied above that the object NP is not an argument but some sort of adjunct, this is not true for the A-construction. In sentences such as (62) and (63a) above, the object NP is an argument, and it must precede the verb.[35]

Much work remains to be done on functional projections in Jarawara, but there does appear to be evidence that they, too, follow their complements. We may observe, first of all, that auxiliaries (*na* and *ha*) follow the verb root. While there are some differences between the functions of auxiliaries in Jarawara as compared to other languages, it is also true that for the non-inflecting verbs, tense suffixes attach to the auxiliary rather than to the verb root.[36] The behavior of two of the mood morphemes is suggestive, as well. It appears that the declarative morpheme *ke/ka* and the backgrounding morpheme *ni/ne* are

sometimes separate words and not suffixes, as indicated by the fact that person prefixes may be attached to them, as in (64a) above and in (65).

(65) inamati owahara oni.
inamati o- awa -hara o- ni
person.M 1SG.S.F- see -IP.E+F 1SG.S.F- BKG+F
'"I saw someone."'

I would like to propose that these mood morphemes are realizations of the functional category C. The association of mood with C is not a novelty, since for example in English, it is proposed that there is *wh*-movement to C for interrogative mood. If this relationship is accepted, then it can be seen that the mood phrase also is right-headed, since the mood morpheme is clause-final.

One final phenomenon that appears to be consistent with a head-final setting of the head directionality parameter is the adjunct marker *yaa.* This marker may relate to an NP (66a,b) or a clause (66c), but in either case it always follows the phrase it relates to. *Yaa* appears to be a functional head with little or no lexical meaning (unlike prepositions in English). When attached to NPs it may typically be interpreted as either 'with' (66a) or 'to' (66b); when attached to a clause it typically has the iterpretations 'when' or 'if' (66c). I will have more to say about *yaa* below.

(66) a. Faya wati mee tisa nemetemoneke
faya wati mee tisa na -hemete -mone -ke
so arrow.M 3P.S.F shoot AUX -FP.N+F -REP+F -DECL+F
fahi, titisa yaa.
fahi titisa yaa
then bow.F ADJ
'They shot arrows with bows.'

b. Barako tokisebonaka, Rabira yaa.
Barako to- kisa -hibona -ka Rabira yaa
Branco.M AWAY- descend -INT+M -DECL+M Lábrea.F ADJ
'Branco is going to go downstream to Labrea.'

c. Okoro tikanawani yaa
okoro ti- ka- na- wana+F yaa
glasses.F 2SG.S.F- COMIT- CAUS- stick+F ADJ
tinoko awahabana tike.
ti- noko awa -habana ti- ke
2SG.POSS.F- eye see -FUT+F 2SG.POSS.F- DECL+F
'When you wear glasses, you will see better.' (Lit., '…your eyes will see.')

Drawing these various discussions of parameters together, we may say that Jarawara is an optionally polysynthetic, null subject, head-last language.

In the remaining two sections of this chapter I discuss in some detail two topics of Jarawara morphosyntax which are of particular relevance to the study of argument structure alternations. In section 3.7 I give more details about adjuncts with *yaa,* and in section 3.8 I make proposals concerning Jarawara derivation versus inflection.

3.7 Adjunct phrases with *yaa.* In generative grammar, phrases which have adverbial meanings are considered to be adjoined to other phrases. That is, they are neither complements nor specifiers. Many prepositional phrases in English,

e.g. time phrases such as *in the morning,* are analyzed as being in an adjoined position, that is, they are adjuncts. Other prepositional phrases, including indirect objects and location phrases for locative verbs, are not analyzed as adjuncts. They are analyzed as arguments, because they are subcategorized by the verb. Often such subcategorized prepositional phrases may not be omitted, e.g. *she gave a book *(to me),* or *he sprayed paint *(onto the wall).*

There is little or no evidence in Jarawara that these kinds of phrases should be considered arguments in this formal sense. For alternating Jarawara verbs, the object alternately references a theme or a location, and the other NP often may occur in a phrase with *yaa* or *ni yaa*; but this phrase is always optional, and in fact usually does not occur (cf. additional discussion in chapter 4). Although I thus consider these phrases to be adjuncts and not arguments in a formal sense in Jarawara, I will for the sake of convenience continue to use the term 'argument' in a somewhat looser sense.

Nevertheless, since phrases with *yaa* and *ni yaa* do optionally occur with locative alternating verbs in Jarawara, and since the distinction between the two is important in terms of thematic relations, it is important to give some details about their meaning and distribution. At first glance, *yaa* would appear to be simply a marker of adjunct status of a phrase, with little or no semantic content. When attached to a clause, *yaa* means 'if' (67a) or 'when' (67b).

(67) a. Taokana ni yaa mee otaa tao
taokana na+F yaa mee otaa tao
shotgun.F exist+F ADJ 3P.O.F 1EX.S.F shoot
nenero mee amani.
na -hene -haro mee ama -ni
AUX -IRR+F -RP.E+F 3P.O.F EXT -BKG+F
'If there had been shotguns, we would have shot them.'

b. Ee kobo towitiahabone eeke,
ee kobo to- na -witI -habone ee -ke
1IN.S.F arrive AWAY- AUX -OUT+F -INT+F 1IN.S.F -DECL+F
bahi toke yaa.
bahi to- ka+M yaa
sun.M AWAY- motion+M ADJ
'We will arrive there tomorrow afternoon.' (Lit., '…when the sun goes.')

If the last segment of the verb stem or auxiliary is *a* (as is the case for most verb stems and all auxiliaries), there will be an *a* → *i* change for feminine agreement (67a), and *e* for masculine agreement (67b). The agreement pattern is the same as for clauses without *yaa,* i.e. agreement with the subject for A-constructions and intransitives, and with the object for O-constructions. The *a* → *i* change, however, is specific to adjunct clauses.

When *yaa* is attached to an NP, there is no vowel change. In (70a), for example, *tabora* 'village' does not change to *tabori* because it is an NP, not a clause. Even if the NP contains a relative clause ending with a verb form that ends in *a*, there is still not vowel change. In (68b), for example, there is no vowel change in *na,* the auxiliary of *mata na* 'lie', even though it is followed by *yaa*, because *mata na* is a relative clause modifying *awa* 'wood'. As expected, *yaa* is

interpreted 'on', one of its interpretations when attached to an NP, and not 'if' or 'when', its interpretations when attached to a clause.

(68) a. Barako tokisebonaka, Rabira yaa.
Barako to- kisa -hibona -ka Rabira yaa
Branco.M AWAY- descend -INT+M -DECL+M Lábrea.F ADJ
'Branco is going to go downstream to Labrea.'

b. awa mata na yaa yawita kawari,
awa mata na yaa yawita ka- warI
wood.F lie AUX+F ADJ peach.palm.M COMIT- cook+M
'He cooks the peach palm nuts on top of two logs.'

Yaa can have a rather wide range of meanings when attached to an NP. The 'with' meaning I have referred to above may be an instrumental 'with' (69a), or it may mean accompaniment (69b).

(69) a. Faya wati mee tisa nemetemoneke
faya wati mee tisa na -hemete -mone -ke
so arrow.M 3P.S.F shoot AUX -FP.N+F -REP+F -DECL+F
fahi, titisa yaa.
fahi titisa yaa
then bow.F ADJ
'They shot arrows with bows.'

b. Maiko fati yaa fame
Maiko fati yaa fama+M
(man's.name).M 3SG.POSS.wife.F ADJ two+M
'Maiko was with his wife.'

As I have stated above, *yaa* can have the locative meanings 'to' (68a) or 'on' (68b). Others are 'through' (70a) 'in' (70b), and 'at' (70c). The 'location' in (70d) is in time rather than in space.

(70) a. Isiri hoti yaa kari
isiri hoti yaa kari
large.basket.F hole+F ADJ thrust
kanisanike.
ka- na -risa -hani -ke
COMIT- AUX -DOWN -IP.N+F -DECL+F
'It (the knife) fell through the hole in the basket.'

b. Rosira tohaareka, yobe yaa.
Rosira to- ha -hare -ka yobe yaa
Lucilia.M CH- be -IP.E+M -DECL+M house.M ADJ
'Lucilia is in the house.'

c. fara mee tabori yaa mee kobo
fara mee tabori yaa mee kobo
same+F 3P.POSS.F place+F ADJ 3P.S.F arrive
nemetemoneke.
na -hemete -mone -ke
AUX -FP.N+F -REP+F -DECL+F
'They arrived at their own village.'

d. Saoma yaa aba mee tokatee
saoma yaa aba mee to- ka -tee
spring.F ADJ fish.M 3P.S.F AWAY- motion -HAB
mee amake.
mee ama -ke
3P.S.F EXT -DECL+F
'In the spring the fish go upstream.'

The reason that I have separated the 'with' meanings from the locative meanings of *yaa* is that there is a formal difference when the NP is animate. For animate NPs, the form *ni yaa* is used for locative meanings, whereas the form *yaa* is used for the 'with' meanings. The following two examples give an idea of when the form *ni yaa* is used. In both *yaa* is translated 'to', although it only has a

spatial locative meaning in (71a). In (71b) I believe the meaning is a metaphorical extension of the locative meaning. In each case the NP that *ni yaa* is attached to is animate.

(71) a. Aba mee
aba mee
fish.M 3P.O.F
osemamatibe,
o- to- ise -ma -mata+F -beya
1SG.S.F- AWAY- drop.off -BACK -SHORT.TIME+F -IMMED+F
ami ni yaa.
ami ni yaa
2SG.POSS.mother.F TO ADJ
'"I'm going to take fish to your mother."'

b. Hawi yaka ni amosake owa ni yaa.
hawi yaka na.NFIN amosa -ke owa ni yaa
trail.F walk AUX.NFIN good -DECL+F 1SG.F TO ADJ
'I like to walk on the trail.' (Lit., 'Walking on the trail is good to me.')

But as we have seen in example (69b) above, there are other animate NPs to which *yaa* is attached rather than *ni yaa.* The meaning in (69b) is 'with' in the sense of accompaniment. In the (72) the meaning is 'concerning' or 'with respect to'.

(72) Mee abee tokatowihaboneke,
mee abee to- katowi -habone -ke
3P.POSS.F RECIP CH- fight.over -INT+F -DECL+F
Naria yaa.
Naria yaa
(woman's.name).F ADJ
'The two men are going to fight over Naria.'

I believe that examples such as these show that when attached to NPs, *yaa* has two basic meanings, having to do with two basic thematic relations. I connect the 'with' meanings with the theme relation, and the locative meanings with the location relation. The distinction is overt when the NP is animate because of the difference between *yaa* and *ni yaa,* but I believe that *yaa* expresses the same two basic meanings when the NP is inanimate, as well.

3.8 Verbal derivation and inflection. The distinction between derivational and inflectional affixes is important for a study of argument structure alternations such as the present one, because in order for a pair to be considered to be alternating, it must be shown that the same verb stem (derived or consisting of just a root) is involved. It is clear that overt morphology often changes argument structure in the languages of the world; morphological causatives are an obvious example. Since in this study I am focusing on alternations that are not accompanied by overt morphology, I must show that there is no overt derivational difference between the members of each alternating pair. Presumably it is all right to compare examples that have different tense suffixes. But it is not all right to compare two verbs if one has a causative prefix and the other does not. In fact, for any affix that can be shown to be derivational, two verbs can only be compared if they either both have the derivational affix, or if neither has it.

3.8.1 Prefixes. For verbal prefixes, the question of derivation vs. inflection is not a difficult one. In Table 9 are listed all the prefixes of Jarawara verbs.

Table 9. Jarawara verb prefixes and their positions.

o- '1SG.S' **ti-** '2SG.S' **hi-** 'O-CONSTRUCTION'	**ka-** 'COMITATIVE'	**na-** ~ **niha-** 'CAUSATIVE'
to- 'CHANGE-OF-STATE' ~ 'AWAY'		

The person agreement prefixes *o-, ti-,* and *hi-* are inflectional, whereas *to-* 'CHANGE-OF-STATE/AWAY', *ka-* 'COMITATIVE', and *na-* ~ *niha-* 'CAUSATIVE' are derivational. The causative prefix has an obvious effect on argument structure, adding a causer argument. Compare, for example, *yawa* 'be upset' (73a) with the morphological causative based on it, *nayawa* 'cause to be upset' (73b).

(73) a. yara yawehiri amaka.
yara yawa -hiri ama -ka
Brazilian.M be.upset -RP.E+M EXT -DECL+M
'The Brazilian was upset.'

b. Birinawa mee nayawarake, waha.
Birinawa mee na- yawa -hara -ke waha
(man's.name).M 3P.S.F CAUS- be.upset -IP.E+F -DECL+F NOW
'Now Birinawa has gotten them mad.'

When a morphological causative is built on a non-inflecting verb, i.e. a verb that takes one of the auxiliaries *na* or *ha,* the form *niha-* of the causative prefix is used, as in *haahaa niha* 'cause to laugh' (74b), which is built on *haahaa na* 'laugh' (74a).

(74) a. Faya tiki hinemetemoneke,
faya tiki hi- na -hemete -mone -ke
so tickle OC- AUX -FP.N+F -REP+F -DECL+F
haahaa nabonehe.
haahaa na -habone -DUP
laugh AUX -INT+F -DUP.RC
'Then he tickled her, so she would laugh.'

b. Kamo kanawa horo ne sone
Kamo kanawa horo na+M sona+M
(man's.name).M canoe.F drag AUX+M fall+M
owa haahaa nihareka.
owa haahaa niha- na -hare -ka
1SG.O.F laugh CAUS- AUX -IP.E+M -DECL+M
'Kamo fell while pulling the canoe, and he made me laugh.'

The comitative prefix *ka-* is sometimes associated with changes in argument structure, in two different ways. First, it can license an object NP for a verb that otherwise is intransitive. For example, the intransitive verb *amo na* 'sleep' (75a) can become *amo kana* 'sleep with' (75b), and the NP referring to what or whom is slept with is a normal direct object.

(75) a. Amo ne awaka.
amo na+M awa -ka
sleep AUX+M SEEM+M -DECL+M
'He seems to be sleeping.'

b. Faya fimi amo kane,
faya fimi amo ka- na+M
so hunger.F sleep COMIT- AUX+M
'He went to sleep hungry.' (Lit., 'He slept with hunger.')

Secondly, comitative *ka-* may change argument structure without licensing an additional syntactic position. The transitive verb *fawa* 'drink' has as its object what is drunk (76a). When the comitative prefix *ka-* is added, the verb is still transitive, but now the object may be what is eaten while something is drunk (76b).

(76) a. kafe otaa fawa
kafe otaa fawa
coffee.F 1EX.S.F drink+F
'We drank coffee.'

b. boro otaa kafawa,
boro otaa ka- fawa
cake.M 1EX.S.F COMIT- drink+F
'We ate cake while drinking.'

There are other uses of the prefix *ka-,* and these are not as clearly related to changes in argument structure. All, however, are united in having something to do with the idea of accompaniment, and this is why I use the label 'COMITATIVE'. One meaning is 'inside'. The verb *hofa,* for example, means 'sit in water' (77a); with *ka-* it means 'sit inside something in water', e.g. inside a canoe (77b).

(77) a. Maka hofineke haaro.
maka hofa -ne -ke haaro
snake.F sit.in.water -CONT+F -DECL+F THAT.ONE+F
'There is a snake there in the mud.'

b. Yama bafo yaa okohofa
yama.bafo yaa o- ka- hofa
shade.F ADJ 1SG.S.F- COMIT- sit.in.water+F
'I stayed in the shade, in the canoe.'

Another common use of *ka-* is to signify 'dual'. Compare (78a), for example, in which the subject refers to two people in the context of the story, and (78b), which in the context refers to a group.

(78) a. otaa kobo kanama,
otaa kobo ka- na -ma
1EX.S.F arrive COMIT- AUX -BACK+F
'We arrived back.'

b. Otaa kobo nama,
otaa kobo na -ma
1EX.S.F arrive AUX -BACK+F
'We arrived back.'

Sometimes *ka-* is used when the verb refers to a group. The reason that *ka-* is used in (79a), for example, is that the subject is a group of boards; without *ka-,* the same verb, *na* 'exist', may be used to refer to either a single item (79b) or many items which are not in a group (79c).

(79) a. Awa one kanake.
awa one ka- na -ke
wood.F other+F COMIT- exist -DECL+F
'There are other boards (to be carried).'

b. Faa one nineke.
faha one na -ne -ke
water.F other+F exist -CONT+F -DECL+F
'There is another creek ahead.'

c. Yobe eebote naaka, Porto Velho kaari,
yobe ehebote na -ka Porto.Velho kaari
house.M big exist -DECL+M Porto.Velho.F LOC+M
makina kihahaari.
makina kiha -haari
machine.F have -RC+M
'There are big buildings in Porto Velho, that have elevators.'

With a few verbs, however, this relationship is exactly reversed; that is, the verb with *ka-* means singular, and it is the verb without *ka-* that has plural reference. The verb *kanawarI* is used in (80a) because in the context the person was putting the point on only one arrow; to refer to putting points on many arrows, *ka-* is not used (80b).

(80) a. Wati okanawari
wati o- ka- na- waa -rI
arrow.M 1SG.S.F- COMIT- CAUS-stand -RAISED.SURFACE
oke.
o- ke
1SG.S.F- DECL+F
'I'm putting the point on an arrow.'

b. bani mee tone yaa
bani mee tone yaa
animal.M 3P.POSS.F bone ADJ
wati mee nawaria mati.
wati mee na- waa -rI+F mati
arrow.M 3PS.F CAUS- stand -RAISED.SURFACE+F 3P.S.RC
'They affixed animal bone to the arrows (for points).'

A similar idea encountered in a few verbs is the opposition between 'non-distributive' (with *ka-*) and 'distributive' (without *ka-*). The verb *kawarI* (81a) is

used normally for the meaning 'cook', and the form without *ka-,* i.e. *warI* (81b), is used only to mean many people cooking in separate pots.

(81) a. awa mata na yaa yawita kawari,
awa mata na yaa yawita ka- warI
wood.F lie AUX+F ADJ peach.palm.M COMIT- cook+M
'He cooks the peach palm nuts on top of two logs.'

b. Aba mee mee ware.
aba mee mee warI
fish.M 3P.O.F 3P.S.F cook
'They cooked the fish.'

Finally, the precise meaning of *ka-* in (82a) is hard to put into words, but it changes the meaning of the verb from 'slice/cut' (82b) to 'cut brush around' (82a). The object in (82a) is *sofa* 'sorva tree', but in the context the tree was not cut, it was the brush around the tree that was cut.

(82) a. Sofa tii okana.
Sofa tii o- ka- na
tree.SP.F cut 1SG.S.F- COMIT- AUX+F
'I cleared the brush around the sorva tree.'

b. Masiri otaa tii nabone otake.
masiri otaa tii na -habone otaa -ke
grass.F 1EX.S.F slice AUX -INT+F 1EX.S -DECL+F
'We're going to cut the grass.'

Given the fact that there is a rather wide range of meanings of *ka-,* the idea might be entertained that this is a case of homophony, and that really more

than one morpheme is involved. Against this idea can be cited the fact that there is clearly only one position involved. Never in any context may more than one *ka-* occur with a verb. Also, as stated above, there is a common thread of meaning in all these uses of *ka-,* and that is the idea of accompaniment.

As for the prefix *to-,* it may have two meanings, one indicating a change of state, and the other indicating movement away from the speaker. As noted in section 2.3.4 above, *to-* may be associated with a change in transitivity when it has the change of state meaning. Furthermore, it also appears to be associated with unaccusativity. For example, the verb *waakosa* 'stand in the middle' (83a) may be analyzed as unergative, whereas *towaakosa* 'be left standing' (83b) may be analyzed as unaccusative.

(83) a. Kobaya biti waakosaka.
kobaya biti waa -kosa -ka
collared.peccary.M small+M stand -MIDDLE -DECL+M
'The little peccary is out of his cage.' (Literally, 'The little peccary is standing in the middle.')

b. mee nowati yaa towaakose.
mee nowati yaa to- waa -kosa+M
3P.POSS after ADJ CH- stand -MIDDLE+M
'He was left behind, standing.'

When it has a directional meaning, *to-* probably may also be said to be associated with unaccusativity, since it is used with verbs of inherently directed motion, a class which are said to be unaccusative (Levin and Rappaport Hovav 1995). However, it appears that for these verbs, *to-* is not what gives them this

classification, since the verbs are directional with or without *to-.* For these verbs, without *to-* there is still directed motion, but the direction is toward the speaker, as is evident in the contrast in (84).

(84) a. Barako tokisebonaka, Rabira yaa.
Barako to- kisa -hibona -ka Rabira yaa
Branco.M AWAY- descend -INT+M -DECL+M Lábrea.F ADJ
'Branco is going to go downstream to Labrea.'

b. Faha kisineke.
faha kisa -ne -ke
water.F descend -CONT+F -DECL+F
'The water flows toward us.'

As stated in Table 9, *to-* occurs in the same slot as the subject agreement prefixes. It is clear on formal grounds, though, that when *to-* is deleted by one of these prefixes, it is still present in the underlying representation of the verb. This is because there are certain contexts in which *to-* and the subject agreement prefixes cooccur. One of these contexts is reduplication, as shown in (41b) above. In this example *to-* has its directional meaning. (85) is similar, but with the change of state meaning of *to-*.

(85) Fara totohanawi one
fara DUP- to- ha -nawi o- na -ne
same+F DUP- CH- AUX -STEADILY 1SG.S.F- AUX -CONT+F
oke.
o- ke
1SG.S.F- DECL+F
'My condition is unchanged.' (Lit., 'I'm steadily just the same.')

3.8.2 Suffixes. Determining whether verbal suffixes are derivational or inflectional is quite a different matter. There are over 80 verbal suffixes in Jarawara, and it is clear that some are derivational and some inflectional, but the dividing line between the two groups is not clear. As expected, the suffixes that are closer to the root are the ones that are clearly derivational, and the ones that are the furthest away are the ones that are clearly inflectional. In Table 10 is my tentative list of derivational verbal suffixes.[37] The table is intended to give a general idea of the ordering of the suffixes, the topmost suffixes being those that are closest to the verb root; but there are as yet many uncertainties regarding the ordering facts. One reason for this is that some of the suffixes are not very common. A case in point is *-yoma* 'THROUGH'; while it clearly occurs before most of the suffixes which follow it in Table 11, it is not clear where it occurs in relation to any of the suffixes that precede it in the table.

Table 10. Jarawara derivational suffixes.

SUFFIX	GLOSS
-ri[38]	'distributive'
-fI	'water'
-rI	'raised surface' ~ 'edge'
-tima	'upstream'
-misa	'up'
-risa	'down'
-riwaha	'across'
-basa	'edge'
-fara	'clear space'
-yoma	'through'
-kosa	'middle'
-waha	'change'
-kI	'coming'
-makI	'following'
-witI	'out'
-ma	'back'
-hina	'can'

What is the evidence that these and not other suffixes are derivational? I assume that suffixes associated with changes in argument structure are derivational, although of course there may also be derivational suffixes that are not associated with these kinds of changes. Only one of these suffixes is involved in a transparent way in argument structure alternations, i.e. *-hina* 'can'. This suffix detransitivizes a transitive verb, as in (86).

(86) Iha awihinateere amaka.
iha awa -hina -tee -ra+M ama -ka
bird.SP.M see -CAN -HAB -NEG+M EXT -DECL+M
'You can't see the iha bird.' (Lit., 'The iha bird cannot be seen.')

A number of these suffixes derive verbs of inherently directed motion, i.e. *-tima* 'UPSTREAM', *-misa* 'UP', *-risa* 'DOWN', *-witI* 'OUT', *-kI* 'COMING', *-ma* 'BACK', and *-makI* 'FOLLOWING'. I consider a suffix to be directional if it can be used with the directional prefix *to-*, and without any other directional suffix. The exception to this criterion is *-kI,* which is semantically incompatible with directional *to-,* but nevertheless derives verbs of directed motion. There are two verb roots in Jarawara that refer to inherently directed motion without the need of any suffixes, i.e. the general motion root *ka* and *kisa* 'descend' (84). These are always directional whether or not they occur with any suffix. Other roots may be used to derive directional stems with one of the above suffixes, and without the directional suffix they do not refer to directional motion. A case in point is intransitive *kobo na* 'arrive'. With no directional suffix, no direction is specified (87a); but with any of the above suffixes, motion is specified as either coming (87b) or going (87c).

(87) a. fara mee tabori yaa mee kobo
fara mee tabori yaa mee kobo
same+F 3P.POSS.F place+F ADJ 3P.S.F arrive
nemetemoneke.
na -hemete -mone -ke
AUX -FP.N+F -REP+F -DECL+F
'They arrived at their own village.'

b. Okobise kamakino
o- kaa abise ka -makI -hino
1SG.POSS.F- POSS uncle.M motion -FOLLOWING -IP.N+M
kobo namaki,
kobo na -makI
arrive AUX -FOLLOWING+M
'My uncle came. He arrived.'

c. faya otaa kobo tonamake otake,
faya otaa kobo to- na -makI otaa -ke
so 1EX.S.F arrive AWAY- AUX -FOLLOWING 1EX.S.F -DECL+F
mee tabori yaa.
mee tabori yaa
3P.POSS.F place+F ADJ
'We arrived at their village.'

Kobo na 'arrive' might possibly be considered a motion verb without any directional suffixes, but there are other verbs which become motion verbs when a directional suffix is added; they are not motion verbs without the directional suffix. An example is *kanika* 'ask for', which by itself is not a motion verb (88a); but with *-ma* it becomes a directional motion verb (88b).

(88) a. Tikoto bitimi
tikoto bitimi
2SG.POSS.daughter.F 2SG.POSS.affinal.nephew.M
kanike,
ka- nika+M
COMIT- ask.for+M
'"Your nephew asked for your daughter."'

b. mera tokanikamatase,
mera to- ka- nika -ma -tasa+M
3P.O AWAY- COMIT- ask.for -BACK -AGAIN+M
'He went back and asked for them.'

Levin and Rappaport Hovav (1995) show that in English, manner of motion verbs such as *run* are unaccusative with a goal phrase and unergative without, in spite of the fact that both uses may be agentive. There is also an aspectual difference, in that *run* by itself is atelic, but with a goal phrase it is telic.

Although I consider it quite possible that syntactic and aspectual differences are associated with directional suffixes in Jarawara, the generalizations with respect to the motion verbs are not yet clear to me.

It is interesting, though, what happens when Jarawara verbs of spatial configuration have directional suffixes attached to them. These verbs do not always refer to directional motion with these suffixes, but there does seem to be an aspectual difference. Levin and Rappaport Hovav (1995) distinguish between a maintain position sense and an assume position sense for English verbs of spatial configuration. For example, while *stand* may have either sense, *stand up* may only have an assume position sense. For verbs of spatial configuration in Jarawara, the directional suffixes appear to have a similar function as particles like *up* in *stand up.* For these verbs, with no suffix the verb may have either a maintain position sense or an assume position sense. One of these verbs in *wina*, which has as its central meaning 'hang', and is also used to mean 'lie in a hammock'. With no directional suffix, this verb may have a maintain position sense (89a) or an assume position sense (89b).

(89) a. Habai amo orahara oke,
habai amo o- na -ra -hara o- ke
friend.VOC sleep 1SG.S.F- AUX -NEG -IP.E+F 1SG.S.F- DECL+F
owinahara oke, hine yaa.
o- wina -hara o- ke hine yaa.
1SG.S.F- hang -IP.E+F 1SG.S.F- DECL+F only+F ADJ
'Friend, I'm not sleeping, I'm just lying in my hammock.'

b. Otaa kaa yifo otaa sere
otaa kaa yifo otaa sere
1EX.F POSS hammock.M 1EX.POSS.F tie
ni otaa hawa toa,
na.NFIN otaa hawa to- ha
AUX.NFIN 1EX.S.F finished CH- AUX+F
otaa winaro otake.
otaa wina -haro otaa -ke
1EX.S.F lie -RP.E+F 1EX.S.F -DECL+F
'When we got done tieing up our hammocks, we got in our hammocks.'

But when verbs of spatial configuration have directional suffixes, they almost always[39] have an assume position sense, for example *tokibima* 'get back in' (90a) and *itarisa* 'sit down' (90b).

(90) a. otaa tokibima otake, kanawa yaa
otaa to- kibI -ma otaa -ke kanawa yaa
1EX.S.F AWAY- be.inside -BACK+F 1EX.S.F -DECL+F canoe.F ADJ
'We got in the canoe.'

b. Isaki itarisareka.
Isaki ita -risa -hare -ka
(man's name).M sit -DOWN -IP.E+M -DECL+M
'Izac sat down.'

In English there is an aspectual difference between the maintain position and assume position senses of verbs of spatial configuration, i.e. the former is atelic whereas the latter is telic. Although I have not yet developed formal tests for telicity in Jarawara analogous to the *for an hour/in an hour* test in English, the translations of the above examples suggest that the same difference also exists in Jarawara. Levin and Rappaport Hovav (1995) analyze the maintain position

sense as unergative, and the assume position sense as unaccusative, again independent of whether they are agentive or not.

In Jarawara there are some verb roots that never occur independently as roots, but always occur with some directional suffix. An example is *ise,* which refers to dropping off (coming or going), but never occurs without at least one of the directional suffixes, as in (91). Other combinations in my data are *isemake* 'drop off (coming)', *tosema* 'drop off (going)', *toserisama* 'drop off downstream', and *tosewite* 'drop off (going)'.

(91) Tafi mee kaa yama isemareka.
Tafi mee kaa yama ise -ma -hare -ka
David.M 3P.POSS POSS thing.F drop.off -BACK -IP.E+M -DECL+M
'It (the plane) brought Dave and Francisca's things.'

In fact, this is a broader phenomenon, involving not only other derivational suffixes, but derivational prefixes as well. For example, the root *fiyo* 'be used up' never occurs as a root, but only with change of state *to-* (92a). So how do we know that the root is not *tofiyo*? Because when the causative prefix *na-* is applied, the result is *tonafiyo,* as in (92b). Since the causative morpheme *na-* is a prefix and not an infix, and since *to-* is a recognizable prefix, the string *fiyo* must be the root.

(92) a. Tofiyokibone.
to- fiyo -ke -bone
CH- end -DECL+F -INT+F
'It's almost all gone.'

b. Fowa kabe sinama tonafiyohareka.
fowa.kabe sinama to- na- fiyo -hare -ka
sweet.manioc.M agouti.M CH- CAUS- end -IP.E+M -DECL+M
'The agouti ate all the sweet manioc.'

Similarly, there is a root *kata* 'impede' which never occurs without a derivational prefix. It may occur with either comitative *ka-* (93a) or with causative *na-* (93b).

(93) a. Faha owa kakatahara oke.
faha owa ka- kata -hara o- ke
water.F 1SG.O.F COMIT- impede -IP.E+F 1SG.O- DECL+F
'The rain kept me (from cutting the grass).'

b. Hayo onarabo nakatara
hayo o- narabo na- kata -hara
radio.F 1SG.POSS.F- ear CAUS- impede -IP.E+F
oke
o- ke
1SG.POSS- DECL+F
'I couldn't hear Okomobi because I was listening to the radio.' (Lit., 'The radio impeded my ears.')

The non-inflecting root *wati na* is interesting in this respect, because it may occur either with a prefix, i.e. *wati kana* 'plan against' (94a), or with a suffix, i.e. *wati nawaha* 'remember' (94b), but never occurs without one or the other.

(94) a. Faya nisori wati
faya nisori wati
so 3SG.POSS.younger.brother.M plan.against
kanematamonaka.
ka- na -himata -mona -ka
COMIT- AUX -FP.N+M -REP+M -DECL+M
'He intended evil for his younger brother.'

b. Saiba mati wati
Saiba mati wati
(man's.name).M 3SG.POSS.mother.F remember
nawahaka.
na -waha -ka
AUX -CHANGE -DECL+M
'Saiba misses his mother.'

Another non-inflecting root, *soo na* '(plural subject) lie', likewise always occurs with some derivational affix. The derivation *soo nare* 'lie on a raised surface' (95) is especially interesting, because it shows that the suffixe *-rI* 'RAISED SURFACE' is derivational.

(95) Mee soo naretee mee amake.
mee soo na -rI -tee mee ama -ke
3P.S.F lie AUX -RAISED.SURFACE -HAB 3P.S EXT -DECL+F
'They (the Kraho Indians) sleep on platforms.'

In all these cases, the idea is that if a particular root may not occur by itself, but may only occur with one of a small group of affixes, then those affixes are derivational. Although I believe this is a valid approach, it does not work in Jarawara in one kind of case. There are a few Jarawara verbs which typically must occur with the negative suffix *-ra/-re,* e.g. *hiya* 'be bad' (96a). In the particular case of *hiya*, though, instead of occuring with the negative suffix the root may instead occur with *to-* (96b) or be reduplicated (96c), both of which may be considered derivational.

(96) a. Tinabati hiyara awineke.
ti- nabati hiya -ra awine -ke
2SG.POSS.F- stomach bad -NEG+F SEEM+F -DECL+F
'Your stomach isn't feeling good.'

b. Makari tohiyarake, atabo ihi.
makari to- hiya -hara -ke atabo ihi
clothing.F CH- bad -IP.E+F -DECL+F mud.F BECAUSE.OF+F
'The clothes got dirty in the mud.'

c. Oyokohori hihiya narake.
o- yokohori DUP- hiya na -hara -ke
1SG.POSS.F- elbow DUP- bad AUX -IP.E+F -DECL+F
'I hurt my elbow.' (Lit., 'My elbow is bad.')

By the argument I have used with the other verbs above, one could conclude that the negative suffix is derivational. But this is very unlikely. Besides this being counter-intuitive semantically, the position that the negative suffix occurs in is also much farther from the root, almost as far away as the tense suffixes. It appears that for this verb, it must either occur in a derivational context or else with the negative suffix, but it may not occur with both. I do not have an explanation for this fact.

To summarize, I have presented evidence so far for the derivational status of *-hina* 'CAN', *-waha* 'CHANGE', *-rI* 'RAISED SURFACE' ~ 'EDGE', and the directional suffixes *-tima* 'UPSTREAM', *-misa* 'UP', *-risa* 'DOWN', *-witI* 'OUT', *-kI* 'COMING', *-ma* 'BACK', and *-makI* 'FOLLOWING'. This leaves about half of the suffixes in Table 10, i.e. *-ri* 'DISTRIBUTIVE', *-fI* 'WATER', *-riwaha* 'ACROSS', *-basa* 'EDGE', *-yoma* 'THROUGH', *-kosa* 'MIDDLE', and *-fara* 'CLEAR SPACE'. In this study I will not present specific

evidence for the derivational status of these suffixes, but will classified them as derivational because they occur closer to the root than other suffixes that are more clearly derivational.

CHAPTER 4

LOCATIVE ALTERNATIONS

4.1 The Locative Alternation. The locative alternation has been treated often in the literature on English, but it has not often been studied for other languages, although occasionally it has been mentioned as occurring in other languages (cf. the references in Levin and Rappaport Hovav 1996). I have only seen two detailed studies of locative alternating verbs in other languages, i.e. (Juffs 1996) on Mandarin Chinese and (Brinkmann 1997) on German; and note that of these, only Juffs' study is on a non-Indo-European language.

The locative alternation may be approached from the point of view of various parameters, each of which I consider in turn. I will refer to the Jarawara verbs in Table 1, which I repeat here as Table 11. Recall that the numbers in parentheses refer to examples in the Appendix; and that, as discussed in section 3.4, *na* after a verb means that the verb is non-inflecting; that is, it requires the auxiliary *na.*[40]

Table 11. Verbs of the Locative Alternation

	VERB	OBJECT IS THEME	OBJECT IS GOAL/SOURCE
A.	Verbs of Propelling		
	fora na 'shoot out of a blowgun/shoot with a blowgun'	blowgun dart (21)	animal, e.g. monkey (22)
	koro na 'throw ~ plant/fish'	manioc (69)	water (70)
	saa na 'shoot/shoot with an arrow'	arrow (86)	fish (87)
	sao na 'throw (to fish)/throw a net into'	net (90)	water (91)
	sii na 'blow out/spray something onto'	blood (out of nose) (94)	mosquitoes (spraying poison) (95)
	tisa na 'shoot/shoot with an arrow'	arrow (110)	fish; water (111)
	wisa na 'bail out/throw water on'	water (in a canoe) (128)	person (129)
	kaa na 'misfire/misfire on'	gun (39)	animal that is missed (40)
B.	Verbs of Putting		
	nawata 'fasten/fasten something on'	strap (on a basket) (124)	person (on whom a magical stone is put) (125)
	nawitare 'put on/put something on'	something to be weighed (37)	scale (38)
	kehemo 'hide/hide from'	object hidden (57)	person hidden from (58)
	kiyo na 'rub/rub something on'	cream (65)	body part (66)
C.	Verbs of Manipulating/Advancing		
	kero na 'fashion into something/fashion something into'	clay (59)	pot, noisemaker, etc. (60)
	kari na 'wave/wave on'	brand (49)	water (illuminated by brand) (50)
	wari na 'turn/turn against'	screw (116)	cotton (caused to burn by revolving stick) (117)
	kawa na 'push along/poke'	toes (along edge of hammock) (53)	fish (with a stick) (54)
	baa na 'hit with a hammer/nail down'	nail (7)	piece of cloth (8)
	ori na 'paddle/paddle in'	canoe (83)	water (84)

Table 11 (cont.)

D.	Verbs of Speaking		
	a-ate na 'ask for or about/ask something of'	thing asked for or about (1)	person request made of (2)
	haa na 'call for/call'	thing called for (24)	person called (25)
	hiyara 'speak about/speak to'	subject of speech (27)	person spoken to (28)
	kamina 'tell about/tell something to'	subject of speech (41)	microphone (42)
E.	Verbs of Removing		
	bore na 'pull out/pull something out of'	tubers (15)	bird (feathers) (16)
	howe nawaha 'wipe off/wipe clean'	feces (31)	buttocks (32)
	sota na 'take off/undress'	clothing (98)	person undressed (99)
	wii na 'dig up/dig'	dirt; roots (126)	hole (127)
F.	Verbs of Giving		
	mari na 'feast on/give a feast for'	food (76)	people invited to feast (77)

According to Levin (1993), locative alternating verbs in English may be characterized as verbs which vary in the way internal arguments are expressed. The argument which is not projected as object usually may be expressed as a prepositional phrase. This is a broader definition than Pinker's (1989), who only considers the transitive verbs of the *spray/load* alternation. The Jarawara data supports Levin's broader approach, since what is formally one alternation in Jarawara encompasses various alternations of English verbs. Formally what characterizes the alternation in Jarawara is mostly the alternation of a theme or a location in the object position, and not so much what is expressed in the equivalent of an English prepositional phrase. It is actually not common in

Jarawara to have both arguments expressed. The argument realized as object is expressed, but the other argument usually is not. When it is, it is expressed in an adjunct phrase with *yaa* or *ni yaa.*

The number of locative verbs in Jarawara for which I have seen a *yaa* or *ni yaa* adjunct phrase is small enough that I will present all the unelicited examples that I have. There are examples for goals and for themes, but none for sources. The goal examples are the most common (97). In (97a) the goal is the area in front of the agouti where the knife was thrown; in (97b) it is the edge of the hammock along which the subject pushed his toes; in (97c) it is the Brazilians to whom a request is to be made; and in (97d) it is the mother and the others who were told about a man.

(97) a. nokosi yaa yimawa koro ona,
nokosi yaa yimawa koro o- na
in front of ADJ knife.F throw 1SG.S.F- AUX+F
'I threw a knife ahead of it (the agouti).'

b. Oteme kawa onara oke,
o- teme kawa o- na -hara o- ke
1SG.POSS.F- foot poke 1SG.S.F- AUX -IP.E+F 1SG.S.F-DECL+F
yifo ifo yaa.
yifo ifo yaa
hammock.M edge+M ADJ
'I pushed my toes along the edge of the hammock.'

c. Ee kaa kanawaba a-ate onabana
ee kaa kanawa-ba DUP- ate o- na -habana
1IN.F POSS canoe.F-FUT DUP- ask 1SG.S.F- AUX -FUT+F
oke, yara mee ni yaa.
o- ke yara mee ni yaa
1SG.S.F-DECL+F Brazilian.M 3P.F TO ADJ
'"Let's ask the Brazilians for a canoe."' (Lit., 'Let's ask for a canoe to the Brazilians.')

d. faya mati mee ni yaa
faya mati mee ni yaa
so 3SG.POSS.mother.F 3P.F TO ADJ
okominemarika fahi.
o- kamina -himari -ka fahi
1SG.S.F- tell.about -FP.E+M -DECL+M then
'Then I told his mother and the others about him.' (Lit. 'Then I told about him to his mother and the others.')

There are a couple things to note about these examples. First, the goal may be in a literal spatial sense (97a,b), or it may be in a metaphorical sense (97c,d). The verbs in (97c,d) are verbs of speech, and the metaphorical goal is the person or persons spoken to. The second thing to notice is that when the goal is an animate NP, as it is in (97c,d), the form *ni yaa* is used rather than *yaa.* Given the fact that *ni yaa* is used only for locative NPs, as explained in section 3.5 above, this means that these metaphorical goals are being conceived of as locations.

When it comes to expressing theme NPs in a *yaa* adjunct, this is not as common. I have only one example with the verbs in Table 11. In (98) the theme is the throw net which is thrown into the water.

(98) Bakoki faa sao nebona
Bakoki faha sao na -hibona
(man's.name).M water.F throw.net AUX -INT+M
ati nareka, tahafa yaa.
ati na -hare -ka tahafa yaa
say AUX -IP.E+M -DECL+M throw.net.F ADJ
'Bakoki said he was going to fish with a throw net.' (Lit., '…fish the water with a throw net.')

Although the examples in (97) and (98) show that adjuncts with *yaa* or *ni yaa* are possible with some of the alternating verbs, it is doubtful that such an adjunct is obligatory with any of the verbs. For three of the five verbs in (97) and (98), I have other examples which have no adjunct (99). The verb in (99a) is *koro na* 'plant'. In (99b) the verb is *a-ate na* 'ask about', and the non-overt object (which shows up in the masculine verbal agreement) is *moto* 'motor'. The verb in (99b) is *kamina* 'tell about'.

(99) a. Fowa mee koro nani mee otaa wasima,
fowa mee koro na -hani mee otaa wasi -ma
manioc.M 3P.S.F plant AUX -IP.N+F 3P.O.F 1EX.S.F find -BACK+F
'We came on the others planting manioc.'

b. A-ate tire awa?
DUP- ate ti- na -ra+M awa
DUP- ask 2SG.S.F- AUX -NEG+M SEEM+M
'Didn't you ask about the motor?'

c. Katata hiyama mera
katata hiyama mera
hawk.SP.M white-lipped.peccary.M 3P.O
kaminatee amaka.
kamina -tee ama -ka
tell about -HAB EXT -DECL+M
'The katata hawk is telling (the location of) the peccaries.'

If we compare the list of Jarawara alternating verbs with Pinker's (1989) alternating and non-alternating subclasses, the two don't have much in common. Recall that Pinker divides all locative verbs into two broad conflation classes (i.e. content-oriented and container-oriented verbs); within each of these he proposes several narrow conflation classes to account for the fact that some semantic types alternate and others do not. *Rub* and *spray* are both alternating content-oriented verbs in English, and there are alternating Jarawara verbs that are close equivalents of these, i.e. *kiyo na* 'rub/rub something on' and *sii na* 'blow out/spray something into'. These two verbs are of two different narrow conflation classes in Pinker's classification, 'simultaneous forceful contact and motion of a mass against a surface' for *rub*, and 'force is imparted to a mass, causing ballistic motion in a specified spatial distribution along a trajectory' for *spray.* This is a small number; and there are no alternating English container-oriented verbs that have close equivalents in Jarawara. Less surprising is the fact that none of Pinker's non-alternating classes have close equivalents in Jarawara that alternate, either content-oriented or container-oriented verbs.

There are some points of contact with English dativizable verbs, which Pinker (1989) also treats. One of the English dativizable verbs is *tell,* which has a close Jarawara equivalent in the alternating *kamina* 'tell about/tell something to'. *Ask* is a dativizable English verb, but it works somewhat differently in English than *a-ate na* 'ask for or about/ask something of' does in Jarawara. The alternating English verb is pretty much limited to *question* as a theme, cf. *ask him a question/ask a question of him.* When the theme is something asked for or

about as it is in Jarawara, then the English syntax is different, cf. *ask him for a candy/*ask him a candy/*ask a candy of him.* One more verb *mari na* 'feast on/give a feast for' might possibly be cosidered similar to the English dativizable verb *offer.* Under this analysis, the theme-object variant of *mari na* would mean 'offer at a feast' rather than 'eat at a feast'. I'm not sure how to decide between these two. It is also possible that *mari na* is similar to another group of verbs Pinker lists as participating in the benefactive alternation (which Pinker calls the *for*-dative alternation). According to this analysis, *mari na* would be similar to alternating English verbs like *bake*, which have to do with preparing food for someone.

If we consider Levin's (1993) classes of alternating and non-alternating locative verbs, more points of contact with English verbs emerge. Levin gives *rub* and *spray* as *spray-load* verbs. Verbs of throwing are listed among the English subclasses that do not alternate, and a number of the Jarawara verbs have meanings close to those of English verbs of throwing, for example *wisa na* 'bail out/throw water at'. She also lists *put* verbs as non-alternating, and the Jarawara verbs *nawata* 'fasten/fasten something on' and *nawitare* 'put on/put something on' may be considered verbs of putting. Levin includes the alternating verbs of the *wipe* and *clear* alternations among locative alternating verbs, and several of the alternating Jarawara verbs are similar to these in being verbs of removal: *bore na* 'pull out/pull something out of', *howe nawaha* 'wipe off/wipe clean', and *sota na* 'take off/undress'.

Along with locative alternations, Levin includes the dative and benefactive alternations among alternations involving arguments in the VP. *Tell* and *ask* are alternating verbs of transfer of a message (dative alternation), and *speak* and *talk* make up a class of non-alternating English verbs, cf. alternating *hiyara* 'speak about/speak to'. The benefactive alternation includes a number of verbs of preparing such as *bake,* cf. *mari na* 'feast on/give a feast for'.

Levin also includes the *through/with* alternation among those involving arguments in the VP. It appears that *ori na* 'paddle/paddle in' is similar to verbs like *pierce* in English, involving a theme in contact with a location.

Levin's verb classes are helpful in suggesting ideas for organizing the alternating Jarawara verbs in subclasses. We should not expect Jarawara verbs to be organized exactly like English, of course, and they clearly are not; but we do expect languages to have many aspects of verb meanings in common. Also, the subclasses I can offer at this point for Jarawara verbs are necessarily quite tentative, compared to either Levin's or Pinker's subclasses. Levin takes into account many argument structure alternations, and hers is a general classification of English verbs. Pinker determines subclasses on the basis of semantic features, and the members of each subclass are either all alternating or all non-alternating. My current knowledge of Jarawara verbs does not permit a classification as formal as either Levin's or Pinker's. Nevertheless, I think it is worth offering some tentative ideas on threads of meaning that subgroups of the Jarawara verbs appear to have in common.

It seems that some insight may be gotten into some of the threads of meaning by distinguishing the meaning of each verb in the theme-object alternant from the meaning in the goal-object alternant. This is what I have done in Table 12.

Table 12. Subgroups of Jarawara locative alternating verbs.

MEANING OF THEME-OBJECT ALTERNANT	MEANING OF LOCATION-OBJECT ALTERNANT	ALTERNATING VERBS
x propel *y*	*x* hit *z* with something	*fora na* 'shoot out of a blowgun/shoot with a blowgun' *koro na* 'plant/fish' *saa na* 'shoot/shoot with an arrow' *sao na* 'throw (to fish)/throw a net into' *tisa na* 'shoot/shoot with an arrow' *sii na* 'blow out/spray something onto' *wisa na* 'bail out/throw water on'
x fail to make *y* work	*x* fail to hit *z* with something	*kaa na* 'misfire/misfire on'
x put *y*	*x* put something on *z*	*nawata* 'fasten/fasten something on' *nawitare* 'put on/put something on' *kiyo na* 'rub/rub something on'
x put *y*	*x* affect *z* by moving something	*kehemo* 'hide/hide from'
x manipulate *y*	*x* affect *z* by moving something	*kari na* 'wave/wave on' *wari na* 'turn/turn against'
x manipulate *y*	*x* create *z*	*kero na* 'fashion into something/fashion something into'
x advance *y*	*x* move something through *z*	*baa na* 'hit with a hammer/nail down' *ori na* 'paddle/paddle in'
x advance *y*	*x* affect *z* by moving something	*kawa na* 'push along/poke'
x speak about *y*	*x* speak to *z*	*a-ate na* 'ask for or about/ask something of' *haa na* 'call for/call' *hiyara* 'speak about/speak to' *kamina* 'tell about/tell something to'
x remove *y*	*x* clear *y* of something	*bore na* 'pull out/pull something out of' *howe nawaha* 'wipe off/wipe clean' *sota na* 'take off/undress'
x remove *y*	*x* create *z*	*wii na* 'dig up/dig'
x offer?/prepare?/ consume? *y*	*x* benefit *z*	*mari na* 'feast on/give a feast for'

Some clarifications about the vocabulary in Table 12 are in order. The distinctive characteristic of 'propel' is that something goes through the air; that is, the subject propels the theme and is no longer in contact with it. This is in contrast to 'put', 'manipulate', and 'advance'; for these the subject continues to be in contact with the theme. The difference between 'put' and 'manipulate' and 'advance' is that for 'put' the theme is left at the goal. The difference between 'manipulate' and 'advance' is that 'advance' is more goal-oriented.

It is on the basis of the analysis in Table 12 that I have proposed the subgroups in Table 11. The subgroups are the same in the two tables, except that I have in some cases joined two subgroups of Table 12 on the basis of a shared thread of meaning. I have joined *kaa na* 'misfire/misfire on' with the verbs in the first row because in the goal-object variant, *kaa na* has to do with hitting a goal with something. It appears that all the verbs that have to do with manipulating and advancing may be put together, since advancing also involves manipulating. I have joined *wii na* 'dig up/dig' with the other verbs of removal even though the goal-object alternant does not appear to have the same meaning.

The analysis in Table 12 makes it easier to see how these verbs may be considered locative verbs. There is a common thread of meaning in all the categories, which is that the subject is changing the location of the theme argument. In most cases this is in a literal spatial sense, but in the case of the verbs of speaking, it is in a metaphorical sense. For these verbs the goal is physical, since it is a person or a group of people; but the theme argument does

not necessarily represent a physical object but may refer to an idea. And even when the theme is an object, there is no physical manipulation or literal motion. The Thematic Relations Hypothesis ((Gruber 1965), (Jackendoff 1972)) was proposed based on English, but verbs of speaking are not locative verbs in English. So these verbs provide evidence for the Thematic Relations Hypothesis in a way that English does not.

Since my research is inductive, it has focused on the alternating rather than the non-alternating Jarawara verbs; but I have done enough elicitation to determine that there are verbs that might be expected to alternate, which however do not. The verb *kinari* 'hit by throwing something at' has a goal-object in (100), i.e. the wasps that a stick is thrown at. The theme, i.e. the stick, is permissible as a *yaa* adjunct, but it is not admitted as an object, cf. **awa okinarehara oke, awani mee ni yaa.* '*I hit the stick on the wasp nest.'

(100) Awani mee okinarehaboneke,
awani mee o- kina -rI -habone -ke
wasp.M 3P.O.F 1SG.S.F- hit -RAISED.SURFACE -INT+F -DECL+F
awa yaa.
awa yaa
stick.F ADJ
'I'm going to hit the wasps (nest) with a stick (i.e. by throwing it).'

There are also verbs that may take only a theme as object and not a goal, for example *na* 'put some of' (101). The goal is permissible as a *yaa* adjunct, but not as an object, cf. **yee bako atee boni yaa ne* '*he put his hand with some of the annato'.

(101) atee boni yee bako yaa ne,
atehe boni yehe bako yaa na+M
annato.F mass+F hand inner.surface+M ADJ pour+M
'He put some of the annato on his hand.'

Pinker (1989) divided locative alternating verbs in English into content-oriented and container-oriented subclasses, and proposed different basic semantic representations for each subclass. According to this idea, content-oriented verbs such as *spray* have the theme-object variant as basic, whereas container-oriented verbs such as *load* have the goal-object form as basic. Accordingly, container-oriented verbs are basically change of state verbs, whereas content-oriented verbs are not, although they become change of state verbs in the goal-object variant.

It appears that this division has something to do with the manner component of meaning of the verbs. Rappaport and Levin (1988) state that both *spray* and *load* type verbs have a manner component of meaning, but certainly there is something different about the manner component in *spray* as opposed to the manner component of *load.* The manner component in *spray* is somehow more specific or stronger.

The categories of content-oriented and container-oriented are almost totally irrelevant to Jarawara, since the locative alternation is semantically quite a bit broader than just the *spray-load* alternation in English. But the idea on which this division is based, i.e. that some alternating verbs are basically change of state verbs while others are basically verbs of manner of motion, does seem to be relevant to Jarawara.

Pinker used the formal criterion of which kind of prepositional phrase is required to determine whether verbs are content-oriented or container-oriented. A content-oriented verb typically requires a *with* phrase in the goal-object use, but does not require an *into/onto* phrase in the theme-object use; and for a container-oriented verb the opposite is typically true. This will not work for Jarawara, since as we have seen *yaa* and *ni yaa* adjuncts are apparently always optional (or may even be ungrammatical). But there does seem to be a valid principle behind this, and that is that for each kind of verb a different kind of context is required. For verbs which are basically manner of motion verbs we expect that information about the location should be provided in the context, whereas for change of state verbs we expect information about the theme should be provided in the context. This is the function of the prepositional phrases in English, to provide contextual information.

Dividing Jarawara verbs into those that are basically manner of motion verbs and those that are basically change of state verbs is thus a more subtle matter than dividing the English alternating verbs between those that are content-oriented and those that are container-oriented, and I cannot at my present state of knowledge of Jarawara make a complete list of each type. It seems clear, though, that the two types exist. On the one hand, verbs such as *fora na* 'shoot out of a blowgun/shoot with a blowgun' and *kiyo na* 'rub/rub something on' seem to emphasize a manner. *Fora na* refers to a situation in which a blowgun is used, and the hands are implied by *kiyo na.* The verbs that are basically change of state verbs are definitely a small minority, but they do appear to exist, cf. for example *sota na* 'take off/undress'.

With this division in mind, we can tentatively place Jarawara among those languages which have a positive setting for the lexical parameter which Juffs (1996) proposed in his study of locative verbs in Mandarin. Juffs noted that the Mandarin equivalents of container-oriented verbs do not alternate when they are used as bare roots. In fact, they behave like (non-alternating) content-oriented verbs in that they permit a theme-object but not a goal-object. For example *gai,* which, even though it is translated as 'cover', permits a theme-object (e.g. blanket) but not a goal-object (e.g. *bed). Juffs proposes that in Mandarin there is a constraint against the conflation of ACT(+effect) with GO[STATE]; that is, monomorphemic transitive verbs of change of state are ruled out. He points to the non-existence also of other classes of monomorphemic transitive verbs,

including the class of *anger* and *disappoint,* and the class of *melt.* According to this idea, Mandarin has a negative setting for this lexical parameter, whereas English has a positive setting.

As we have seen, since Jarawara appears to have alternating verbs that are basically change of state verbs, Jarawara has a positive setting for this lexical parameter, like English and unlike Mandarin. There are also a certain number of monomorphemic transitive verbs from the other classes, too. Examples of the *melt* class are *baka na* 'break' and *sibi na* 'tear'. Examples of psych verbs like *anger* are harder to find, but one example may be *tisa* 'cause to hurt', as in (102a). This is a causative alternating verb, cf. the intransitive alternant in (102b).

(102) a. Oteme yama tisaharake.
o- teme yama tisa -hara -ke
1SG.POSS.F- foot thing.F cause.to.hurt -IP.E+F-DECL+F
'Something is causing my foot to hurt.'

b. Oteme tisaharake.
o- teme tisa -hara -ke
1SG.POSS.F- foot hurt -IP.E+F-DECL+F
'My foot hurts.'

As noted in the previous chapter, Jarawara has a very productive morphological causative, and most transitive psych verbs are morphological causatives built on intransitives, e.g. *nayawa* 'make angry' (103a), which is from *yawa* 'be upset' (103b).

(103) a. Birinawa mee nayawarake, waha.
Birinawa mee na- yawa -hara -ke waha
(man's.name).M 3P.S.F CAUS- be.upset -IP.E+F -DECL+F NOW
'Now Birinawa has gotten them mad.'

b. yara yawehiri amaka.
yara yawa -hiri ama -ka
Brazilian.M be.upset -RP.E+M EXT -DECL+M
'The Brazilian was upset.'

The reason the locative alternation is so named is because it involves verbs for which the object may be characterized as alternately referencing a theme or a location, theme being defined as something that is manipulated, and location being defined as something that the theme reaches or comes into contact with, or comes from. Why is it that precisely these verbs and not others alternate? I don't think a satisfactory answer to this question has yet been offered; but it is just as true for Jarawara as it is for English. And furthermore, the range of what may be considered locative verbs is wider for Jarawara than for English, providing evidence for the Thematic Relations Hypothesis that is unavailable in English. This is especially true of verbs of speaking, which alternate in Jarawara but not in English. There is formal evidence that these are viewed by Jarawara speakers as locative verbs, in the way the adjunct markers *yaa* and *ni yaa* are contrastively used. As we saw in chapter 3, *ni yaa* is only used with animate NPs, and only when the animate NP is conceived of as a location. This is clear in the contrast of (104a) with (104b). As we have seen in (97) above, locative alternating verbs use *ni yaa* for adjuncts that reference the location NPs, when the NP is animate. When the theme NP is referenced in an

adjunct we would expect *yaa* even when the NP is animate as in (104b), but so far I have not seen such examples involving locative alternating verbs. As noted above, locative alternating verbs with a *yaa* adjunct referencing the theme argument are quite uncommon.

(104) a. Aba mee
aba mee
fish.M 3P.O.F
osemamatibe,
o- to- ise -ma -mata+F -beya
1SG.S.F- AWAY- drop.off -BACK -SHORT.TIME+F -IMMED+F
ami ni yaa.
ami ni yaa
2SG.POSS.mother.F TO ADJ
'"I'm going to take fish to your mother."'

b. Mee abee tokatowihaboneke,
mee abee to- katowi -habone -ke
3P.POSS.F RECIP CH- fight.over -INT+F -DECL+F
Naria yaa.
Naria yaa
(woman's.name).F ADJ
'The two men are going to fight over Naria.'

The constraint on the thematic roles involved in locative alternating verbs in Jarawara is highlighted by the contrast with another alternation, involving the comitative prefix *ka-.* When *ka-* is added to some transitive verbs, there is a change in argument structure. However, the change is not usefully described in terms of thematic relations, because a wide variety of relations exist between the two members of the pairs.

On the one hand, there are pairs involving *ka-* which are semantically very similar to locative alternating pairs. The relation between *hora na* 'complain at' (105a) and *hora kana* 'complain about' (105b) is much the same as that between the verbs of speaking in Table 11 which are locative pairs. The object references a goal in one alternant (105a) and theme in the other alternant (105b). There are other pairs involving *ka-* like this, for example *sero na* 'hoe' (106a) and *sero kana* 'hoe with' (106b). What is hoed may be considered a goal (106a), while the hoe is a theme (106b).

(105) a. Kawasiro era hora naka.
kawasiro era hora na -ka
bird.SP.M 1IN.O yell AUX -DECL+M
'The kawasiro bird squawked at us.'

b. Faya amamone hora kane amamone
faya ama -mone hora ka- na+M ama -mone
so blood.F -REP+F yell COMIT- AUX+M blood.F -REP+F
nowi teehamone amake.
nowi na -tee -hamone ama -ke
drip AUX -RP.N -REP+F EXT -DECL+F
'He was complaining about the blood, and the blood was supposedly dripping from him.'

(106) a. Yama sero ona,
yama sero o- na
thing.F slip 1SG.S.F- AUX+F
'I was hoeing.' (Lit., 'I was hoeing the thing.')

b. Isata sero okanarake.
isata sero o- ka- na -hara -ke
hoe.F slip 1SG.S.F- COMIT- AUX -IP.E+F-DECL+F
'I hoed with the hoe.'

In other cases the thematic relations are nearly reversed. The relation between *hoka na* 'pull' (107a) and *hoka kana* 'pull with respect to' (107b) is quite similar to the relation between the two meanings of the locative alternator *saa na* 'shoot/shoot with an arrow'. However, the relation is reversed compared to *hora kana* 'complain about'; for *hora kana* the object references a theme, while for *hoka kana* 'pull with respect to', the object references a goal.

(107) a. Hima, hoka kabote tibisahi.
hima hoka na kabote ti- na -bisa -hi
come.on pull AUX QUICKLY 2SG.S.F- AUX -ALSO -IMP+F
'Come on, you pull it (the rope), too!'

b. hoka tikanaho.
hoka ti- ka- na -ho
pull 2SG.S.F- COMIT- AUX -IMP+M
'"Shoot it (the fish)!"'

So far, these pairs are similar to the locative alternating verbs in Table 11, in that the object may be characterized as alternately referencing a theme or a location. But then we come to pairs which appear to reference a theme in both alternants. *Soko na* means 'wash' (108a), and with *ka-,* i.e. *soko kana,* the meaning is 'wash with', and in (108b) it is used to describe a situation in which a piece of rubber was washed accidentally when clothes were washed. *Horo namisa* means 'drag upward' (109a), while *horo kamisa* means 'drag upward with'. In (109b) it refers to a situation where a peccary was being pulled up inside a trap. In cases such as these neither alternant may be characterized as having a location as object.

(108) a. Hinabori makari soko naka.
Hinabori makari soko na -ka
(woman's.name).M clothing.F wash AUX.CONT+M -DECL+M
'Hinabori is washing clothes.'

b. Soko okanenoka,
soko o- ka- na -hino -ka
wash 1SG.S.F- COMIT- AUX -IP.N+M -DECL+M
makari yaa
makari yaa
clothing.F ADJ
'I washed it (the piece of rubber) with the clothes.'

(109) a. Kanawa horo omisahara oke,
kanawa horo o- na -misa -hara o- ke
canoe.F drag 1SG.S.F- AUX -UP -IP.E+F 1SG.A.F- DECL+F
yama kabani yaa
yama.kabani yaa
forest.F ADJ
'I dragged the canoe up onto the bank.' (Lit., '…up into the forest'.)

b. otaa horo kamise,
otaa horo ka- na -misa+M
1EX.S.F drag COMIT- AUX -UP+M
'We dragged it (the peccary) up with the trap.'

Then there are verbs which appear to be able to reference as objects two kinds of arguments when *ka-* is added, both different from the object argument without *ka-*. *Yete na* means 'hunt' (110a). Without *ka-* the object is always *yama* 'forest', but with *ka-* the object may refer to the dogs one hunts with (110b) or a person who is stalked by an animal (110c).

(110) a. yama yete nebona
yama yete na -hibona
forest.F hunt AUX -INT+M
tokematamonaka.
to- ka -himata -mona -ka
AWAY- motion -FP.N+M -REP+M -DECL+M
'He went out hunting.'

b. yomee mee yete okana mee
yomee mee yete o- ka- na mee
dog.M 3P.O.F hunt 1SG.S.F- COMIT- AUX+F 3P.O.COORD
'I hunted with the dogs.'

c. Yomee yete hikana,
yomee yete hi- ka- na
jaguar.M hunt OC- COMIT- AUX+F
'The jaguar stalked her.'

Another set like this is with *fawa* 'drink' (111a). When *ka-* is added to this verb it refers to a situation in which something is eaten while something else is drunk. But either what is eaten (111b) or what is drunk (111c) may be referenced as object, while the other argument may occur in a *yaa* adjunct (111c,d).

(111) a. kafe otaa fawa
kafe otaa fawa
coffee.F 1EX.S.F drink+F
'We drank coffee.'

b. boro otaa kafawa,
boro otaa ka- fawa
cake.M 1EX.S.F COMIT- drink+F
'We ate cake while drinking.'

c. fehene kafawatee amaka,
fehene ka- fawa -tee ama -ka
liquid+F COMIT- drink -HAB EXT -DECL+M
iyawa yaa.
iyawa yaa
grated.manioc.F ADJ
'The juice (of the baye palm nut) is drunk with grated manioc.'

d. kafe yaa boro kafawi otaa ahaba
kafe yaa boro ka- fawa.NFIN otaa ahaba
coffee.F ADJ cake.M COMIT- drink.NFIN 1EX.S.F end+F
'We finished eating cake with coffee.'

There are also cases for which the verb without *ka-* is itself a locative alternator. As we have seen above, the object of *baa na* 'hit with a hammer/nail down' may refer to a nail (a theme) or something that is nailed down (a goal). In addition, a tree that a plug is hit into may be the object when *ka-* is added (112).

(112) tarato soba kanama koba baa katee
tarato soba ka- na -ma koba baa ka- na -tee
drill.F pull.out COMIT- AUX -BACK+F tree.SP.F hit COMIT- AUX -HAB
amake, awa bite yaa.[41]
ama -ke awa bite yaa
EXT -DECL+F stick.F small.F ADJ
'The drill is pulled out, and (a wooden plug made from) a stick is hit into the koba tree.' (Lit., '…the koba tree is hit into with a plug.')

Similarly, we have seen that for the locative alternator *mari na* 'feast on/give a feast for', the object may refer to the food that is consumed or the people invited to the feast. But a person who is comemorated by the feast may also be the object, and then *ka-* is used (113).

(113) nisori mari kanebona yamata
nisori mari ka- na -hibona yamata
3S.POSS.younger.brother.M feast COMIT- AUX -INT+M food.F
wasibona tokematamonaka.
wasi -hibona to- ka -himata -mona -ka
find -INT+M AWAY- motion -FP.N+M -REP+M -DECL+M
'He had wanted to have a festa for his younger brother, so he had gone out to find food (i.e., game).'

Another locative alternator like this is *ori na* 'paddle/paddle in'; the object may be the canoe or the water. With *ka-* two additional kinds of arguments may be referenced by the object, i.e. something used as a paddle (114a) or something carried in the canoe (114b).

(114) a. Awa kote otaa ori kana otake,
awa kote otaa ori ka- na otaa -ke
wood.F piece 1EX.S.F paddle COMIT- AUX+F 1EX.S.F -DECL+F
boko kote.
boko kote
tree.SP.M piece
'"We paddled with a piece of wood, a piece of boko wood."'

b. mayatera ori okana
mayatera ori o- ka- na
gill.net.F paddle 1SG.S.F- COMIT- AUX+F
owakama
o- to- ka- ka -ma
1SG.S.F- AWAY- COMIT- motion -BACK+F
'I went back paddling the nets.'

In summary, it appears that *ka-* really doesn't care about thematic relations, since it does not constrain the thematic roles either of the verb it is added to, or of the argument that it adds. The locative alternation, in contrast, is quite constrained, since the object alternately references either a location or a

theme. This leads me to propose that there is a universal constraint on alternations involving arguments within the VP. With monomorphemic verbs, the alternation is between a theme and a location being referenced by the object. My prediction is that other kinds of alternations may exist, but not with monomorphemic verbs. This is compatible with Baker's (1997) proposal that there are only three 'core' thematic roles (although his definition of theme is broader, as noted above).

It may be objected that the difference between the alternation involving *ka-* and the locative alternation is more than just whether or not they are sensitive to thematic relations. *Ka-* really adds an argument to the semantic structure of the verb; that is, the verb with *ka-* has an argument that is not present semantically in the verb without *ka-.* This is not true with locative alternating verbs, since for these both the theme and location arguments are present semantically in both alternants. By this reasoning, *soko na* without *ka-* could not mean 'wash with' because *soko na* only has one internal argument, the item which is washed. It is different with locative verbs. While it is not impossible to imagine a verb *spray* that has only a theme and not a goal in its semantic structure, it would certainly not be our first idea.

This would explain why a verb like *soko na* does not alternate without the addition of *ka-.* But it does not explain why verbs with *ka-* could not be monomorphemic alternating verbs. Why could there not be another monomorphemic verb with the meaning 'wash with', which alternately references the thing purposely washed and the thing accidentally washed as object? The

example of *kafawa* 'drink while eating something/eat while drinking something' shows that such alternations exist. What this theory predicts is that such an alternation could not be manifested by a monomorphemic verb.

At this stage in my research on Jarawara, what I believe we can see is that locative alternating verbs are all verbs involving moving a theme in relation to a location, as in English and Mandarin and other languages. Furthermore, the 'motion', 'theme', and 'location' may be in a metaphorical rather than a physical sense, as predicted by the Thematic Relations Hypothesis. This suggests that thematic relations as conceived of originally by Gruber (1965) are important at some level of analysis. This does not mean that other more detailed decompositions such as those of Rappaport and Levin (1988) and Pinker (1989) discussed in section 2.3.2 above do not have validity. It just means that at this stage of my research, it is not yet possible to bring the Jarawara data to bear on a detailed critique of these decompositions.

4.2 Transitivizing locative alternation. There is another alternation involving a change in transitivity, which I am calling the transitivizing locative alternation,[42] because of the semantic similarities with the verbs of the locative alternation. The alternating verbs are listed in Table 13, which is a repetition of Table 2.

Table 13. Verbs of the Transitivizing Locative Alternation

	VERB	EXAMPLES OF OBJECTS
A.	Verbs of Speaking	
	haa na 'call out /call' (23, 25)	person called
	hiyara 'speak/speak to' (26, 28)	person spoken to
	hora na 'cry out in anger/yell at' (29, 30)	person one is angry at
	kowa na 'whistle/whistle at' (73, 74)	person or animal whisted at
B.	Verbs of Locomotion	
	fiya nama 'pass by, coming' (19, 20)	house, etc., that is passed by
	kana na 'run/run after' (45, 46)	person who is run after
	yaka na 'walk/visit' (130, 131)	person visited
C.	Miscellaneous Verbs of Contact	
	afi na 'bathe/fish with hands in' (3, 4)	water
	karima 'hit against something/suffer from' (51, 52)	person affected by heat of sun, sickness
	kinarisa 'fall over/fall on top of' (63, 64)	person something falls on
	kobo na 'arrive/meet' (67, 68)	animal or person who is met
	nowi na 'drip/drip on' (80, 81)	person or thing dripped on
	ori na 'paddle/paddle in' (82, 84)	water
D.	Bodily Processes	
	mii na 'defecate/defecate on' (78, 79)	person on whom fly's eggs are laid
	saa na 'vomit/shoot with an arrow' (85, 87)	fish
	soo na 'urinate/urinate on' (96, 97)	person urinated on
E.	Verbs of Seeing	
	awa 'see' (5, 6)	what is seen
	kii na 'look/look at' (61, 62)	what is looked at
F.	Benefactive/malefactive Verbs	
	mari na 'have a feast/have a feast for' (75, 77)	people invited to feast
	wahiya 'hide/hide from' (112, 113)	person hidden from

Tentatively I would like to characterize the object of the transitive alternant in each case as a goal. In fact, I believe the objects of the corresponding English alternation (the unspecified object alternation) may be so characterized as well,

as I discussed in section 2.3.3 above. It seems a natural extension of the Thematic Relations Hypothesis to consider items that are created or consumed as goals.

If this is correct, then we would expect the intransitive alternants to occur with *yaa* or *ni yaa* adjuncts that refer to a goal rather than a theme. I only have seen two of the intransitive verbs with such adjuncts, and the adjuncts do refer to goals (115).

(115) a. Kanawa karimaharake, awa mate yaa.
kanawa karima -hara -ke awa mate yaa
canoe.F hit -IP.E+F-DECL+F tree.F stump+F ADJ
'The canoe hit a stump.'

b. fara mee tabori yaa mee kobo
fara mee tabori yaa mee kobo
same+F 3P.POSS.F place+F ADJ 3P.S.F arrive
nemetemoneke.
na -hemete -mone -ke
AUX -FP.N+F -REP+F -DECL+F
'They arrived at their own village.'

If examples were found of intransitive verbs with animate NPs as adjuncts and with *ni yaa* rather than *yaa*, this would constitute stronger evidence the adjuncts are goals rather than themes, but so far I have not seen such animate NPs as adjuncts of these verbs.

There are several verbs in common between Tables 15 and 16; this is because several locative verbs have intransitive variants. There is thus for these

verbs a three-way contrast. The verbs, with their intransitive meanings, are *haa na* 'call' (116), *hiyara* 'speak', *ori na* 'paddle' (117), *mari na* 'feast' (118), and *saa na* 'vomit' (119).

(116) mee haa na mee
mee haa na mee
3P.S.F call AUX+F 3P.S.COORD
'They called out.'

(117) Ohiyarabana oke.
o- hiyara -habana o- ke
1SG.S.F- speak -FUT+F 1SG.S.F- DECL+F
'I'm going to speak.'

(118) Faya ori ona,
faya ori o- na
so paddle 1SG.S.F- AUX+F
'So I paddled.'

(119) Saa onara oke.
saa o- na -hara o- ke
vomit 1SG.S.F- AUX -IP.E+F 1SG.S.F- DECL+F
'I vomited.'

Two of these verbs, *haa na* 'call' and *hiyara* 'speak', are members of a fairly well-defined subclass, verbs of speaking. It is interesting that there are two verbs of speaking which are in Table 13 that are not in Table 11, i.e. *hora na* 'cry out in anger' and *kowa na* 'whistle'; these two verbs may be intransitive or may take a goal as object, but they may not take a theme as object. My analysis predicts that such verbs should exist, but that verbs that alternate between being intransitive and having a theme-object should not exist, unless the verb also

takes a goal as object. It appears that at least one verb violates this prediction, *ohi na* 'cry' (120a). This verb has a transitive alternant meaning 'cry about' (120b), but it apparently does not have a goal-object alternant meaning *'cry to'.

(120) a. Yowi ohi ka.
yowi ohi na -ka
capuchin.SP.M cry AUX -DECL+M
'The capuchin monkey is crying.'

b. Watati nabati komene ohi nareka.
Watati nabati komene ohi na -hare -ka
(woman's.name).M stomach pain+M cry AUX -IP.E+M -DECL+M
'Watati is crying because she is in labor.' (Lit., 'Watati is crying about her stomach pain.')

In English the prediction appears to be born out. As in Jarawara, there are English locative alternators which also participate in the unspecified object alternation, as it is called. If we divide locative verbs into four classes, according to whether they are change of state verbs or manner of motion verbs and according to whether they are alternators or not, the prediction is that there will be unspecified object verbs from all four classes except one, the non-alternating manner of motion verbs, because these are the one class of verbs that do not have a goal-object variant. And, as a matter of fact there are none of these verbs in the unspecified object alternation, whereas there are verbs from the other three classes: *sow* from the alternating manner of motion class, *pack* and *plow* from the alternating change of state class, and *paint* from the non-alternating change of state class.

The label 'unspecified object alternation' is used for the English alternation because the intransitive variant typically looks like the transitive variant with its object omitted. For example, intransitive *eat* means *eat something.* This appears to be true to a certain extent for the Jarawara alternating verbs, too. For most verbs of speaking, for example, a hearer is understood even if it is the same as the speaker; that is, if a person is speaking but not to someone, she is speaking to herself. It is true that verbs like *kana na* 'run' and *yaka na* 'walk' do not imply that the subject is running after someone or visiting someone; but on the other hand they are probably not running or walking aimlessly, either, but have a goal in mind. In this case, though, the understood semantic goal is not an argument that can be an object of the transitive variant, at least in the case of *kana na* 'run after', since I seriously doubt whether the transitive verb can have a place as object.

Actually, it may be the case that the Jarawara verbs help us to see that the English alternation is broader than just the unspecified object alternation. Levin (1993) lists two other alternations which she calls 'preposition drop alternations', which are also alternations involving a change in transitivity. There are two alternations, the locative preposition drop alternation (121) and the *with* preposition drop alternation (122). In each case, the difference between the two variants is whether the post-verbal phrase has a prepostion (intransitive) or not (transitive).

(121) Locative Preposition Drop Alternation

a. Martha climbed up the mountain.
b. Martha climbed the mountain.

Run verbs (some): Canter, climb, cross, fly, gallop, hike, jog, jump, leap, prowl, ramble, ride, roam, rove, row, run, shoot (rapids), stroll, swim, traipse, tramp, travel, trudge, vault, wade, walk, wander

Verbs that are vehicle names (some): bicycle, bike, canoe, jeep, raft, row, sail, skate, ski

Verbs of inherently directed motion (some): ascend, depart, descend, escape, flee, leave

(122) *With* Preposition Drop Alternation

a. Jill met with Sarah.
b. Jill met Sarah.

Meet verbs: battle, box, consult, debate, fight, meet, play, visit

There is a syntactic difference between the unspecified object alternation and preposition drop alternations, in that only for the latter may the argument corresponding to the transitive object be expressed as a prepositional phrase in the intransitive variant. As we have seen above, the goal is sometimes expressed in a *yaa* adjunct for Jarawara intransitive alternants, but this is not common.

Whereas there are no alternating Jarawara verbs that correspond to the English verbs of the unspecified object alternation, there are some that correspond to those of the preposition drop alternations, namely *kana na* 'run' and *ori na* 'paddle'. We may also point to *fiya nama* 'pass by, coming'; although

Levin does not list *pass,* it does appear to be an alternating verb, cf. *pass (by) the house.* And in fact Levin notes for the locative preposition drop alternation that the transitive object of the English alternating verbs may be a goal or path (or in a few instances as a source), which nearly coincides with the way I have characterized the Jarawara verbs.

Besides the verbs of the unspecified object and the preposition drop alternations, Dixon (1991) lists some additional alternating English verbs which are similar to the Jarawara verbs. These verbs are *pee* (cf. *pee (into) his pants*), *answer* (cf. *answer (her)*), and *see* and *hear.* And although I have not seen it discussed in the literature, English *feast* also appears to alternate as the Jarawara verb, cf. *the king feasted (his guests).*

The syntactic feature that unites all these alternating verbs, both Jarawara and English, is that the transitive subject corresponds to the intransitive subject, as Dixon (1999b) observed. Furthermore, I propose that there is a semantic feature that all have in common as well (with the exception of *ohi na* 'cry' as noted above), and that is that the object always realizes a goal.

To be sure, there are problems in analyzing these verbs in terms of thematic roles. For one thing, if thematic roles are involved in this alternation, then why do only a few of the locative alternating verbs have intransitive variants? The answer would be that the two alternations have only the broad conflation class in common (or, to be more precise, half of a broad conflation class, since the present alternation only refers to goals/locations and not to themes), and that the respective narrow conflation classes are different for the

two alternations. This has not been demonstrated, though, since I have not proposed formal narrow conflation classes.

The other problem with this approach is that, if the Thematic Relations Hypothesis is made to apply in this way, so that things produced and things consumed are considered locations, the benefactive alternation in English is going to present a problem, cf. *carve the baby a toy* vs. *carve a toy for the baby.* According to the analysis I have proposed, both *baby* and *toy* will be analyzed as goals, since *baby* is a recipient and *toy* is something produced. In the double object alternant *carve the baby a toy,* the Theta Criterion (Chomsky 1981) will be doubly violated, since *baby* and *toy* both bear the goal role, and *baby* also bears two roles, goal and theme.

4.3 For further research. Various researchers have noticed that there is a difference in aspect from one alternant to another in these alternations. For the locative alternation, Rappaport Hovav and Levin (1988:19) claim that 'when the Goal argument is realized as direct object, it is understood to be wholly affected by the action denoted by the verb.' Levin (1993) makes a similar observation concerning the locative prepostion drop alternation. Zubizarreta (1992:221) notes that for the dative alternation, the object is necessarily affected when it refers to the recipient (i.e. the goal), but this is not true when the object refers to the theme. That is, between *John taught Mary Russian* and *John taught Russian to Mary,* Mary is necessarily 'affected' in the first sentence, but Russian is not affected in the second sentence. Van Hout (2000:404) observes that for verbs

which optionally omit the object, 'if the verb is atelic (or durative), the object may be absent; if it is telic (or terminative), it must be present.' She goes on to propose that the syntactic position of the object of a telic sentence is not the same as the position of the object of an atelic sentence. This is consistent with earlier work on the aspectual-syntactic interface by Tenny (1994) and Ramchand (1998).

With studies such as these in mind, we might expect aspectual differences from one alternant to another for these alternations in Jarawara. Initially, we can say that for some of the verbs, such as *fora na* 'shoot with a blowgun', and *saa na* 'shoot with an arrow', the goal does indeed appear to be affected when it is the object. But for others this does not seem to apply, for example *hiyara* 'speak to', or *ori na* 'paddle in', or *sao na* 'throw a net into'. There are at least two problems in approaching the study of aspect in Jarawara. First, the classification of verb uses into those which are telic and those which are atelic is a subtle matter. Objective tests must be developed, and at my stage of knowledge of Jarawara, I am just beginning to do this. Secondly, there are no articles in Jarawara, so determining whether an NP is definite or not is not straightforward. Discourse context is helpful, and there may be formal criteria as well. I am sure that insights are to be gained from the study of aspect in Jarawara, but for now this must remain a topic for future research.

CHAPTER 5

CAUSATIVE ALTERNATING VERBS

5.1 The alternating classes. In chapter 4 I showed that thematic relations are relevant to two argument structure alternations of Jarawara verbs. I concluded by saying that theories of aspectuality may also be relevant to the study of locative alternations, but that I do not know enough about aspect in Jarawara to say very much on the subject. The present chapter provides quite a contrast with the previous one, because I have not found thematic relations to be relevant to the alternation I cover here, the causative alternation. Aspectual concepts seem much more relevant, and while as I concluded in the last chapter, I don't feel terribly competent yet in this area in Jarawara, I think it is necessary to make a few preliminary observations concerning the aspectual properties of these verbs.

A good starting place in talking about causative alternating verbs is Pinker (1989), who divides causative alternating verbs in English into three 'narrow range rules'. They are *break* verbs, *roll* verbs, and *gallop* verbs. It is interesting to compare these three classes with the Jarawara alternating verbs, which are listed in Table 14, a repetition of Table 3. Recall that the numbers in parentheses in the table refer to examples in the Appendix.

Table 14. Causative Alternating Verbs

A.	Verbs of Manner of Motion
	behe na 'rock' (9, 10)
	behe nawaha 'twist/turn over' (11, 12)
	koro nisa 'touch down/cause to fall down' (71, 72)
	setero nawaha 'fall head first/flip over end to end' (92, 93)
	taba nisa 'descend/stick in the ground' (100, 101)
	tani nisa 'slide/take off (pants)' (102, 103)
	tawi na 'glide down/cause to flutter' (104, 105)
	teko na 'have waves/make waves' (106, 107)
	wariri na 'spin' (118, 119)
B.	Verbs of Spatial Configuration
	bere na 'be on top/put on top' (13, 14)
	kamo nawahama 'be curled/double over' (43, 44)
	kaya na 'lie across/lay across' (55, 56)
	yoro na 'sit, stand (dual S)/put in place (dual O)' (132, 133)
C.	Verbs of Being
	ee na 'be like/call' (17, 18)
	iha 'be located, come into existence/have, take' (33, 34)
	ihawaha 'have a turn/take' (35, 36)
	wata 'be in place, be born, exist/put in place' (122, 123)
D.	Mental States
	tisa 'hurt/cause to hurt' (108, 109)
E.	(Unclassified)
	kanawana 'begin/teach' (47, 48)
	waka na 'be shattered/knock down' (114, 115)
	wasi 'get caught/find' (120, 121)
	saa tosa 'free/be free' (88, 89)

The first thing that we may note about the Jarawara verbs is that *break* type verbs are conspicuously lacking. These are accomplishment verbs, i.e. verbs that suggest a process and a culmination (Pustejovsky 1998). These are the largest group of alternating verbs in English; in fact, Levin and Rappaport Hovav (1995) reserve the label 'causative alternation' only for these verbs.

Gallop verbs likewise appear not to be represented among the alternating Jarawara verbs. These are agentive verbs of manner of motion; that is, they are

agentive when intransitive. Levin and Rappaport Hovav (1995) do not include these in the causative alternation. While they maintain that the transitive form is basic in the causative alternation, they propose that the *gallop* verbs involve a derivation in the other direction, from intransitive to transitive.

In contrast, the *roll* type verbs are well represented among the Jarawara verbs. These are non-agentive verbs of manner of motion; that is, the intransitive alternants are non-agentive. In fact, I believe that when these verbs are characterized properly, it may be seen that almost all of the Jarawara verbs are in this class. I discuss these verbs in the next section.

But how does Jarawara handle the meanings of the equivalents of the *break* and *gallop* classes? For accomplishment verbs like *break,* there are at least two kinds of morphological derivations involved with the Jarawara equivalents. Jarawara has a morphological causative, and so the morphological causative is a means used to form transitive accomplishment verbs from intransitives. For example, transitive *nahati* 'burn' (123a) is derived from intransitive 'burn' (123b) by the addition of the causative prefix *na-.*

(123) a. Tika makari
ti- kaa makari
2SG.POSS- POSS clothing.F
onahatihara oke.
o- na- hati -hara o- ke
1SG.S.F- CAUS- burnt -IP.E+F 1SG.S- DECL+F
'I burned your piece of clothing (when I was drying it over the fire).'

b. Oko mitikiri
o- kaa mitikiri
1SG.POSS.F- POSS mosquito.net.F
hatihara oke.
hati -hara o- ke
burnt -IP.E+F 1SG.POSS- DECL+F
'I burned my mosquito net accidentally with the lamp.' (Lit., 'My mosquito net burned.')

The other derivation involving accomplishment verbs works the other way; that is, it derives intransitives from transitives. This is marked morphologically by the change of state prefix *to-.* For example, intransitive *baka tona* 'break' (124a) is derived from transitive *baka na* 'break' (124b).

(124) a. Yifari ate baka toneke,
yifari ate baka to- na -ne -ke
banana.F stalk.F break CH- AUX -CONT+F -DECL+F
kanahi kaaro.
kanaha+F kaaro
heavy+F BECAUSE.OF+F
'The banana plant is breaking under the weight of the bananas.'

b. Kimi mee baka na
kimi mee baka na
corn.M 3P.S.F break AUX+F
'They broke off the ears of corn.'

As for the *gallop* class, one way which Jarawara has of deriving some transitive verbs with meanings like this from intransitives is with the comitative prefix *ka-.* For example, transitive *yaka kana* 'drive' (125a) is derived by the addition of *ka-* from intransitive *yaka na* 'walk' (125b).

(125) a. Kaho yaka okine oke.
kaho yaka o- ka- na -ne o- ke
car.M walk 1SG.S.F- COMIT- AUX -CONT+F 1SG.S- DECL+F
'I'm driving the car.'

b. Yaka oke.
yaka o- na -ke
walk 1SG.S.F-AUX -DECL+F
'I am walking.'

Differently from *gallop* verbs in English, there is no idea of goal-directed motion in the Jarawara verbs. Furthermore, in Jarawara this kind of derivation may apply to other kinds of verbs which do not involve motion. For example, transitive *katafa* 'eat with' (126a) is derived from *tafa* 'eat' (126b).

(126) a. Tera okatafibeya.
tera o- ka- tafa+F -beya
2P.O.F 1SG.S.F- COMIT- eat+F -IMMED+F
'"I want to eat with you."'

b. itarimisame tafe,
ita -rI -misa -ma+M tafa+M
sit -RAISED.SURFACE -UP -BACK+M eat+M
'He sat up and ate.'

In summary, we can see that two of Pinker's classes, the *break* class and the *gallop* class, do not alternate in Jarawara, while verbs similar to the *roll* class do. This may be taken in a general way as evidence for the existence of these semantic classes cross-linguistically. Levin and Rappaport Hovav (1995), on the contrary, combine the *break* and *roll* classes and oppose these to the *gallop* class. The fact that *roll* verbs alternate in Jarawara whereas *break* verbs do not

suggests that cross-linguistically, putting *break* verbs and *roll* verbs together in the same class may not be the best idea. As we have seen in section 2.3.4 above, *roll* verbs do not actually meet Levin and Rappaport Hovav's criteria for the causative alternation.

5.2 *Roll* verbs. I believe that most of the causative alternating Jarawara verbs are similar to *roll* verbs in English. This is not obvious from Table 14, since only the first subclass appear to be motion verbs similar to *roll.* But when the aspectual classification of *roll* verbs is taken into account, the subclass can be expanded.

The *roll* verbs in English are one of the classes that Levin and Rappaport Hovav (1995) find it difficult to classify aspectually. They consider whether *roll* might be a state or an activity. Noting that *roll* may appear in *do* constructions (127), they conclude that *roll* is an activity verb, since statives may not appear in these constructions (Dowty 1979).

(127) a. The marble rolled off the table and the ball did so too.
b. What the rock did was roll down the hill.

It is significant, however, that in both these examples, *roll* occurs with a goal phrase, i.e. *off the table* in (127a) and *down the hill* in (127b). Goal phrases such as these change the aspectual classification of *roll* and other verbs like it; with a goal phrase, *roll* is actually an accomplishment. But without a goal phrase, it is a stative. These very examples can be used to show this, since they become bad without the goal phrases:

(128) a. ?The marble rolled and the ball did so too.
b. *What the rock did was roll.

I would like to propose that both the English data and the Jarawara data point to a revision which is necessary in the aspectual classification of these verbs. First, as many theorists, starting with Carlson (1977) have noted, the classification 'stative' is not clear. The verbs usually classified as statives should actually be divided into two groups, those which are individual-level statives and those which are stage-level statives. Individual-level statives are properties, e.g. *love* or *be blond*, whereas stage-level statives are temporary states, such as *spin* or *be angry.*

This means that *roll* verbs in English are stage-level statives. But when Levin and Rappaport Hovav (1995) call *roll* verbs activities they are not far off, because there really is no aspectual difference between stage-level statives and activities.[43] Both stage-level statives and activities are atelic, and this is why both are compatible with durative phrases like *for an hour* rather than goal phrases such as **in an hour.* I believe Rappaport Hovav and Levin (2000) are correct in rejecting aspectual classification as the explanation for the unaccusativity of *roll* verbs. They point to agentivity as the crucial factor for these verbs: if agentive, then unergative, and if non-agentive, then unaccusative.

Aspectually, both activities and stage-level statives may be characterized as atelic, and this is the best way to characterize most of the intransitive verbs in Table 14. *Behe na* 'rock' refers to a type of motion, but it clearly is stative in a sentence such as (129).

(129) Kaho behe naka.
kaho behe na -ka
car.M rock AUX.CONT -DECL+M
'The car is rocking back and forth.'

This phenomenon exists in English, too. Levin (1993) states that *rock* is a causative alternating verb, but not according to the causative-inchoative alternation. We may also point to *run,* which is stative in a sentence such as *the car is running.* The essential difference between this use and the use in *he ran for an hour* is not aspectual, as I have stated above; the difference is that in the first use, the subject is not an immediate cause, whereas in the second it is.[44]

The verb *kaya na* 'lie across' also is stative (130). Levin and Rappaport Hovav (1995) discuss alternating verbs of spatial configuration, and they identify the alternating intransitive uses (i.e. those with inanimate subjects) as both stative and unaccusative.

(130) Faha kaya narake, bista kaaro.
faha kaya na -hara -ke bista kaaro
water.F lie.across AUX -IP.E+F-DECL+F airstrip.F LOC+F
'There is standing water on the airstrip.'

Levin (1993) lists a number of such alternating verbs: *dangle, fly, hang, lean, perch, rest, sit, stand,* and *swing.* However, Levin and Rappaport Hovav (1995) do not include these with the causative alternation, saying they are not necessarily externally caused when intransitive. For example, the template that they propose for intransitive *hang* is
[*x* BE AT *z /HANG*]; it does not contain either CAUSE or BECOME. Contrast this with the template they propose for (transitive and intransitive) *break* type verbs, referred to in section 2.3.4 above and repeated below (131).

(131) Externally caused verbs of change of state

[[x ACT] CAUSE [BECOME [y <*STATE*>]]]

In fact, verbs of spatial configuration are like *roll* verbs in not having CAUSE or BECOME in their semantic structure. Even though Levin and Rappaport Hovav (1995) propose that the semantic structure in (131) applies to *roll* verbs, I do not believe this is the best analysis, as discussed in section 2.3.4 above.

Besides manner of motion verbs and verbs of spatial configuration, there are also other kinds of stative verbs that alternate in Jarawara. *Tisa* 'hurt' (132a) might be characterized as a mental state, and I'm not sure how to classify *saa tosa* 'be free' (132b).

(132) a. Oteme tisaharake.
o- teme tisa -hara -ke
1SG.POSS.F- foot hurt -IP.E+F-DECL+F
'My foot hurts.'

b. Tieko narabo saa tosaka.
Tieko narabo saa to- na -kosa -ka
Diego.M ear+M release CH- AUX -MIDDLE -DECL+M
'Diego's ears are clear.'

Levin and Rappaport Hovav (1995) call *roll* verbs 'variable behavior verbs', because they may be unaccusative or unergative, depending on whether the subject is non-agentive or agentive. Some of the Jarawara alternating verbs appear to be variable behavior verbs, too. For example the basic meaning of *bere na* is 'be on top'. When the subject is *faha* 'water', it means 'cover the ground' (133a). But when the subject is animate, it may be agentive, as in the imperative in (133b), and presumably this use is unergative.

(133) a. Bere rima tinahi,
bere na -rima ti- na -hi
be.on.top AUX -NEG.IMP 2SG.S.F- AUX -IMP+F
tisariyahi.
ti- sona -riyahi
2SG.S.F- fall -NEG.DIST.IMP+F
'Don't walk on the log, you will fall!' (Lit., '…don't fall!)

b. Faha fowe bere ke.
faha.fowe bere na -ke
seasonal.flooding.F be.on.top AUX -DECL+F
'The water is covering the land.'

I have similar examples with *kanawana* 'begin/study'. In (134a) this verb has an inanimate subject and means 'begin', but in (134b) the subject is animate and it means 'study'. *Wata* is similar; with an inanimate subject it may mean 'be in a location' (135a), whereas with an animate subject the meaning may be 'be born'

(135b). Note, however, that there is a difference in the agentivity of the two verbs when the subject is animate, i.e. *kanawana* 'begin' (134b) is agentive, whereas *wata* 'be born' (135b) is not.

(134) a. Yama hiweba kanawanineke.
yama.hiwe -ba kanawana -ne -ke
dry.season.F -FUT begin -CONT+F -DECL+F
'The dry season is beginning.'

b. Tee kanawanahi.
tee kanawana -hi
2P.S.F begin -IMP+F
'You study!'

(135) a. Yimawa ihi watineke
yimawa ihi wata -ne -ke
knife.F because.of+F be.located -CONT+F-DECL+F
haaro, onabati kaaro.
haaro o- nabati kaaro
that.one+F 1SG.POSS.F- stomach LOC+F
'There is a cut from a knife in my stomach.'

b. Hibaka yaa tiwatemete ama tiri?
hibaka yaa ti- wata -hemete ama ti- ri
where.F ADJ 2SG.S.F- be.born -FP.N+F EXT 2S- CQ+F
'Where were you born?'

Rappaport Hovav and Levin (2000) say that *roll* verbs may be agentive or non-agentive with animate subjects, noting that *Max rolled down the hill* (Jackendoff 1972) is ambiguous between an agentive and non-agentive reading. The verb *setero nawaha* is interesting in this regard. With an inanimate subject it may mean 'be turned wrong side up' (136a), and the meaning is stative. But it can also be either agentive or non-agentive with animate subjects. The meaning

'do a sommersault' (136b) is agentive and presumably unergative; but with the meaning 'fall head-first' (136c), while the subject is animate, it is not agentive, and presumably is unaccusative.

(136) a. Sataya mati setero nawahineke.
sataya mati setero na -waha -ne -ke
thong.F line+F flip AUX -CHANGE -CONT+F-DECL+F
'The thong strap is turned wrong side up.'

b. Setero owaha oke.
setero o- na -waha o -ke
flip 1SG.S.F- AUX -CHANGE 1SG.S.F -DECL+F
'I did a somersault as I jumped into the water.'

c. Setero nawaha awineke.
setero na -waha awine -ke
flip AUX -CHANGE+F SEEM+F -DECL+F
'It (the elephant) is falling over head-first.'

For the intransitive verb *yoro na* 'two sit' I only have examples with animate subjects, as in (137). I discuss this verb further in the next section.

(137) Tee yoro niyahi.
tee yoro na+F -yahi
2P.S.F sit/stand AUX+F -DIST.IMP+F
'"You two stay here."'

Among the verbs discussed so far, there has always been a stage-level stative meaning, even though some of the verbs have also had eventive meanings. For example, while *wata* 'be located' (135a) is stative, with the meaning 'be born' (135b) it is eventive. With some of the other verbs in Table 14,

I have only examples with eventive (i.e. telic) meanings. Examples of these are *ihawaha* 'have a turn' (138), *koro nisa* 'touch down' (139), and *wasi* 'get caught' (140). I'm not sure if these verbs can occur as stage-level statives as well.

(138) Oko yama kaniki
o- kaa yama ka- nika.NFIN
1SG.POSS.F- POSS thing.F COMIT- buy.NFIN
hawa toi yaa Mowe Tati
hawa to- ha+F yaa Mowe.Tati
be.finished CH- AUX+F ADJ (man's.name).M
ihawaa kabote nareka fahi.
iha -waha kabote na -hare -ka fahi
be -CHANGE QUICKLY AUX -IP.E+M -DECL+M then
'When I was finished buying things, Mowe Tati had his turn right away.'

(139) Afiyao koro nisaka.
afiyao koro na -risa -ka
airplane.M throw AUX -DOWN -DECL+M
'The plane touched down.'

(140) Boroko wasiareka fahi.
boroko wasi -hare -ka fahi
fish.sp.M be.caught -IP.E+M -DECL+M then
'Then the boroko fish got caught (in the net).'

The events in these sentences may be described as achievements, since they are punctual. Rappaport Hovav and Levin (1998) predict that achievement verbs should not have transitive causative alternants, because according to their theory, achievements do not have an external cause. There seem to be several problems with this prediction. First, it appears that an event may be punctual and still be externally caused, e.g. *wasi* 'get caught' (140). Secondly, besides these alternating Jarawara verbs, there also seem to be alternating English verbs that

are achievements, e.g. *explode.* Because of considerations such as these, some theorists, for example Verkuyl (1993), have rejected the distinction between achievements and accomplishments.

Besides these verbs which appear to be achievement verbs rather than stage-level statives, there are also a couple of alternating verbs that appear to be individual-level statives. These are *ee na* 'be like' (141) and *taba nisa* 'go down' (142).

(141) Habai oko wata
habai o- kaa wata
friend.VOC 1SG.POSS.F- POSS dream.F
ee narake ahi.
ee na -hara -ke ahi
be.like AUX -IP.E+F-DECL+F here
'Friend, my dream was like this.'

(142) Atami taba nisake.
atami taba na -risa -ke
hill.F go.down AUX -DOWN -DECL+F
'It's an abrupt dropoff.' (Lit., 'The hill goes down.')

Some researchers have proposed that morphological causatives may not be built on individual-level statives. For example, Levin and Rappaport Hovav (1994) point to the fact that, while the adjective *smart* has both the stage-level meaning 'well and fashionably dressed' and the individual-level meaning 'intelligent', the morphological causative *smarten* may not mean 'make intelligent', but only 'make well dressed'. I have not seen this idea applied to causative alternating verbs, but presumably they should not be any less constrained. To see whether this

constraint is obeyed in Jarawara, though, we need to look at the transitive alternants. For *taba nisa,* it is obvious that the transitive meaning, 'stick in the ground' (143) is not based on the individual-level meaning of the intransitive alternant (142).

(143) Awa taba onisa
awa taba o- na -risa
stick.F make.descend 1SG.S.F- AUX -DOWN+F
'I stuck a stick in the ground.'

For *ee na* the situation is less clear. The transitive meaning is 'call', and it is used, for example, to ask what kinship term someone calls another person (144). The connection with the intransitive verb is that 'call' is seen as 'make like'. This might possibly be a violation of the constraint, since there doesn't seem to be anything temporary about the kinship term one uses for someone.

(144) Kofeno ee tine amara?
Kofeno ee ti- na+M ama -ra
(man's name).M call 2SG.S.F-AUX+M EXT -CQ+M
'What kinship term do you use for Kofeno?'

In any case, since this is just one pair, and the semantics are rather complicated, it doesn't seem to be reason to abandon the constraint.[45]

In summary, we have seen that there is a common thread in most of the causative pairs in Table 14, and that is that the intransitive alternant, or in some cases one of the intransitive alternants, is a stage-level stative. While this makes

this Jarawara alternation quite different than the causative-inchoative alternation in English, there are a number of English verbs with causative alternants that are in similar semantic classes.

5.3 Constraint on transitive causatives. In the previous section I focused on the intransitive alternants of causative pairs, but it is possible to see a common semantic thread among the transitive causative alternants, too.

Various researchers have noted that universally there seems to be a constraint on the meaning of causative alternating verbs: there is an absence of monomorphemic causative pairs which have meanings similar to 'laugh/make laugh', i.e. in which the intransitive is an activity verb. Levin and Rappaport Hovav (1994, 1995) discuss this in various places, and propose that an immediate cause must be linked to the external argument position. Since the subject of intransitive *laugh* is an immediate cause, and since the subject of a transitive causative verb is also an immediate cause, there would be competition for a single external argument position and the transitive causative verb is prohibited.

With morphological and periphrastic causatives, the situation is different. According to Levin and Rappaport Hovav (1994), 'the causative morpheme or verb comes with its own argument structure, so that the Immediate Cause Linking Rule does not have to associate two arguments from a single argument structure with the same argument structure position.' As we saw in section 2.2.2,

this prediction is born out in Jarawara, since there are morphological causative pairs involving intransitives that are internally caused, including the very meanings 'laugh/make laugh'.

A look at Table 14 also confirms that in general this constraint is operative in Jarawara causative pairs. As we have seen in the previous section, most of the intransitive alternants are stage-level statives with non-agentive, inanimate subjects, and as such, their subjects cannot be said to be immediate causes. There is, however, one intransitive verb that may be an exception to the constraint. As I noted above, for the pair *yoro na* 'sit, stand (dual S)/put in place (dual O)', the intransitive alternant occurs only with animate subjects in my data. Levin and Rappaport Hovav (1995) call this the MAINTAIN POSITION sense of verbs of spatial configuration, in contrast to the SIMPLE POSITION sense with inanimate subjects. They propose that verbs of spatial configuration in the maintain position sense are unergative, whereas those in the simple position sense are unaccusative. So here we may have a transitive causative verb which alternates with an internally caused, unergative verb.

It is probably the case that intransitive *yoro na* 'sit, stand (dual S)' may also have an inanimate subject, but let us suppose for a moment that it may not. Then this pair would be like *burp* in English, which in spite of being unergative as an intransitive verb, still has a causative transitive alternant. Smith (1970) pointed out that one can *burp the baby* but not **burp the doctor,* and this is the key to understanding the constraint involving these verbs. It is not really a constraint on an alternation, but a constraint on the meaning of monomorphemic

transitive causative verbs. It is not the meaning of the intransitive alternant that is constrained, but the meaning of the caused event in the transitive verb. And this is evident in the meaning of transitive *yoro na.* It does not mean 'cause to sit/stand' in the sense of causing two people to do something. It means 'put in place (dual O)' (145).

(145) Saree yoro tinahi ahi,
sarehe yoro ti- na -hi ahi
dart.F put.in.place 2SG.S.F- AUX -IMP+F here
owinibana.
o- ini -bana
1SG.POSS.F- tooth+F -FUT
'Put in two blowgun darts, to be my teeth.'

This constraint clearly operates in the other transitive alternants in Table 14. None of the transitive verbs mean 'cause to do something'. And as we have seen, there are, in contrast, morphological causatives which have this kind of meaning, e.g. *haahaa niha* 'cause to laugh'. It is true, of course, that some of the verbs in Table 14 are not monomorphemic, but are various kinds of derivations. But none of the derivations have the effect of bringing in an external argument as the causative prefix does.

5.4 Contrast with passive-like derivation. In this section I contrast the alternating verbs in Table 14 with another alternation of Jarawara verbs, which is something like the English passive or middle. I show that the two alternations, although they are similar in some ways, also have significant differences, and should not be considered to be a single phenomenon as Dixon (1999b) has considered them.

Dixon's category S=O verbs, as the label indicates, includes all verbs for which the object of the transitive alternant corresponds to the subject of the intransitive alternant. He suggests that 'a rough analysis of ca. 700 verbal roots in Jarawara shows that just over half are strictly intransitive; of the remainder the great majority are ambitransitive S=O.' So there must be about 300 S=O verbs, according to his count. The reason for this inflated number is that Dixon does not distinguish a lexical alternation confined to a relatively small class of verbs, from a very productive alternation that applies to almost all transitive verbs. Almost all of the alternating verbs listed in Dixon's paper manifest the lexical alternation, as do the verbs I have listed in Table 14.

The relation of causativity between the two alternants of the verbs in Table 14 is something that Dixon misses. It is true that the transitive alternant is not always completely predictable from the intransitive alternant, for example *wasi* 'find/get caught',[46] but this is not unexpected in a lexical alternation, and for the other pairs the causative relationship is more transparent. For these pairs, the transitive alternant can be characterized as '*x* causes *i*', where *i* is the intransitive alternant. The relation is quite different, however, for most of the pairs that Dixon would classify as S=O verbs. Consider the following pair from Dixon's paper (146):

(146) a. Yama kaminaba watamakare.
yama kamina -ba wata -ma -ka -re
thing.F tell -FUT+F be -BACK -DECL -NEG+F
'There isn't anything else to tell.' (Lit., 'There isn't anything else to be told.')

b. Okobi
o- kaa abi
1SG.POSS.F- POSS father.M
okominamatibe.
o- kamina -mata -beya
1SG.S.F- tell -SHORT.TIME -IMMED+F
'I'm going to tell about my father.'

The relation in this case is more like that between a passive and an active. That is, the intransitive can be characterized as '*y* is *t*-ed', where *t* is the transitive verb. Besides *kamina* 'tell about/be told' (146), the only other verb that Dixon cites in his paper that alternates in this way is *sika na* 'pour/be poured', but there appear to be very few transitive verbs which cannot be detransitivized in this way.[47]

That this detransitivization is different than the causative alternation referred to in Table 14 is clear from the different ways in which each alternation relates to the morphological causative, *na-* ~ *niha-*. (As discussed in section 3.8.1, the causative prefix has the form *na-* when applied to an inflecting verb, and *niha-* when applied to a non-inflecting verb.) Whenever a morphological causative is built on one of the causative alternating verbs in Table 14, it is always built on the intransitive alternant, as in (147). The morphological causative *nawata* 'raise' (147b) is built on intransitive *wata* 'be born' (147a), and not the transitive meaning 'put in place' (147c).

(147) a. Hibaka yaa tiwatemete ama tiri?
hibaka yaa ti- wata -hemete ama ti- ri
where.F ADJ 2SG.S.F- be.born -FP.N+F EXT 2S- CQ+F
'Where were you born?'

b. Betiro owinari nawatareka.
Betiro owinari na- wata -hare -ka
Pedro.M ani.SP.M CAUS- be.born -IP.E+M -DECL+M
'Pedro is raising an ani.'

c. raya owata.
raya o- wata
trap.F 1SG.S.F- lay+F
'I put the trap in place.'

This is in contrast with the verbs that undergo the detransitivization exemplified in (146). For these verbs, a morphological causative may not be built on the intransitive alternant, but only on the transitive alternant. For example, the morphological causative *nakaba* 'feed' (148b) is built on the transitive *kaba* 'eat' (148a), and not on the detransitivized meaning 'be eaten' (148c). Indeed, if it were, the morphological causative would have the same meaning as the transitive, i.e. 'cause to be eaten' = 'eat'.

(148) a. Yomee makari kabenoka.
yomee makari kaba -hino -ka
dog.M clothing.F eat -IP.N+M -DECL+M
'The dog ate the clothes (off the line).'

b. Yomee Sani nakabareka,
yomee Sani na- kaba -hare -ka
dog.M (woman's.name).M CAUS- eat -IP.E+M -DECL+M
aba yaa.
aba yaa
fish.M ADJ
'Sani fed fish to the dog.' (Lit., 'Sani fed the dog with fish.')

c. Katako kabateere amaka.
katako kaba -tee -ra+M ama -ka
tree.SP.M eat -HAB -NEG+M EXT -DECL+M
'We don't eat katako fruit.' (Lit., 'Katako fruit is not eaten.')

These facts are consistent with the idea that the causative alternation referred to in Table 14 is lexical, whereas the detransitivizing operation exemplified in (146) and (148c) is more syntactic. The fact that the causative alternation is quite restricted and that the detransitivizing operation in contrast applies to almost all transitive verbs is expected. In his discussion of word formation processes, Anderson (1985) observes that lexical processes, while they may be systematic and even productive, typically have a more restricted domain of application than syntactic processes.

We might add that the domain of a syntactic operation should be describable in purely syntactic terms, whereas this is not true with a lexical phenomenon. It is clear that the domain of the phenomenon in Table 14 is not describable in syntactic terms, whereas the detransitivizing operation of (146) and (148c) may possibly apply to all transitive verbs. And even if exceptions are found and this operation is determined to be lexical, it is clearly a very late lexical rule, since it is ordered after the morphological causative. This is evident not only in the fact that the morphological causative may not apply to detransitivized forms which are the output of the operation, as we have seen above; but also in the fact that morphological causatives themselves may be detransitivized, as in (149). The transitive verb *kanawa* means 'put on the end of a stick' (149a), and it is a combination of the intransitive *waa* 'stand' with the causative prefix *na-*

(along with the comitatative prefix *ka-*). In (149b) the morphological causative is used intransitively, to mean 'be put on the end of a stick'.

(149) a. Oma okanawa oke.
oma o- ka- na- waa o- ke
piranha.M 1SG.S.F- COMIT- CAUS- stand+F 1SG.S.F-DECL+F
'I'm roasting a piranha on a spit.'

b. Kobaya era mee nofatee mee amake,
kobaya era mee nofa -tee mee ama -ke
collared peccary.M 1IN.O 3P.S.F want -HAB 3P.S.F EXT -DECL+F
mee kone kanawaa mati, hawi yaa.
mee kone ka- na- waa mati hawi yaa
3P.POSS.F hair COMIT- CAUS- stand+F 3P.RC trail.F ADJ
'When we leave collared peccary hair stuck on the end of a stick on the trail, they like us.' (Lit., 'The collared peccaries like us when their hair is stuck on the end of a stick, on the trail.')

A final difference between the two phenomena is seen in the fact referred to in section 5.1 above that for some of the verbs in Table 14, the intransitive alternant may be agentive or non-agentive. This is similar to *roll* verbs in English, which Levin and Rappaport Hovav (1995) call 'variable behavior verbs' because they may be agentive or non-agentive when intransitive. Levin and Rappaport Hovav classify them as unergative when agentive, and unaccusative when non-agentive. Their treatment of verbs of spatial configuration is parallel, in that the maintain position sense (i.e. with animate subjects) they are classified as unergative, and in the simple position sense (i.e. with inanimate subjects) they are classified as unaccusative. But this phenomenon does not exist with detransitivized verbs such as those in (149b). These intransitives cannot mean that the subject is doing something, but only that the subject has had something

done to it. In contrast, the intransitives in Table 14 typically mean that the subject is in a particular state, and some may also mean that the subject is doing something.

For future research, it would be interesting to explore to what extent these two alternations parallel a distinction in German and English verbs which Kratzer (2000) has called the 'target state/resultant state' distinction, following terminology first proposed by Parsons (1990). In German and English, both target states and resultant states are adjectival passives, with meanings like 'be hidden' for target states, and 'be proven' for resultant states. There is a parallel in the meanings of the two kinds of intransitives I have been contrasting, with target states parallelling the intransitives in Table 14, and resultant states parallelling the detransitivized verbs above. Furthermore, Kratzer notes that the same verb may have both kinds of states associated with it, with resultant states being available for almost all transitive verbs, while target states are less widely available.

5.5 Summary. In summary, in this chapter I have examined causative alternating verbs, proposing that the best generalization is that the intransitive variants may be characterized by and large as stage-level statives. I have also shown that with animate subjects, some also have activity uses. In these respects these verbs are very similar to *roll* verbs in English, although they include, besides verbs of manner of motion, some verbs of spatial configuration and other types.

This generalization may be contrasted with the generalization I made concerning locative verbs in chapter 4, which emphasized traditional thematic roles. I don't believe thematic roles have value in elucidating causative alternating verbs, but this does not take away from their value for locative verbs. I don't believe that a set of concepts must apply to all classes of verbs in order for it to have validity.

On the other hand, it probably is true, as I stated at the end of chapter 4, that aspectual notions will ultimately be shown to be applicable to locative alternating verbs in Jarawara. While thematic roles may apply to only some classes of verbs, aspectual notions may be expected to apply to all verbs.

There is one theme that ties both locative verbs and causative alternating verbs together, and that is the idea of constraints on monomorphemic transitive verbs. In chapter 4 I proposed that transitive alternating locative verbs are constrained by thematic roles: only verbs which have a theme and a location (usually a goal or a source) in their semantic representation may alternate. This is a constraint on monomorphemic verbs, since other kinds of alternations may be accomplished by morphology. Similarly, in this chapter I have discussed the often mentioned constraint on causative verbs, prohibiting monomorphemic verbs which are causatives of unergatives. I have proposed that this is not a constraint on alternating verbs, but a contraint on the semantic representation of monomorphemic transitive verbs.

CHAPTER 6

SUMMING UP

The primary result of this study is that it supports a view of argument structure based on a generative lexical semantics, rather than a functional-typological view such as that of Dixon (1999b). Dixon proposed a lexical parameter consisting of a continuum ranging from 'type-of-argument' languages to 'type-of-action' languages. Jarawara is classified as a 'type-of-action' language, with two putative consequences: (1) there is claimed to be great fluidity in the linking of semantic arguments to syntactic positions, both in terms of the degree of fluidity of each verb, and the number of verbs that exhibit fluidity; and (2) it is claimed that Jarawara has a greater number of ambitransitive verbs, which are classified as either 'S=A' or 'S=O'. The Australian language Dyirbal is claimed to be a 'type-of-argument' language, because its verb have virtually no fluidity, and there are very few ambitransitive verbs, either S=A or S=O. English is claimed to be somewhere in the middle.

With respect to these claims, I have shown in this study that Jarawara is quite similar to English with respect to the fluidity in the linking of semantic arguments to syntactic positions. In regard to Dixon's first claim, I have shown that the 'fluid' verbs are in fact locative verbs, and that the linking is highly constrained, being describable in terms of Gruberian concepts of thematic relations. The number of alternating verbs is comparable to the number in English. In regard to the idea of ambitransitivity I have shown, first of all, that in

Jarawara S=A and S=O are not mutually exclusive phenomena. Secondly, S=O is not a unitary phenomenon in Jarawara, but represents a small group of alternating causative verbs on the one hand, and a detransitivization process similar to a passive applying to almost all transitive verbs on the other hand. Both these phenomena may, in fact, apply to the same verb. Ambitransitivity is thus an imprecise term, representing a variety of phenomena which are both overlapping and not directly connected with each other.

The view of argument structure alternations which I adopt is that of lexical semantics informed by a generative approach, and the models I take my main inspiration from are Pinker (1989), Levin (1993), and Levin and Rappaport Hovav (1995). According to this view, argument structure alternations are sensitive to semantic and/or syntactic features of verbs, and it is quite natural to expect more than one alternation to apply to any given verb, because the features that one alternation references are not the same as the features referenced by another alternation. Any given verb has many semantic and syntactic features, and it may participate in one alternation because of one set of features, while participating in another alternation because of a different set of features. Within this approach, there are different ways of determining what a 'verb class' might be. Levin (1993) divides verbs into classes according to the way they tend to behave with respect to a series of alternations; since a number of alternations are treated together, the behavior of all the verbs is not uniform with respect to every alternation. Pinker (1989) determines verb classes more narrowly on the basis of their behavior with respect to a single alternation.

If I have thus travelled along the road of lexical semantics in my analysis of Jarawara verbs, I have however not been able to travel nearly as far as one might desire. I have not been able to offer formal alternating and non-alternating classes, but have only gotten a start in this direction. I do not yet have a firm grip on aspect in Jarawara, so I am not able to critique in very much detail the semantic templates for verbs that have been offered. In (150) I repeat the templates for locative alternating verbs offered in (Rappaport and Levin 1988).

(150) a. LOAD: [*x* cause [*y* to come to be at *z*]/LOAD]
b. LOAD: [[*x* cause [*z* to come to be in STATE]]
BY MEANS OF [*x* cause [*y* to come to be at *z*]/LOAD]

From the point of view of English and Mandarin Chinese, these templates may be criticized because they do not distinguish between what Pinker (1989) calls 'content-oriented' (e.g. *spray*) and 'container-oriented' (e.g. *load*) verbs. In Mandarin (Juffs 1996) these two classes of verbs behave differently; monomorphemic *spray* verbs alternate between having the theme and the goal as object, whereas verbs like *load* do not alternate, but may only have the theme as object. Juffs concludes that this is because monomorphemic transitive verbs of change of state are disallowed in Mandarin; that is, all transitive verbs of change of state are derived. Presumably this means that when a *spray* verb has as its object a goal, it does not mean that the goal changed state.

English, in contrast, does allow monomorphemic transitive verbs of change of state, but there is still a parallel to the Mandarin data. As pointed out by Baker (1997) and also earlier by Dowty (1991), *spray* verbs may be telic or

atelic in English, as shown in Baker's example (151a). This is not true with *load* verbs, cf. *John loaded this truck in an hour/*for an hour.* That is, *load* verbs are necessarily telic with the goal as object, but *spray* verbs may be telic or atelic with the goal as object.

(151) a. John sprayed this wall with paint in an hour / (#)for an hour. (OK, but atelic)
b. John sprayed paint onto this wall #in an hour / for an hour.
c. John sprayed subway cars with this can of paint #in an hour/ for an hour.
d. John sprayed this (whole) can of paint onto subway cars in an hour /#for an hour

Pinker (1989) does not recognize this aspectual difference, but instead points to the fact that for *spray* verbs the prepositional phrase containing the goal may be omitted in the theme-object alternant, whereas the prepositional phrase containing the theme may not be omitted in the goal-object alternant; while for *load* verbs the opposite is usually true.

What about Jarawara? Jarawara appears to be like English and unlike Mandarin, in the sense that there are monomorphemic verbs of both the *spray* and *load* types that alternate. This is accompanied by the fact that other kinds of monomorphemic transitive change of state verbs also exist, as predicted by Juffs (1996). However, it is difficult at the stage of my knowledge of Jarawara to detect any difference between *spray* and *load* verbs. This may be because I have not mastered the subtle aspectual differences, and the equivalents of the English prepositional phrases don't tell us much, since they are usually absent in both *spray* and *load* verbs.

Pinker, besides making this broad division between *spray* and *load* verbs, also further subdivides each of these classes in order to account for the fact that some semantic classes alternate while others do not. There do seem to be non-alternating verbs among both *spray* and *load* verbs in Jarawara, so this appears to provide a certain amount of support for this view. However, a much fuller list of the non-alternating verbs would be necessary to say whether there really is a semantic contrast between alternating and non-alternating classes in Jarawara.

The locative alternation in Jarawara is broader than in English, in that it applies to classes of verbs that the locative alternation does not apply to in English. This is not surprising, though, since it is predicted by the Thematic Relations Hypothesis ((Gruber 1965), (Jackendoff 1972)). The fact that some verbs of speaking alternate in Jarawara, for example, is predicted, since this is a metaphorical extension of spatial relationships. The broadness of the Jarawara alternation also provides support for Levin's inclusion of a number of English alternations under the heading of 'alternations involving arguments within the VP', since the locative alternation in Jarawara includes verbs which participate in others of these alternations in English, including the dative alternation and the *wipe* and *clear* alternations.

Some of the locative alternating verbs in Jarawara also participate in another alternation which involves a change in transitivity, which I have for these reasons called the transitivizing locative alternation. These are Dixon's 'S=O' verbs. For these verbs, the object of the transitive alternant may always be characterized as a goal. In some ways this alternation is similar to the

unspecified object alternation in English; in fact, the object of the transitive English verbs, too, may be characterized as a goal.

As for Dixon's 'S=O' verbs, I have shown that these verbs actually represent two different phenomena. Almost all transitive verbs in Jarawara may be used intransitively in this way, with meanings that are similar to the passive or the middle in English. I don't know if this is best characterized as a syntactic or derivational process, but if it is derivational, it is clearly very late in the ordering of derivational processes. Almost all of Dixon's examples, though, are of what I have characterized as the causative alternation. A decisive difference between the passive-like process and the causative alternation is in their respective interactions with the morphological causative, *na- ~ niha-.* A number of causative alternating verbs can be made into morphological causatives, and the morphological causative is always based on the intransitive alternant. But morphological causatives can never be built on the detransitivized forms of the passive-like process; instead, morphological causatives can themselves be detransitivized in this way. This is expected if the causative alternation is a lexical phenomenon, whereas the passive-like process is a late derivation or a syntactic process.

The template which Levin and Rappaport Hovav (1995) offer for causative alternating verbs in English is the following.

(152) Externally caused verbs of change of state

[[x ACT] CAUSE [BECOME [y <*STATE*>]]]

They propose that this template applies to both the transitive and intransitive alternants. In accordance with this, they predict that in most languages, the intransitive alternant will be morphologically marked in order to make the causer argument visible, and that English is exceptional in this respect. This prediction is born out in Jarawara in two ways. First, there is indeed a detransitivizing process involving verbs of change of state, for which the intransitive verb is morphologically marked -- the marking is the derivational prefix *to-,* which has 'change of state' as one of its meanings. Secondly, causative alternating verbs in Jarawara are not typically accomplishment verbs. Rather, they are typically manner of motion verbs similar to *roll* verbs in English, and verbs of spatial configuration. The intransitive alternants in Jarawara may usually be characterized as stage-level statives. Some verbs of spatial configuration do have transitive causative alternants in English, e.g. *hang,* but Levin and Rappaport Hovav do not include these in the causative alternation as they define it, precisely because the intransitive alternants are not change of state verbs. I have argued that for the same reason, *roll* verbs should not be included along with *break* verbs in the causative alternation in English as Levin and Rappaport Hovav have defined it. *Roll* verbs are different than *break* verbs in that they are not change of state verbs when they are intransitive. Jarawara causative alternating verbs help us to see this fact, because while *roll* type verbs alternate, *break* type verbs do not.

Levin and Rappaport Hovav (1994) make the prediction that monomorphemic causative transitive verbs will not be found in the languages of

the world which have meanings like **make laugh*. Their explanation is that an immediate cause is linked to the external argument position. Since a transitive causative of an internally caused event would have two immediate causes competing for one argument position, it is disallowed. I have shown that causative transitive verbs in Jarawara conform to this expectation. It is important to keep in mind, though, that this is probably not a restriction on the way verbs may alternate, but a constraint on the nature of the event structure of transitive verbs. In English *burp* is a causative alternating verb in spite of the fact that the intransitive alternant is unergative. But the transitive verb does not mean 'cause to voluntarily burp'. The Jarawara verb *yoro na* '(two) stand/sit' may be similar. Levin and Rappaport Hovav point out that periphrastic and morphological causatives are not subject to this constraint, since the extra morphology brings with it its own argument structure. This, too, is born out in Jarawara, since there is, for example, a morphological causative that means *make laugh.*

Whereas the constraint on Mandarin verbs proposed by Juffs (1996) referred to above is proposed as a parameter and therefore varies from one language to another, the constraint on causative transitive verbs proposed by Levin and Rappaport Hovav (1994) is claimed to be universal. I have claimed that the Jarawara data also points to a universal constraint on locative verbs, as well. I have claimed that, while alternations accompanied by morphology are not necessarily constrained by thematic relations, monomorphemic transitive alternating verbs are so constrained, i.e. they are limited to an alternation between a theme and a location being realized as object. I have shown that in

Jarawara, while locative alternating verbs are highly constrained, there is another alternation involving the addition of a derivational prefix *ka-* which is similar in some respects to the locative alternation, but is not so constrained by thematic relations. These findings suggest that monomorphemic verbs are more highly constrained than derived verbs, contra Pinker (1989), who proposes that argument structure is dependent on what is available in the morphology of the world's languages.

In the Appendix to this study, I have included unelicited examples showing each of the alternations I have claimed for the verbs I have listed in the tables. Like Dixon, I believe that unelicited data is more reliable than elicited data. This would be true with any language including one related to English, but it is much more true in the case of a language like Jarawara that is so different

.

APPENDIX

APPENDIX

EXAMPLES SHOWING ALTERNATIONS

1. Introduction. In this appendix I give samples of the data on which the lists of alternating verbs in the text are based. Each alternating pair is fully justified with unelicited data, except that in a few cases elicited data are used.

I have organized the examples according to alternating verb stem rather than by alternation so as to avoid repetition, since a good number of examples apply to more than one alternation. This also allows the reader to get a better feel for Jarawara verbs. The verb stems are in alphabetical order according to the verb root. For example, *koro nisa* follows *koro na* because both have the same root, and *nawata* immediately follows *wata* because both have the same root.

Each example is labelled according to whether it is intransitive or one of several transitive types: causative, theme-object, goal-object, path-object, or source-object. These correspond to the types of examples relevant for each alternation, as characterized in Table 15.

Table 15. Alternations and example sentence types.

ALTERNATION	SENTENCE TYPES
locative alternation	theme-object vs. goal-object theme-object vs. source-object theme-object vs. path-object
transitivizing locative alternation	intransitive vs. goal-object
causative alternation	intransitive vs. causative

In a few cases a detransitivized version of one of the transitive types is used, and these are indicated and discussed.

2. A-ATE NA. This verb means 'ask for' with a theme-object (1), and 'ask' with a goal-object (2). With these meanings it is always reduplicated.[48] Both (1a) and (1b) are theme-object examples, but (1a) has an adjunct (*yara mee ni yaa* 'to the Brazilians') expressing the goal, whereas (1b) does not.

(1) Theme-object

a. Ee kaa kanawaba a-ate onabana
ee kaa kanawa-ba DUP-ate o- na -habana
1IN.F POSS canoe.F-FUT DUP-ask 1SG.S.F- AUX -FUT+F
oke, yara mee ni yaa.
o- ke yara mee ni yaa
1SG.S.F-DECL+F Brazilian.M 3P.F TO ADJ
'"Let's ask the Brazilians for a canoe.'" (Lit., 'Let's ask for a canoe to the Brazilians.')

b. A-ate tire awa?
DUP-ate ti- na -ra+M awa
DUP-ask 2SG.S.F- AUX -NEG+M SEEM+M
'Didn't you ask about the motor?'

(2) Goal-object

Rosira	a-ate	onabone			oke,			mata.
Rosira	DUP- ate	o-	na	-habone	o-	ke		mata
Lucilia.F	DUP- ask	1SG.S.F-	AUX	-INT+F	1SG.S.F-	DECL+F		FOR.NOW

'I will ask Lucilia.'

3. AFI NA. This verb means 'bathe' when intransitive (3), and 'fish with hands in' when transitive (4). In (3) the clause focused on is the right dislocated clause *afi nebonaha* 'to bathe'. The clause focused on in (4) is also right-dislocated, i.e. *faa mee afi na mati* 'fishing with their hands in the water'. There is no overt subject NP in (3).

(3) Intransitive

Tokifiwahamahareka,

to-	ka	-fI	-waha	-ma	-hare	-ka
AWAY-	motion	-WATER	-CHANGE	-BACK	-IP.E+M	-DECL+M

afi nebonaha.

afi	na	-hibona	-DUP
bathe	AUX	-INT+M	-DUP.RC

'He went to the stream to bathe.'

(4) Goal-object

Aba	mee	mee	wawata		tohemetemoneni,					
aba	mee	mee	DUP-	wata	to-	ha	-hemete-	mone	-ni	
fish.M	3P.O.F	3P.S.F	DUP-	grab	CH-	AUX	-FP.N+F	-REP+F	-BKG+F	
wati	watare		yaa,	faa	mee	afi	na	mati.		
wati	wata	-ra+M	yaa	faha	mee	afi	na	mati		
arrow.M	be	-NEG+M	ADJ	water.F	3P.S.F	bathe	AUX+F	3P.RC		

'People used to grab fish with their hands, fishing with their hands, since there were no arrows yet.'

4. AWA 'see'. The clause focused on in (5) is the main clause, *tinoko awahabana tike* 'your eyes will see'.

(5) Intransitive

Okoro tikanawani yaa
okoro ti- ka- na- wana+F yaa
glasses.F 2SG.S.F- COMIT- CAUS- stick+F ADJ
tinoko awahabana tike.
ti- noko awa -habana ti- ke
2SG.POSS.F- eye see -FUT+F 2SG.POSS.F- DECL+F
'When you wear glasses, you will see better.' (Lit., '…your eyes will see.')

(6) Goal-object

Mee hawi ee awabanake.
mee hawi ee awa -habana -ke
3P.POSS.F trail+F 1IN.S.F see -FUT+F -DECL+F
'"Let's look at their path."'

5. BAA NA. In the theme-object use this verb means 'hit', and in the goal-object use it means 'nail down'. In (8) it is the main clause that is the focus, i.e. *makari baa onara oke* 'I nailed down the curtain.'

(7) Theme-object

Baa tibana?
baa ti- na -bana
hit 2SG.S.F- AUX -FUT
'Are you going to hit (the nail)?'

(8) Goal-object

Makari baa onaraoke,
makari baa o- na -hara o- ke
cloth.F hit 1SG.S.F-AUX -IP.E+F 1SG- DECL+F
boni tawi hinahaaro.
boni tawi hi- na -haaro
wind.F lift.up OC- AUX -RC+F
'I nailed down the curtain, because the wind was blowing it.'

6. BEHE NA 'rock'.

(9) Intransitive

Kaho behe naka.
kaho behe na -ka
car.M rock AUX.CONT -DECL+M
'The car is rocking back and forth.'

(10) Causative

Kanawa otaa behe narake.
kanawa otaa behe na -hara -ke
canoe.F 1EX.S.F rock AUX -IP.E+F -DECL+F
'We rocked the canoe from side to side.'

7. BEHE NAWAHA. This verb is derived from *behe na* by the addition of *-waha* 'CHANGE'. The intransitive variant means 'be twisted' (11), while the transitive causative variant means 'turn over' (12). In (12) the focus is on the main clause, *kanawa ee behe nawaha eeke* 'we turned over the canoe'.

(11) Intransitive

Oteme behe nawaake.
o- teme behe na -waha -ke
1SG.POSS.F- foot turn.over AUX -CHANGE -DECL+F
'My ankle is twisted.'

(12) Causative

Kanawa ee behe nawaha
kanawa ee behe na -waha
canoe.F 1IN.S.F turn.over AUX -CHANGE+F
eeke, ee famaha ee.
ee -ke ee fama -ha ee
1IN.S -DECL+F 1IN.S.F two -RC+F 1IN.RC
'The two of us turned over the canoe.'

8. BERE NA. The intransitive meaning is 'be on top' (13), and the meaning of the transitive causative is 'put on top' (14). The intransitive subject may be animate and agentive (13a), or inanimate and non-agentive (13b). (13a) is actually two sentences, and the focus is on the first, *bere rima tinahi* 'don't be on top'. In (14), the possessor *kanawa* 'bark canoe' of *tati ewene* 'stick of the prow' is non-overt.

(13) Intransitive

a. Bere rima tinahi,
bere na -rima ti- na -hi
be.on.top AUX -NEG.IMP 2SG.S.F- AUX -IMP+F
tisariyahi.
ti- sona -riyahi
2SG.S.F- fall -NEG.DIST.IMP+F
'Don't walk on the log, you will fall!' (Lit., '…don't fall!)

b. Faha fowe bere ke.
faha.fowe bere na -ke
seasonal.flooding.F be.on.top AUX -DECL+F
'The water is covering the land.'

(14) Causative

tati ewenebona bere[49] ahi.
tati ewene -bona bere ahi
head stick+M -INT+M put.on.top there
'He also put a stick across the prow (of the canoe).'

10. BORE NA. The theme-object meaning is 'pull out' (15), and the goal-object meaning is 'pull something out of' (16). In (16) the non-overt subject is Bamana.

(15) Theme-object

Fowa bore tibana?
fowa bore ti- na -bana
manioc.M pull.out 2SG.S.F- AUX -FUT
'Are you going to harvest manioc?' (Lit., 'Are you going to pull manioc out?')

(16) Goal-object

mase bore ne
mase bore na+M
currasow.M pull.out AUX+M
'He (Bamana) pulled (the feathers out of) the currasow.'

11. EE NA. The intransitive meaning is 'be like' (17), and the transitive causative means 'call' (18), in the sense of what kin term one uses for someone.

(17) Intransitive

Habai oko wata
habai o- kaa wata
friend.VOC 1SG.POSS.F- POSS dream.F
ee narake ahi.
ee na -hara -ke ahi
be.like AUX -IP.E+F-DECL+F here
'Friend, my dream was like this.'

(18) Causative

Kofeno	ee	tine		amara?	
Kofeno	ee	ti-	na+M	ama	-ra
(man's name).M	call	2SG.S.F-AUX+M		EXT	-CQ+M

'What kinship term do you use for Kofeno?'

12. FIYA NAMA 'pass by, coming'. It does not seem correct to classify the object of the transitive alternant as a goal, and it is not a source, so I have used the label 'path' (20).

(19) Intransitive

Otaa	fiya	nama		otake.		
otaa	fiya	na	-ma	otaa		-ke
1EX.S.F	pass	AUX	-BACK+F	1EX.S.F		-DECL+F

'We didn't stop to sleep at Samaúma on the way back.' (Lit., 'We passed by, coming.')

(20) Path-object

Kasi Homa Base	otaa	fiya	nama,	
Kasi.Homa.Base	otaa	fiya	na	-ma
(old.village.name).F	1EX.S.F	pass	AUX	-BACK+F

'We passed Kasi Homa Base.'

13. FORA NA. The theme-object alternant means 'shoot out of a blowgun' (21), and the goal-object alternant means 'shoot with a blowgun' (22). The theme-object example is a detransitivized use of *fora na,* so the meaning is actually 'be shot out of a blowgun'. A transitive is easily elicited, such as *okobi moho akori fora nareka, karaboa yaa* 'my father blew moho cotton out of the blowgun'. In (22), the subject, the hunter, who is not named in the story, is non-overt as an NP.

(21) Detransitivized theme-object

Moho	akori	fora	tee	amake,	karaboa	yaa.	
moho	akori	fora	na -tee	ama -ke	karaboha	yaa	
tree.SP.F	cotton	blowgun	AUX -HAB	EXT -DECL+F	blowgun.F	ADJ	

'We blow the cotton of the moho tree out of the blowgun.' (Lit., 'Moho cotton is blown out of the blowgun.')[50]

(22) Goal-object

wafa	mera	fora	ne,
wafa	mera	fora	na+M
wooley.monkey.M	3P.O	blowgun	AUX+M

'He shot monkeys.'

14. HAA NA. The intransitive meaning is 'call out' (23). The theme-object transitive means 'call for' (24), and the goal-object transitive means 'call' (25)

(23) Intransitive

mee	haa	na	mee
mee	haa	na	mee
3P.S.F	call	AUX+F	3P.S.COORD

'They called out.'

(24) Theme-object

Bobobibone		haa	hinehemetemoneni.					
DUP-	bobi	-bone	haa	hi-	na	-hemete	-mone	-ni
DUP-	slit	-INT+F	call	OC-	AUX	-FP.N+F	-REP+F	-BKG+F

'He (the Yima Indian) called for the thing to cut her up with.'

(25) Goal-object

Haa	one	
haa	o-	na+M
call	1SG.S.F-	AUX+M

'I called him.'

15. HIYARA. The intransitive meaning is 'speak' (26). The theme-object alternant means 'speak about' (27), and the goal-object alternant means 'speak to' (28).

(26) Intransitive

Ohiyarabana			oke.		
o-	hiyara	-habana	o-	ke	
1SG.S.F-	speak	-FUT+F	1SG.S.F-	DECL+F	

'I'm going to speak.'

(27) Theme-object

Yama kome	ee	hiyaramatahi.			
yama.kome	ee	hiyara	-mata	-hi	
sickness.F	1IN.S.F	speak	-SHORT.TIME	-IMP+F	

'Let's talk about sickness.'

(28) Goal-object

Faya	Wabao	hanohi		owa	hiyare
faya	Wabao	hano	-hi	owa	hiyara+M
so	(man's.name.M)	drunk	-RC+M	1SG.O.F	speak+M

'Wabao spoke to me, drunk.'

16. HORA NA. The intransitive means 'cry out in anger' (29), and the goal-object transitive means 'complain to' (30). The clause in focus in (29) is the right-dislocated clause, *hora nebana* 'he cried out in anger',[51] which has no overt subject NP.

(29) Intransitive

kamehimatamonaka,					hora	nebana.	
ka	-ma	-himata	-mona	-ka	hora	na	-hibana
motion	-BACK	-FP.N+M	-REP+M	-DECL+M	yell	AUX	-FUT+M

'He came back, and then cried out in anger.'

(30) Goal-object

Kawasiro	era	hora	naka.	
kawasiro	era	hora	na	-ka
bird.SP.M	1IN.O	yell	AUX.CONT+M	-DECL+M

'The kawasiro bird squawked at us.'

17. HOWE NAWAHA. The theme-object variant may be translated 'remove by wiping' (31), while the goal-object variant is 'wipe'. (31) was elicited based on the expression, *iyo hohowe nawaa* 'toilet paper' (lit., 'thing for wiping off feces'), which is a nominalization of the verb by reduplication.

(31) Theme-object

Oko		iyo	howe	owahabone			
o-kaa		iyo	howe	o-	na	-waha	-habone
1SG.POSS.F-POSS		feces.F	wipe	1SG.S.F-AUX		-CHANGE	-INT+F
oke.							
o-	ke						
1SG.S.F-	DECL+F						

'I'm going to wipe off my feces.'

(32) Goal-object

Oko yotohoti
o- kaa yotohoti
1SG.POSS.F- POSS anus
howe owahabone oke.
howe o- na -waha -habone o- ke
wipe 1SG.S.F-AUX -CHANGE -INT+F 1SG.S.F-DECL+F
'I'm going to wipe myself (after defecating).' (Lit., 'I'm going to wipe my anus.')

18. IHA. The intransitive alternant may have the meanings 'be located' (33a) or 'be born' (33b). In (33a), the focus is on the last right-dislocated clause, *sako yaa ihahaaro* 'which was in a sack'. Note that the subject in (33a) is inanimate, whereas in (33b) the subject is animate, but non-agentive. The transitive alternant seems to hve a general meaning of something like 'have' or 'keep', which more specifically may be 'invite' (34a) or 'take' (34b). Note that the intransitive alternant may be made into a morphological causative, cf. *biti naihake* 'she gave birth to a son'.

(33) Intransitive

a. Botiko ati tai
Botiko ati tai
(man's name).M voice ahead
tokaamakiareka,
to- ka- ha -makI -hare -ka
CH- COMIT- AUX -FOLLOWING -IP.E+M -DECL+M
mayatera tiwa naari, sako yaa ihahaaro.
mayatera tiwa na -haari sako yaa iha -haaro
gill.net.F carry AUX -RC+M sack.F ADJ be -RC+F
'Botico's voice could be heard ahead of the others, as he carried a net, which was in a sack.'

b. Inamatewe ihahareka.
inamatewe iha -hare -ka
child.M be -IP.E+M -DECL+M
'The baby was born.'

(34) Causative

a. Manakobisa mee hihahaboneke.
manakobisa mee hi- iha -habone -ke
next 3P.O.F OC- put -INT+F -DECL+F
'He is going to invite them to the festa.'

b. Manira owa hihahareka.
Manira owa hi- iha -hare -ka
(woman's name).F other+M OC- take -IP.E+M -DECL+M
'Manira took the other photo.'

19. IHAWAHA. This is the same root as the preceding, with the suffix *-waha* 'CHANGE'. The intransitive means 'have a turn', and the subject may be animate (and apparently agentive) (35a) or inanimate (35b). The transitive meaning is 'take' (36). In (36) the focus is on the preposed clause, *tee kaa yama ohawaa* 'I will take your things.'[52]

(35) Intransitive

a. Oko yama kaniki
o- kaa yama ka- nika.NFIN
1SG.POSS.F- POSS thing.F COMIT- buy.NFIN
hawa toi yaa Mowe Tati
hawa to- ha+F yaa Mowe.Tati
be.finished CH- AUX+F ADJ (man's.name).M
ihawaa kabote nareka fahi.
iha -waha kabote na -hare -ka fahi
be -CHANGE QUICKLY AUX -IP.E+M -DECL+M then
'When I was finished buying things, Mowe Tati had his turn right away.'

b. Basiyoba ahabi yaa one
basiyoba ahaba+F yaa one
palm.SP.F end+F ADJ other+F
ihawaabanake.
iha -waha -habana -ke
be -CHANGE -FUT+F -DECL+F
'When this palm wood is used up, we will get some more.' (Lit., 'when the palm wood is ended, other will be.')

(36) Causative

Tee kaa yama ohawaa taa
tee kaa yama o- iha -waha taa
2P.F POSS thing.F 1SG.S.F- take -CHANGE+F give
onaboneke, Saokato
o- na -habone -ke Saokato
1SG.S.F- AUX -INT+F -DECL+F Salgado.M
ni yaa onamaro oke.
ni yaa ati o- na -hamaro o- ke
TO ADJ say 1SG.S.F- AUX -FP.E+F 1SG.S.F-DECL+F
'"I will take your things and sell them to Salgado," I said.'

20. NAWITARE. This stem is based on the intransitive root *ita* 'sit', plus the causative prefix *na-* and the derivational suffix *-rI,* which means 'on a raised surface'. (37) was elicited based on (38), and also based on the fact that other derivations with the combination of *ita* with causative *na-* normally have a theme as object.[53]

(37) Theme-object

feho nawitare
feho na- ita -rI
iron.F CAUS- sit -RAISED.SURFACE
'He put the weight (on the scale).'

(38) Goal-object

barasa nawitare,
barasa na- ita -rI
scale.F CAUS- sit -RAISED.SURFACE
'He put (the weight on) the scale.'

21. KAA NA. The theme-object alternant means 'misfire' (39), and the goal-object alternant means 'misfire on' (40). Unlike other verbs involving a weapon that propels a projectile, e.g. *fora na* 'blowgun', with *kaa na* the theme is the weapon rather than the projectile.

(39) Theme-object

Taokana kaa onara oke.
taokana kaa o- na -hara o- ke
shotgun.F fail 1SG.S.F- AUX -IP.E+F 1SG.S.F-DECL+F
'My gun misfired.' (Lit., 'I had the gun misfire.')

(40) Goal-object

Mee kaa onarake.
mee kaa o- na -hara -ke
3P.O.F fail 1SG.S.F- AUX -IP.E+F-DECL+F
'My gun didn't fire (when I tried to kill the collared peccaries).' (Lit., 'I misfired on them.')

22. KAMINA. The theme-object alternant may be translated 'tell about' or 'tell', depending on whether the object refers to a person or subject (41a,b), or 'story' or 'news' (41c). The theme-object alternant may occur with a *(ni) yaa* adjunct expressing the goal (41b), but this is not required (41a,c). The goal-object alternant means 'tell to' (42).

(41) Theme-object

a. Maro hawine botera Okomobi kaminaka.
Maro hawine bote -ra Okomobi kamina -ka
Mário.M trail+M old -O (man's.name).M tell.about -DECL+M
'Okomobi is telling about Mário's old trail.'

b. Ee kaa kanawaba a-ate onabana
ee kaa kanawa -ba DUP- ate o- na -habana
1IN.F POSS canoe.F -FUT DUP- ask 1SG.S.F- AUX -FUT+F
oke, yara mee ni yaa.
o- ke yara mee ni yaa
1SG.S.F-DECL+F Brazilian.M 3P.F TO ADJ
'"Let's ask the Brazilians for a canoe.'" (Lit., 'Let's ask for a canoe to the Brazilians.')

c. Bahi hiyara kaminaka, ee kaa owa
bahi hiyara kamina -ka ee kaa owa
thunder.M story.F tell -DECL+M 1IN.F POSS other+M
ahabe ehene.
ahaba+M ehene
die+M because of+M
'The thunder is telling us that an old person has died, and his father is telling us.'

(42) Goal-object

karafato narabi okominamatibe.
karafato narabi o- kamina -mata -beya
tape recorder.F ear+F 1SG.S.F- tell -SHORT.TIME -IMMED+F
'I'll tell the story for a while into the microphone of the tape recorder.'

23. KAMO NAWAHAMA. This verb consists of the non-inflecting root *kamo na,* plus the suffixes *-waha* 'CHANGE' and *-ma* 'BACK'. The intransitive means 'be curled up' (43), and the transitive causative means 'double over' (44).

(43) Intransitive

Arami kamo nawahamake.
arami kamo na -waha -ma -ke
wire.F curved AUX -CHANGE -BACK -DECL+F
'The wire is in a roll.'

(44) Causative

Faya boroko kamo nawaame
faya boroko kamo na -waha -ma+M
so fish.SP.M make.curved AUX -CHANGE -BACK+M
'He folded over the pirarucu.'

24. KANA NA. The intransitive means 'run' (45), whereas the transitive means 'run to' (46). In the intransitive example (45), the focus is on the non-finite form *kana ni* 'running'.

(45) Intransitive

Bato wiso tose kana ni
bato wiso to- na -kosa+M kana na.NFIN
deer.M snort CH- AUX -MIDDLE+M run AUX.NFIN
tokomareka.
to- ka -ma -hare -ka
AWAY- motion -BACK -IP.E+M -DECL+M
'The deer snorted and ran away.'

(46) Goal-object

Mee kana hinareka.
mee kana hi- na -hare -ka
3P.S.F run OC- AUX -IP.E+M -DECL+M
'They ran after her (Sakireni) (i.e., they went running to get her).'

25. KANAWANA. The intransitive may mean 'begin' (47a) or 'study' (47b). The subject may be inanimate (47a) or animate and agentive (47b). The transitive causative may mean 'start' (48a) or 'teach' (48b).

(47) Intransitive

a. Yama hiweba kanawanineke.
yama.hiwe -ba kanawana -ne -ke
dry.season.F -FUT begin -CONT+F -DECL+F
'The dry season is beginning.'

b. Tee kanawanahi.
tee kanawana -hi
2P.S.F begin -IMP+F
'You study!'

(48) Causative

a. Kabobone mee kanawana mee
kabo -bone mee kanawana mee
airstrip.F -INT+F 3P.S.F begin+F 3P.S.COORD
'They started the airstrip.'

b. Mee okanawanine oke.
mee o- kanawana -ne o- ke
3P.O.F 1SG.S.F- begin -CONT+F 1SG.S.F- DECL+F
'I am teaching them.'

26. KARI NA. The theme-object variant means 'wave' (49), and the goal-object variant means 'wave something on' (50). In (49) the focus is on the first clause, *yifo witi kari ne* 'he waved the brand'.

(49) Theme-object

Yifo	witi	kari	ne	tokome,		
yifo	witi	kari	na+M	to-	ka	-ma+M
fire.F	brand	wave	AUX+M	CH-	motion	-BACK+M

'He (Bakayona's brother) went waving the brand.'

(50) Goal-object

Faa	kari	nematamona			ahi.
faha	kari	na	-himata	-mona	ahi
water.F	wave	AUX	-FP.N+M	-REP+M	THEN

'He (Bakayona's brother) waved (the brand to illuminate) the stream.' (Lit., 'He waved at the stream.')

27. KARIMA 'hit against'. The goal, what is hit, may be expressed as a *yaa* adjunct in the intransitive variant (51), and it is the object in the transitive variant (52). For the transitive, the goal is never literal in the examples I have, but always figurative. In one example it is a sickness (52a), and in another it is the heat of the sun (52b).

(51) Intransitive

Kanawa	karimaharake,			awa	mate	yaa.
kanawa	karima	-hara	-ke	awa	mate	yaa
canoe.F	hit	-IP.E+F	-DECL+F	tree.F	stump+F	ADJ

'The canoe hit a stump.'

(52) Goal-object

a.

Towesa	ehebote	otaa	karima	otaa	amake.	
towesa	ehebote	otaa	karima	otaa	ama	-ke
sickness.F	big	1EX.S.F	hit+F	1EX.S.F	EXT	-DECL+F

'We all got some sickness.' (Lit., 'we hit a big sickness')

b. Otati komamara oke,
o-tati koma -ma -hara o- ke
1SG.POSS.F-head hurt -BACK -IP.E+F 1SG.S.F- DECL+F
bahi hiwene ee karima ee.
bahi hiwene ee karima ee
sun.M heat+M 1IN.S.F hit 1IN.RC
'I have a headache because we were in the sun a long time.'

28. KAWA NA. The theme-object alternant means 'thrust', and the path along which something is thrust may be expressed in a *yaa* adjunct (53). The goal-object alternant means 'thrust at' (54). (Cangati are fish that hide in holes of submerged logs.)

(53) Theme-object

Oteme kawa onara oke,
o- teme kawa o- na -hara o- ke
1SG.POSS.F- foot poke 1SG.S.F- AUX -IP.E+F 1SG.S.F-DECL+F
yifo ifo yaa.
yifo ifo yaa
hammock.M edge+M ADJ
'I pushed my toes along the edge of the hammock.'

(54) Goal-object

siraba mera kawa naari.
siraba mera kawa na -haari
cangati.M 3P.O poke AUX -RC+M
'He poked the cangati fish with an arrow.'

29. KAYA NA. The intransitive means 'lie across' (55), and the location may be expressed in an adjunct phrase with *kaaro/kaari.* In chapter 3 I did not mention *kaaro/kaari* because this is the only example I have with the verbs covered in this study. Unlike *yaa,* which may be attached to a theme or a location NP,

kaaro/kaari virtually always is attached to a location NP. (It may also be attached to a clause, and then the meaning is 'because' or 'in order to'.) *Kaaro/kaari* is also different than *yaa* in agreeing in gender (with the topic of the main clause).

Transitive causative *kaya na* means 'lay across something' (56).

(55) Intransitive

Faha	kaya	narake,			bista	kaaro.
faha	kaya	na	-hara	-ke	bista	kaaro
water.F	lie.across	AUX	-IP.E+F	-DECL+F	airstrip.F	LOC+F

'There is standing water on the airstrip.'

(56) Causative

Awa	kaya	onahabone			oke.	
awa	kaya	o-	na	-habone	o-	ke
log.F	lay	1SG.S.F-	AUX	-INT+F	1SG.S+F-	DECL+F

'I'm going to put a log across the stream for a bridge.'

30. KEHEMO. The theme-object alternant means 'hide' (57), and the goal-object alternant means 'hide from' (58). The focus in (58) is on the main clause, *otaa keemoareka* 'we hid from him.'

(57) Theme-object

Tika		sowiri	tikehamohi.[54]		
ti-	kaa	sowiri	ti-	kehemo	-hi
2SG.POSS.F-	POSS	penis	2SG.S.F-	hide	-IMP+F

'Hide your penis.'

(58) Goal-object

otaa	keemoareka		otaa	bana	otaa	fahi
otaa	kehemo-hare	-ka	otaa	bana	otaa	fahi
1EX.S.F	hide	-IP.E+M	-DECL+M	1EX.S.F	move	1EX.S.RC	THEN
yama	soki	yaa.					
yama	soki	yaa					
thing.F	darken.NFIN	ADJ					

'"We hid from him (the Yima Indian) and left in the night."'

31. KERO NA. This verb refers to circular motion, and in the theme-object configuration it may mean 'roll up' (59). It may also refer to the making of objects with clay, because the rolls of clay are placed in a circular pattern. The product, a kind of goal, may be the object, as in (60).

(59) Theme-object

Arami	kero	onarake.			
arami	kero	o-	na	-hara	-ke
wire.F	circular.motion	1SG.S.F-	AUX	-IP.E+F	-DECL+F

'I rolled up the wire to put it away.'

(60) Goal-object

faya	ami,	oka		hohoriba		
faya	ami	o-	kaa	hohori		-ba
so	mother.VOC	1SG.POSS.F-	POSS	wind.instrument.F		-FUT
kero	tina,	hohori.				
kero	ti-	na	hohori			
circular.motion	2SG.S.F-	AUX	wind.instrument.F			

'"Mother, form a wind instrument for me (out of clay)."'

32. KII NA. The intransitive means 'look' (61), and the goal-object alternant means 'look at' (62a). This verb is used with the object *faha* 'water' to mean 'go fishing'

(62b). This might possibly be considered an idiomatic expression, but it also fits the profile of the goal-object alternant.

(61) Intransitive

Mati	kii	kabote		nemetemoneni.			
mati	kii	na	kabote	na	-hemete	-mone	-ni
3POSS.mother.F	look	AUX	QUICKLY	AUX	-FP.N+F	-REP+F	-BKG+F

'His mother looked quickly.'

(62) Goal-object

a.

Bani	kii	onahaboneoke.				
bani	kii	o-	na	-habone	o-	ke
animal.M	look	1SG.S.F-	AUX	-INT+F	1SG.S.F-	DECL+F

'I'm going to look at the bird.'

b.

Wero	faa	kii	neba	ama?	
Wero	faha	kii	na	-hiba	ama
(man's name).M	water.F	look	AUX	-FUT+M	EXT

'Is Wero going fishing?'

33. KINARISA. This verb is the combination of the root *kina* 'fall on' with *-risa* 'down'. The intransitive means 'fall on' (63), and the goal-object alternant means 'fall on' (64).

(63) Intransitive

Bani	tati	kinarisaka.		
bani	tati	kina	-risa	-ka
animal.M	head	hit	-DOWN	-DECL+M

'The bird's head is on the ground.'

(64) Goal-object

Fowa owa kinarisahareka.
fowa owa kina -risa -hare -ka
manioc.M 1SG.O.F hit -DOWN -IP.E+M -DECL+M
'The manioc fell on top of me.' (Situation: I fell when I was carrying manioc on my back.)

34. KIYO NA. The theme-object variant means 'rub on' (65), and the goal-object variant means 'rub something on' (66a). Similarly to English, this verb may also mean just 'rub', without anything substance being applied (66b).

(65) Theme-object

Bomata kiyo tinahani awine?
bomata kiyo ti- na -hani awine
cream.F rub 2SG.S.F- AUX -IP.N+F SEEM+F
'Did you put the cream on?'

(66) Goal-object

a. Otaa noko mee kiyo naroke.
otaa noko mee kiyo na -haro -ke
1EX.POSS.F face 3P.S.F rub AUX -RP.E+F -DECL+F
'They rubbed ashes on our faces at the party.'

b. Kiyo onaharake.
kiyo o- na -hara -ke
rub 1SG.S.F- AUX -IP.E+F-DECL+F
'I rubbed it (my thigh).'

35. KOBO NA. The intransitive means 'arrive' (67), and there may be a *yaa* adjunct expressing the goal (67a), but this is not necessary (67b). The goal-object alternant means 'meet' (68). The object does not correspond exactly to the goal of the intransitive, since it is an animal or person rather than a place.

(67) Intransitive

a. fara mee tabori yaa mee kobo
fara mee tabori yaa mee kobo
same+F 3P.POSS.F place+F ADJ 3P.S.F arrive
nemetemoneke.
na -hemete -mone -ke
AUX -FP.N+F -REP+F -DECL+F
'They arrived at their own village.'

b. otaa kobo nabisa
otaa kobo na -bisa
1EX.S.F arrive AUX -ALSO+F
'We also arrived.'

(68) Goal-object

Otaa kobo neri ama ahi, hawi yaa.
otaa kobo na -hiri ama ahi hawi yaa
1EX.S.F meet AUX -RP.E+M EXT there trail.F ADJ
'We met up with him (Kofeno) on the trail there.'

36. KORO NA. The basic meaning of this verb is 'throw' (69a), and it may also mean 'plant' (69b). The theme-object alternant may occur with a *yaa* adjunct expressing the goal (69a), but does not have to (69b). In (69b) the focus is on the first clause, *fowa mee koro nani* 'they were planting manioc'. There is a goal-object use with the object NP *faha* 'water' (70), and the whole expression means 'go fishing', parallel to the expression with *kii na* discussed above.

(69) Theme-object

a. nokosi yaa yimawa koro ona,
nokosi yaa yimawa koro o- na
in front of ADJ knife.F throw 1SG.S.F- AUX+F
'I threw a knife ahead of it (the agouti).'

b. Fowa mee koro nani mee otaa wasima,
fowa mee koro na -hani mee otaa wasi -ma
manioc.M 3P.S.F plant AUX -IP.N+F 3P.O.F 1EX.S.F find -BACK+F
'We came on the others planting manioc.'

(70) Goal-object

Wero faha koro nebonaka.
Wero faha koro na -hibona -ka
(man's.name).M water.F throw AUX -INT+M -DECL+M
'Wero is going fishing.'

37. KORO NISA. This verb is derived from *koro na* 'throw' by the addition of the suffix *-risa* 'DOWN'. The intransitive means 'touch down' (71), and the transitive causative may mean 'throw down' (72a), or 'cause to fall' (72b).

(71) Intransitive

Afiyao koro nisaka.
afiyao koro na -risa -ka
airplane.M throw AUX -DOWN -DECL+M
'The plane touched down.'

(72) Causative

a. yifo koro nisematamonaka.
yifo koro na -risa -himata -mona -ka
firewood.F throw AUX -DOWN -FP.N+M -REP+M -DECL+M
'He threw the firewood down.'

b. Tieko koro nisake.
Tieko koro na -risa -ke
Diego.M throw AUX -DOWN -DECL+F
'It (the hose) caused Diego to trip.'

38. KOWA NA. The intransitive means 'whistle' (73), and the goal-object variant means 'whistle at' (74). In (74), the focus is on the right-dislocated clause, *kerewe mee kowa hinabani mati* 'the kerewe sloth whistled at them'.

(73) Intransitive

Yowi kowa ka.
yowi kowa na -ka
capuchin.monkey.SP.M whistle AUX -DECL+M
'The capuchin monkey is whistling.'

(74) Goal-object

sia, sia mee ati
sia sia mee ati
(call.of.wooley.monkey) (call.of.wooley.monkey) 3P.S.F say
nemetemone ahi, kerewe mee kowa
na -hemete -mone ahi kerewe mee kowa
AUX -FP.N+F -REP+F then sloth.SP.F 3P.O.F whistle
hinabani mati.
hi- na -haba -ni mati
OC- AUX -FUT+F-IP.N+F 3P.O.RC
'Sia, sia, they said, and then the kerewe sloth whisted at them.'

39. MARI NA. The intransitive means 'feast' (75). There are two transitive alternants, a theme-object use meaning 'feast on' (76), and a goal-object use meaning 'treat to a feast' (77). (77) is a reciprocal construction and is formally intransitive, but this is clearly a syntactic operation based on the transitive verb.

If the use in (76) means 'eat at a feast', then this appears to be a problem for the theory, since both (76) and (77) would have different kinds of goals as objects, i.e. something consumed and someone benefited, respectively. It is possible that (76) means, rather, 'offer at a feast', and this object would be classified unproblematically as a theme.

(75) Intransitive

Yomee Aki bote maki yaa famaha
Yomee.Aki bote maki yaa fama-ha
(woman's.name).F old 3POSS.husband.M ADJ two -COORD+F
mee kaakiahani, mee mari na
mee ka- ka -kI -hani mee mari na
3P.S.F COMIT- motion-COMING-IP.N+F 3PS.F feast AUX+F
mee ni yaa.
mee ni yaa
3P.F TO ADJ
'Old Yomee Aki and her husband came to the ones who were having a festa.'

(76) Theme-object

Fowe mee kakawia na
fowe mee ka- kawi+F na
plant.SP.F 3P.S.F DUP- eat.with+F AUX
toemetemonehe,
to- ha -hemete -mone -DUP
CH- AUX -FP.N+F -REP+F -DUP.MC
mowe ete mee mee mari na mati.
mowe.ete mee mee mari na mati
pirarara.fish.M 3P.O.F 3P.S.F feast AUX+F 3P.S.RC
'They used fowe as starch, when they feasted on mowe ete fish.'

(77) Reciprocal based on goal-object

Faya	mee	ibee	mari	na	mee
faya	mee	ibee	mari	na	mee
so	3P.POSS.F	RECIP	feast	AUX+F	3P.S.COORD

'They had a festa.' (Lit., 'they feasted each other')

40. MII NA. The intransitive means 'defecate' (78), and the goal-object alternant means 'defecate on' (79). The focus in (79) is on the second sentence, *korowiri era mii tee amaka, hine yaa* 'the korowiri horsefly only lays eggs on us.'

(78) Intransitive

Mii	omatibe.			
mii	o-	na -mata		-beya
defecate	1SG.S.F-	AUX -SHORT.TIME		-IMMED+F

'I'm going to defecate.'

(79) Goal-object

Korowiri	era	fawateere			amaka,		korowiri	
korowiri	era	fawa -tee	-ra	+M	ama	-ka	korowiri	
horsefly.SP.M	1INO	drink -HAB	-NEG+M		EXT	-DECL+M	horsefly.SP.M	
era	mii	tee	amaka,		hine	yaa.		
era	mii	na -tee	ama	-ka	hine	yaa		
1IN.O	defecate	AUX -HAB	EXT	-DECL+M	ONLY+F	ADJ		

'The korowiri fly doesn't suck blood, it only lays its eggs in our skin.'
(Lit., 'The korowiri doesn't drink us, it only defecates on us.')

41. NOWI NA. The intransitive means 'drip' (80), and the goal-object alternant means 'drip on' (81).

(80) Intransitive

Faha nowi ke.
faha nowi na -ke
water.F drip AUX -DECL+F
'The water is dripping.'

(81) Goal-object

Faha owa nowi nineke.
faha owa nowi na -ne -ke
water.F 1SG.O.F drip AUX -CONT+F -DECL+F
'There is water dripping on me.'

42. ORI NA 'paddle'. The intransitive is illustrated in (82). The theme-object alternant has the canoe as object (83), and the path-object alternant has the water as object (84).

(82) Intransitive

Faya ori ona,
faya ori o- na
so paddle 1SG.S.F- AUX+F
'So I paddled.'

(83) Theme-object

Mee famake, kanawa mee ori na mati.
mee fama -ke kanawa mee ori na mati
3P.S.F two -DECL+F canoe.F 3P.S.F paddle AUX 3P.RC
'There are two people paddling the canoe.'

(84) Path-object

Faa otaa ori na,
faha otaa ori na
water.F 1EX.S.F paddle AUX+F
'We paddled.' (Lit., 'We paddled the water.')

43. SAA NA. A number of diverse meanings are associated with this root, and it is possible that more than one verb is involved. However, it does seem that the idea of 'release' may tie the various meanings together. The intransitive means 'vomit' (85). One theme-object meaning has to do with shooting arrows (86a), and another has to do with releasing poison into a stream or lake for killing fish (the poison is in a basket, and the current carries it into the water) (86b). A goal-object use means 'shoot with arrows' (87).

(85) Intransitive

Saa	onara			oke.		
saa	o-	na	-hara	o-	ke	
vomit	1SG.S.F-	AUX	-IP.E+F	1SG.S.F-	DECL+F	

'I vomited.'

(86) Theme-object

a.

yama	waa	toni		yaa	mee	yaka	kanahate,		
yama	waha	to-	na.NFIN	yaa	mee	yaka	ka-	na	-nahatI
thing.F	bright	CH-	AUX.NFIN	ADJ	3P.S.F	walk	COMIT-	AUX	-ALL.DAY

wati	mee	saa	na	mati.
wati	mee	saa	na	mati
arrow.M	3P.S.F	shoot.with.arrow	AUX+F	3P.RC

'The two of them walked during the day, shooting arrows.'

b.

Kona	otaa	saa	naminabone		
kona	otaa	saa	na	-mina	-habone
plant.SP.M	1EX.S.F	put.in.water	AUX	-MORNING	-INT+F

otake.	
otaa	-ke
1EX.S.F	-DECL+F

'Tomorrow we're going to fish with kona (poison) root.'

(87) Goal-object

Aba mee otaa saa na otake.
aba mee otaa saa na otaa -ke
fish.M 3P.O.F 1EX.S.F shoot.with.arrow AUX+F 1EX.S.F -DECL+F
'We shot some fish with bow and arrow.'

44. SAA TOSA. This is the same root as the preceding, with the addition of the change of state prefix *to-* and the suffix *-kosa* 'MIDDLE'. The intransitive means 'be clear' (88), and the transitive causative means 'let go' (89). The focus in (89) is on the adjunct clause, *sina mee saa tosi yaa* 'after they left off taking snuff'.

(88) Intransitive

Tieko narabo saa tosaka.
Tieko narabo saa to- na -kosa -ka
Diego.M ear+M release CH- AUX -MIDDLE -DECL+M
'Diego's ears are clear.'

(89) Causative

sina mee saa tosi yaa
sina mee saa to- na -kosa+F yaa
snuff.F 3P.S.F release CH- AUX -MIDDLE+F ADJ
mee tokifiwaha,
mee to- ka -fI -waha
3P.S.F AWAY- motion -WATER -CHANGE+F
'After they left off taking snuff, they went to the water.' (Lit., 'after they let go of the snuff…')

45. SAO NA. This verb refers to fishing with a throw net. The theme-object alternant means 'throw' (90), and the goal-object alternant means 'fish with a throw net' (91).

(90) Theme-object

Tahafa sao, onara oke.
tahafa sao o- na -hara o- ke
throw.net.F throw.net 1SG.S.F- AUX -IP.E+F 1SG.S.F- DECL+F
'I threw a fishing net, too.'

(91) Goal-object

Bakoki faa sao nebona
Bakoki faha sao na -hibona
(man's.name).M water.F throw.net AUX -INT+M
ati nareka, tahafa yaa.
ati na -hare -ka tahafa yaa
say AUX -IP.E+M -DECL+M throw.net.F ADJ
'Bakoki said he was going to fish with a throw net.' (Lit., '…fish the water with a throw net.')

46. SETERO NAWAHA. This verb contains the suffix *-waha* 'CHANGE'. The intransitive meaning depends on the nature of the subject. With an inanimate subject it may mean 'be turned the wrong way' (92a); with an animate agentive subject it may mean 'do a somersault' (92b); and with an animate non-agentive subject the meaning may be 'fall over head first' (92c). The transitive causative meaning is 'turn over end to end' (93).

(92) Intransitive

a. Sataya mati setero nawahineke.
sataya mati setero na -waha -ne -ke
thong.F line+F flip AUX -CHANGE -CONT+F -DECL+F
'The thong strap is turned wrong side up.'

b. Setero owaha oke.
setero o- na -waha o- ke
flip 1SG.S.F- AUX -CHANGE 1SG.S.F- DECL+F
'I did a somersault as I jumped into the water.'

c. Setero nawaha awineke.
setero na -waha awine -ke
flip AUX -CHANGE+F SEEM+F -DECL+F
'It (the elephant) is falling over head-first.'

(93) Causative

Awa setero owaha oke.
awa setero o- na -waha o- ke
wood.F flip 1SG.S.F- AUX -CHANGE+F 1SG.S- DECL+F
'I turned over the stick, end to end.'

47. SII NA 'spray'. The theme-object alternant has the substance sprayed as the object (94), and the goal-object alternant has as its object the target (95). (95) was elicited on the basis of the expression someone used for deoderant, *era sisii* 'stuff for spraying ourselves', which is a nominalized form (by reduplication) of this verb.

(94) Theme-object

Ama sii onaharaoke,
ama sii o- na -hara o- ke
blood.F spray 1SG.S.F- AUX -IP.E+F 1SG.S.F- DECL+F
owiti yaa.
o- witi yaa
1SG.POSS.F- nose ADJ
'When I blew my nose, blood came out.' (Lit., 'I blew blood out of my nose.')

(95) Goal-object

Bita mee mee sii nineke.
bita mee mee sii na -ne -ke
mosquito.M 3P.O.F 3P.S.F spray AUX -CONT+F -DECL+F
'They are spraying the mosquitos.'

48. SOO NA. The intransitive means 'urinate' (96), and the goal-object alternant means 'urinate on' (97).

(96) Intransitive

Okomibaa,
o- to- ka -ma -baha
1SG.S.F- AWAY- motion -BACK -FIRST+F
soo obe.
soo o- na -beya
urinate 1SG.S.F- AUX -IMMED+F
'I'm going to urinate.'

(97) Goal-object

Bainawa hohoma nematamonaka,
Bainawa DUP- homa na -himata -mona -ka
(man's.name).M DUP- lie AUX -FP.N+M -REP+M -DECL+M
bari yima soo hinahaari.
bari yima soo hi- na -haari
back Yima.M urinate OC- AUX -RC+M
'Bainawa stayed lying after the Yima urinated on his back.'

49. SOTA NA. The theme-object alternant means 'take off' (98), while the source-object alternant means 'undress' (99).

(98) Theme-object

Makari sota oke.
makari sota o- na -ke
clothing.F undress 1SG.S.F- AUX -DECL+F
'I'm taking off my shirt.'

(99) Source-object

mee sota hine,
mee sota hi- na+M
3P.S.F undress OC- AUX+M
'They undressed him (Siko).'

50. TABA NISA. This verb includes the suffix *-risa* 'DOWN'. The intransitive means 'go down', in the sense of being a dropoff (100). The transitive causative means 'stick in the ground' (101).

(100) Intransitive

Atami taba nisake.
atami taba na -risa -ke
hill.F go.down AUX -DOWN -DECL+F
'It's an abrupt dropoff.' (Lit., 'The hill goes down.')

(101) Causative

Awa taba onisa
awa taba o- na -risa
stick.F make.descend 1SG.S.F- AUX -DOWN+F
'I stuck a stick in the ground.'

51. TANI NISA. The intransitive means 'slide' (102), and the transitive causative means 'take off' in the sense of 'slide off' (103). In (102) the focus is on the main clause, *mato tani nisamaro amake* 'the vine slid down'.

(102) Intransitive

Mato tani nisamaro amake,
mato tani na -risa -hamaro ama -ke
vine.F slide AUX -DOWN -FP.E+F EXT -DECL+F
owa tani kanisaaro.
owa tani ka- na -risa -haaro
1SG.O.F slide COMIT- AUX -DOWN -RC+F
'The vine (on the hasai palm) slid down, and it took me with it.'

(103) Causative

Makari tani tinisahi.
makari tani ti- na -risa -hi
clothing.F slide 2SG.S.F- AUX -DOWN -IMP+F
'Take off your pants.'

52. TAWI NA. The intransitive means 'glide down' (104), and in the example I have, the subject is animate and agentive. The transitive causative means 'cause to flutter' (105). The focus in (105) is on the right-dislocated clause, *boni tawi hinahaaro* 'the wind caused it (the curtain) to flutter'.

(104) Intransitive

Kate tawi naka.
kate tawi na -ka
macaw.SP.M glide AUX.CONT+M-DECL+M
'The macaw is circling down.'

(105) Causative

Makari baa onara oke,
makari baa o- na -hara o- ke
cloth.F hit 1SG.S.F- AUX -IP.E+F 1SG.S- DECL+F
boni tawi hinahaaro.
boni tawi hi- na -haaro
wind.F lift.up OC- AUX -RC+F
'I nailed down the curtain, because the wind was making it flutter.'

53. TEKO NA. The intransitive means 'have waves' (106), and the transitive causative means 'make have waves' (107). The intransitive example I have is a nonfinite form, but a finite verb is easily elicited, e.g. *faha teko narake* 'there were waves in the water'.

(106) Intransitive

Faha	teko	ni	nafiharake.
faha	teko	na.NFIN	nafi -hara -ke
water.F	have.waves	AUX.NFIN	big -IP.E+F-DECL+F

'There are lots of waves.'

(107) Causative

Faha	mee	teko		narake.
faha	mee	teko		na -hara -ke
water.F	3P.S.F	make.have.waves		AUX -IP.E+F-DECL+F

'They made lots of waves (with their motorboats and scared the fish away).'

54. TISA. The intransitive means 'hurt', i.e. 'feel a sensation of pain' (108), and the transitive causative means 'cause to hurt' (109).

(108) Intransitive

Oteme		tisaharake.	
o-	teme	tisa	-hara -ke
1SG.POSS.F-	foot	hurt	-IP.E+F-DECL+F

'My foot hurts.'

(109) Causative

Oteme		yama	tisaharake.			
o-	teme	yama	tisa	-hara	-ke	
1SG.POSS.F-	foot	thing.F	cause.to.hurt	-IP.E+F	-DECL+F	

'Something is causing my foot to hurt.'

55. TISA NA. The theme-object variant means 'shoot' (110), and the goal-object means 'shoot with bow and arrow' (111). Usually the animal shot is the object (111a), but the object is also known to refer to the water (111b). This may possibly be considered idiomatic, parallel to expressions with *kii na* and *koro na* discussed above. In any case, the water may still be considered a goal.

(110) Theme-object

Faya	wati	mee	tisa	nemetemoneke				
faya	wati	mee	tisa	na	-hemete	-mone	-ke	
so	arrow.M	3P.S.F	shoot	AUX	-FP.N+F	-REP+F	-DECL+F	
fahi,	titisa	yaa.						
fahi	titisa	yaa						
then	bow.F	ADJ						

'They shot arrows with bows.'

(111) Goal-object

a.

aba	mee	otaa	tisa	na	otake.	
aba	mee	otaa	tisa	na	otaa	-ke
fish.M	3P.O.F	1EX.S.F	shoot.with.arrow	AUX+F	1EX.S.F	-DECL+F

'We shot fish (with bow and arrow).'

b.

Faa	ee	tisa	nene,		
faha	ee	tisa	na	-hene	
water.F	1IN.S.F	shoot.with.arrow	AUX	-IRR+F	

'We aren't fishing.' (Lit., 'We aren't shooting the water.')

56. WAHIYA. The intransitive means 'hide' (112), and the goal-object alternant means 'hide from' (113).

(112) Intransitive

Afiyao wahiye awaka.
afiyao wahiya+M awa -ka
airplane.M hide+M SEEM+M -DECL+M
'It looks like the plane hid.'

(113) Goal-object

Tiwa wahiyaka.
tiwa wahiya -ka
2SG.O.F hide.from -DECL+M
'He's hiding from you.'

57. WAKA NA. The intransitive has a diversity of meanings, including 'be shattered' (114a) and 'be flat' (114b). The transitive causative usually means 'kill' with a plural object (115a). It may also mean 'knock down' (115b). The object in (115b) is singular, but the idea of plurality is present in the iterativity of the event.

(114) Intransitive

a. Hotoboni waka ke.
hotoboni waka na -ke
glass.F break AUX -DECL.F
'The glass is shattered.'

b. Bora waka na?
bora waka na
ball.M be.flat AUX.CONT+M
'Is the ball flat?'

(115) Causative

a. yima mera waka nematamonaka.
yima mera waka na -himata -mona -ka
Yima.M 3P.O kill AUX -FP.N+M -REP+M -DECL+M
'He (Saba) killed some Yimas.'

b. Narabi bite
Narabi bite
(woman's name).F 3SG.POSS.daughter.F
waka nofe amaka.
waka na nofa+M ama-ka
knock.over AUX always.M EXT-DECL+M
'He (Etiso) always knocks down Narabi's daughter.'

58. WARI NA. The theme-object variant means 'turn' (116), and the goal-object variant means 'turn against' (117).

(116) Theme-object

awa mee wari na,
awa mee wari na
stick.F 3P.S.F turn AUX+F
'They rotated the fire stick.'

(117) Goal-object

wafe mee wari nemetemone.
wafe mee wari na -hemete -mone
cotton.F 3P.S.F turn AUX -FP.N+F -REP+F
'They rotated (a stick on) cotton.'

59. WARIRI NA. This verb is derived by reduplication from the same root as the preceding. The intransitive means 'spin' (118), and the transitive causative means 'cause to spin', which in the case of a tape recorder means 'turn on' (119).

(118) Intransitive

Wariri tee amaka.
wari -DUP na -tee ama -ka
turn -DUP AUX -HAB EXT -DECL+M
'It (the top) spins.'

(119) Causative

karafato ee wariri nibeya.
karafato ee wari -DUP na -beya
tape.recorder.F 1IN.S.F turn -DUP AUX -IMMED+F
'Let's turn on the tape recorder.'

60. WASI. This verb has a diversity of meanings, both intransitive and transitive. The intransitive can mean 'get caught' (120a). But it may also mean 'find something' (120b) or 'hit something' (120c), and this apparently is an example of the alternation involving intransitive verbs which I have not covered in this study. The idea is that the subject may reference a theme (120a) or a location (120b,c), similarly to the English pair *the bees were swarming in the garden/the garden was swarming with bees* (cf. (Salkoff 1983), (Levin 1993)).

It is not obvious that the transitive uses of the verb are related to the intransitive uses or to each other, but they are related, as Dixon (1999b) points out. The most common transitive meanings are 'find' (121a,d) and 'cook' (121c). That these are related is apparent in an comparison of a pair of examples such as (121c) and (121d). In both the object is *yamata* 'food', but in (121c) the predicate means 'cook food', while the predicate of (121d) means 'find game'. With the 'find' meaning the causativity of the verb is not obvious, but with the

'cook' meaning it is more apparent. Also, even with the 'find' meaning, there are uses that are more causative. For example, in (121b) we have 'a fever found me' meaning 'I got sick with a fever'; that is, the fever caused me to be sick.

(120) Intransitive

a. Boroko wasiareka fahi.
boroko wasi -hare -ka fahi
fish.sp.M be.caught -IP.E+M -DECL+M then
'Then the boroko fish got caught (in the net).'

b. Sesowe wasiareka,
Sesowe wasi -hare -ka
(man's.name).M find -IP.E+M -DECL+M
oma mee nawasiari.
oma mee na- wasi -haari
piranha.M 3P.O.F CAUS- find -RC+M
'Sesowe caught something, he caught some piranhas.'

c. Owasihara oke.
o- wasi -hara o- ke
1SG.S.F- find -IP.E+F 1SG.S.F- DECL+F
'I hit the target.'

(121) Causative

a. Makari wasiremonaka.
makari wasi -ra -himona -ka
clothing.F find -NEG -REP+M -DECL+M
'He didn't find the piece of clothing.'

b. Faa kii onibai yaa
faha kii o- na -baha+F yaa
water.F look 1SG.S.F- AUX -FIRST+F ADJ
yama kome owa wasia amake.
yama.kome owa wasi+F ama -ke
fever.F 1SG.O.F find+F EXT -DECL+F
'Recently when I was fishing I got a fever.' (Lit., 'When I fished, a fever found me.')

c. faya yamata yara mee wasiamaro
faya yamata yara mee wasi -hamaro
so food.F Brazilian.M 3P.S.F find -FP.E+F
mee amake.
mee ama -ke
3P.S.F EXT -DECL+F
'The Brazilians cooked food.'

d. nisori mari kanebona yamata
nisori mari ka- na -hibona yamata
3S.POSS.younger.brother.M feast COMIT- AUX -INT+M food.F
wasibona tokematamonaka.
wasi -hibona to- ka -himata -mona -ka
find -INT+M AWAY- motion -FP.N+M -REP+M -DECL+M
'He had wanted to have a festa for his younger brother, so he had gone out to find food (i.e., game).'

61. WATA. There are several related intransitive meanings: 'be born' (122a), 'be located' (122b), and 'exist' (122c). The last meaning only occurs with the negative suffix *-ra.* The transitive causative means 'put in place' (123).

(122) Intransitive

a. Hibaka yaa tiwatemete ama tiri?
hibaka yaa ti- wata -hemete ama ti- ri
where.F ADJ 2SG.S.F- be.born -FP.N+F EXT 2S- CQ+F
'Where were you born?'

b. Yimawa ihi watineke
yimawa ihi wata -ne -ke
knife.F because.of+F be.located -CONT+F-DECL+F
haaro, onabati kaaro.
haaro o- nabati kaaro
that.one+F 1SG.POSS.F- stomach LOC+F
'There is a cut from a knife in my stomach.'

c. Mee watararake, yobe toro kaaro.
mee wata -ra -hara -ke yobe toro kaaro
3P.S.F be -NEG -IP.E+F-DECL+F house.M inside+M LOC+F
'There isn't anyone in the house.'

(123) Causative

raya owata.
raya o- wata
trap.F 1SG.S.F- lay+F
'I put the trap in place.'

62. NAWATA. This is the same root as the preceding, with the morphological causative prefix *na-* added. The theme-object alternant means 'fasten' or 'put on' (124), and the goal-object alternant means 'put something onto' (125). The focus in (124) is on the first sentence, *isiri mati tinawatahi* 'fasten on the straps of the basket'; and the focus in (125) is on the last clause, *owa nawate* 'he put the magical stone on me'.

(124) Theme-object

Isiri mati tinawatahi,
isiri mati ti- na -wata -hi
large.basket.F line+F 2SG.S.F- CAUS -be -IMP+F
kimi weye tibeya.
kimi weye ti- na -beya
corn.M carry 2SG.S.F- AUX -IMMED+F
'Tie the straps on the basket so you can carry the corn.'

(125) Goal-object

Faya Wabao hanohi owa hiyare
faya Wabao hano -hi owa hiyara+M
so (man's.name.M) drunk -RC+M 1SG.O.F speak
owa nawate
owa na- wata+M
1SG.O.F CAUS- be+M
'Wabao spoke to me and put (the magical stone) on me, drunk.'

63. WII NA. The theme-object variant means 'dig up' or 'dig out', and the object may be object that is being dug out, such as a root (126a), or the dirt (126b). The goal-object variant means 'dig' (127). The goal is figurative in the sense of being something produced.

(126) Theme-object

a. Kona otaa wii na,
kona otaa wii na
plant.SP.M 1EX.S.F dig AUX+F
'We dug up some kona roots.'

b. faya wami wii ona,
faya wami wii o- na
so earth.F dig 1SG.S.F- AUX+F
'I dig a hole.'

(127) Goal-object

Manira hoti wii nareka,
Manira hoti wii na -hare -ka
(woman's.name).M hole.F dig AUX -IP.E+M -DECL+M
fowa iso hotonebonaha.
fowa iso hotone -bona -DUP
manioc.M stalk+M hole+M -INT+M -DUP.RC
'Manira is digging holes to plant manioc in.'

64. WISA NA. This verb has to do with throwing water. The theme-object alternant means 'throw' (128), and refers to bailing water out of a canoe, although the canoe is not syntactically present in the sentence. The goal-object alternant means 'throw water on' (129). Although the object in (129) is not overt, it is syntactically by gender agreement. This is not an intransitive sentence; if it were, it would be *oke* at the end.

(128) Theme-object

Faa	mee	wisa	na,
faha	mee	wisa	na
water.F	3P.S.F	throw	AUX+F

'They bailed water out (of the canoe).'

(129) Goal-object

Wisa	onaboneke.				
wisa	o-	na	-habone	-ke	
throw.water	1SG.S.F-	AUX	-INT+F	-DECL+F	

'I'm going to throw water on her (Lucilia).'

65. YAKA NA. The intransitive means 'walk' (130), and the goal-object alternant means 'visit' (131).

(130) Intransitive

Yaka	oke.			
yaka	o-	na	-ke	
walk	1SG.S.F-	AUX	-DECL+F	

'I am walking.'

(131) Goal-object

Yara mee yaka tibana?
yara mee yaka ti- na -bana
Brazilian.M 3P.O.F visit 2SG.S.F- AUX -FUT
'Are you going to visit the Brazilians?'

66. YORO NA. The intransitive means 'sit or stand', and the subject is dual (132). I only have examples with animate, agentive subjects. The transitive causative means 'put in place', and the object is dual (133).

(132) Intransitive

Tee yoro niyahi.
tee yoro na+F -yahi
2P.S.F sit/stand AUX+F -DIST.IMP+F
'"You two stay here."'

(133) Causative

Saree yoro tinahi ahi,
sarehe yoro ti- na -hi ahi
dart.F put.in.place 2SG.S.F- AUX -IMP+F here
owinibana.
o- ini -bana
1SG.POSS.F- tooth+F -FUT
'Put in two blowgun darts, to be my teeth.'

NOTES

1. For interlinearized examples, the first line is orthographic; phonetic values of symbols are given in section 3.3. The second line represents underlying forms and morphemic divisions, the third line morpheme-by-morpheme glosses, and the last line a free translation. The following abbreviations are used: 1 - first person singular, 1EX - first person plural exclusive, 1IN - first person plural inclusive, 2 - second person, 3 - third person, ADJ - adjunct, AUX - auxiliary, BKG - backgrounding, CAUS - causative, CH - change of state, COMIT - comitative, CONT - continuative, COMPL - copular complement, COORD - coordinate clause, CQ - content question, DECL - declarative, DIST - distributive, FUT.IMP - distant imperative, DUP - reduplication, E - eyewitness evidentiality, EXPL - explanation, EXT - secondary verb of extent, .F - feminine inherent gender, +F - feminine agreement, FP - far past, FUT - future, HAB - habitual, IMMED - immediate, IMP – imperative, INT - intention, IP - immediate past, .M - masculine inherent gender, +M - masculine agreement, MC - main clause, N - non-eyewitness evidentiality, NEG - negative, NEG.LIST - negative list item, NFIN - nonfinite, O - direct object, OC - O-construction, PF - plural feminine argument, P - plural (i.e. two or more), P.FUT - past in the future, POST - postposed, POSS - possessor/possessive, RC - relative clause, RECIP - reciprocal, REFL - reflexive, REP - reported, RP - recent past, S - subject, SG - singular, SP - species.

2. The verb *tisa na* consists of two parts, the root *tisa* and an auxiliary *na.* As I discuss in detail in section 3.4, the auxiliary in such cases serves as a marker of a particular morphological class of verbs, and has no semantic content.

3. There are minor deviations from Dixon's transcriptions, glosses, and free translations, none of which affect the issues under discussion. Where Dixon uses the symbol *j* I use *y.* Also, I do not adopt Dixon's distinction between S (intransitive subject) and A (transitive subject) in the glosses, because Jarawara morphology does not require this distinction.

4. A fourth phenomenon which Dixon discusses in his paper is an alternation in the semantic role of intransitive verbs. For example, for the intransitive verb *moo kana* 'be full', the subject may be either the container, as in English, or the contents, cf. 'the container was now full (with water)' vs. 'the water was now full (in the container)'. A similar alternation exists in English, i.e. the *swarm* alternation, cf. *the garden swarmed with bees* vs. *bees swarmed in the garden.* I have seen very few verbs alternate in this way, and so leave the discussion of this phenomenon to a future opportunity.

5. To be precise, I list *wasi* 'find/get caught' in Table 3. *Behe na* is included in Table 3 but with the meaning 'rock'. A related derivation, *behe nawaha,* is also listed with the meaning Dixon gives for *behe na,* i.e. 'turn over'. I do not list *fata na* 'push/explode' in Table 3 because I have not seen any unelicited examples in which *fata na* means 'push'; I have only seen examples in which a related derivation, *fata towiti*, is used for this meaning. I have not listed *wete na* 'tie/return' in Table 3 because I am not convinced that these are related meanings and not just two homophonous verbs. *Fata na* 'push/explode' and *wete na* 'tie/return' may in fact alternate as Dixon says they do, and if the data were found to support this, they could be included as causative alternating verbs in Table 3 with no problem.

6. Of course this is only a small fraction of the utterances I could have written down; these were recorded because they presented something new lexically or grammatically.

7. My wife and I have been responsible for SIL's Jarawara project since 1987.

8. By the way, this suggests that the statements of linguists who are bilingual (as most are) about their mother tongue should be taken with a grain of salt if they are based on introspection, since their idiolect may be influenced by other languages they know.

9. There is another major difference between argument structure and D-structure, and that is that D-structure contains functional projections.

10. The UTAH was actually first proposed in Baker (1988).

11. These linking rules appear to predict that a transitive verb like *find* that has a subject that is not an immediate cause, could have a causative alternant, contrary to fact. Rosen (1996) suggests that possibly the fact that transitives never have causative alternants is due to case theoretic reasons, but does not elaborate. Levin and Rappaport Hovav do not discuss verbs like *find* as far as I know, but of course their approach would allow the possibility of a different rule linking the 'finder' to the external argument.

12. Juffs (1996) notes a difference between Mandarin speakers in Canada and monolingual speakers in China, and here I am referring to the judgments of the speakers in China.

13. Pinker also offers much more detailed decompositions, but I do not include them here because they are specific to his narrow conflation classes.

14. Levin (1993) lists *plow* as participating in the *wipe* alternation.

15. Levin (1993) lists *paint* as a 'verb of coloring', which along with *butter* verbs are denominal, and can be paraphrased as 'put X on (something)'. It appears that other verbs from both these classes participate in the unspecified object alternation, but are not listed as such by Levin. We can cite *color* in the same class as *paint,* and *water* in the *butter* class.

16. Rosen (1996) proposes that the aspectual classification of verbs can account for which intransitive classes have transitive causative alternants. According to this idea, only intransitive verbs that refer to delimited events may have causative alternants. This is why the directional phrase is required for the transitive uses of *gallop* type verbs. However, Rappaport Hovav and Levin (2000) point out that a directional phrase is not required for verbs of the *roll* class, whether in the intransitive or transitive use. Thus these verbs are not necessarily delimited. This is clear, for example, in a sentence such as *I bounced the ball for five minutes.*

17. The other main meaning of *to-* is 'movement away from the speaker'.

18. There is a map on p. 292 of Dixon (1999a).

19. The unrounded analysis of the back vowel is based on the observation that Jarawara speakers do not round their lips. The existence of unrounded back vowels without rounded counterparts is admittedly rare in the languages of the world, and this analysis should be subjected to instrumental analysis.

20. I use two different glosses for this prefix, depending on whether it indicated change of state or movement away from the speaker.

21. The classification of this prefix as a subject agreement marker is discussed in section 3.6 below.

22. I follow Dixon's analysis and terminology with respect to inflecting and non-inflecting verbs, but my notation is somewhat different than his. For these verbs he would use *tiki -na-, maa -ha-,* and *-awa-,* respectively, the hyphens indicating where affixes can go. I do not use hyphens on roots, but use them only to indicate if a morpheme is a prefix (e.g. *ka-* 'COMITATIVE') or a suffix (e.g. *-mina* 'MORNING'). I also use hyphens in interlinear examples to indicate whether a reduplicand is prefixed or suffixed to the verb root. When citing a reduplicated form in the text I do not use hyphens, except when a sequence involving

reduplication might be confused with a long vowel, e.g. *a-ate na* 'ask'. I do not use hyphens when citing derived forms which contain prefixes or suffixes, e.g. *nawata* 'fasten' (< *na-* 'CAUSATIVE' + *wata* 'be').

23. There are other uses of these auxiliaries in Jarawara, for example they accompany certain suffixes.

24. There is a difference in meaning. For 'the water is cold' one would use *siri,* whereas to say 'I am cold' one would use *siri toha.*

25. I have seen seven such pairs, whereas there are several hundred verbs in each of the two classes in my database.

26. If *tamabote* were a verb in (49), there would have to be a *mee* agreement clitic between *aba* and *tamabote.*

27. The suffixes which Dixon classifies as tense-modals are listed in Dixon (2001). They include, besides past and future tenses, other suffixes with modal meanings such as the irrealis suffix *-hene/-hina* and the reportive suffix *-hamone/-himona.*

28. Whenever a morpheme has two forms for feminine and masculine agreement, I list the two forms (feminine first) divided by a slash.

29. Baker (2001) proposes that parameters are set in a particular sequence as a child acquires her mother tongue, so that 'basic' means set earlier than other parameters.

30. The prefix *hi-* is not used in all O-constructions, but only when both subject and object are third person.

31. In Jarawara all animate plural NPs are feminine.

32. While withing the object NP the head noun *yima* (60a,b) is masculine, the object NP as a whole, being animate and plural, is feminine, so it is clear that the verb agrees in gender with the (masculine) subject, i.e. Saba, and not with the object.

33. If (63b) were an A-construction, there would have to be either a referential NP or the third person singular pronoun *hee* referencing the object, e.g. *hee nawarisehimatamonaka.* Just **nawarisehimatamonaka* is ungrammatical.

34. There can be agreement with two arguments at the end of the verb in an A-construction, but only with the subject and a possessor, never the subject and the object. In (i), for example, the tense *-hare* 'IP.E+M' agrees in gender with the masculine subject, *oma* 'piranha', while the declarative mood morpheme *ke* and the first person prefix *o-* attached to it agree with the first person singular possessor of the object, referenced in *oko.*

(i) Oma oko kabikana
oma o- kaa kabikana
piranha.M 1SG.POSS- POSS fish.hook.F
towakamare oke
to- ka- ka -ma -hare o- ke
AWAY- COMIT- motion -BACK -IP.E+M 1SG.POSS.F- DECL+F
'The piranha carried off my hook.'

And when there is no tense, this possibility for the A-construction is eliminated, and there can be agreement only with the subject at the end of the verb; while for the O-construction, there continues to be the possibility of agreement with both subject and object. In (ii), an O-construction, the declarative morpheme *ka* agrees in gender with the non-overt object *tatao* 'shuttlecock', which is masculine. The first person prefix *o-* agrees with the subject. In contrast, in the A-construction in (iii), both morphemes at the end of the verb agree with the subject. This is clear because the object *yobe bofe* 'under the house' is

masculine, whereas the declarative morpheme *ke* is femininine to agree with the first person subject, and the *o-* attached to *ke* also agrees with the subject.

(ii) Hani oniha oka.
hani o- to- niha- na o- ka
miss 1SG.S.F-CH- CAUS- AUX 1SG.S.F- DECL+M
'I missed it (the shuttlecock).'

(iii) Yobe bofe hora
yobe bofe hora
house.M below yell
okine oke.
o- ka- na -ne o- ke
1SG.S.F- COMIT- AUX -CONT+F 1SG.S.F- DECL+F
'I'm exclaiming at the area under the house (because it is all dug up by the pigs).'

35. Although the object NP of an A-construction must precede the verb, it does not always immediately precede the verb. In (iv), for example, the subject NP comes between the object NP and the verb. SOV order (v) is much more common for the A-construction.

(iv) Eti faa wai ke.
Eti faha wai na -ke
(man's.name).M water.F bite AUX -DECL+F
'Eti is afraid of the water.' (Lit., 'The water bites Eti.')

We can postulate that there is movement of the object NP, probably to (spec, C), in a sentence such as (iv). But this would probably not be consistent with the idea that the subject NP is a sort of adjunct, as I have said, since it would mean movement of an argument past an adjunct.

(v) Mito kobaya weye ne,
Mioto kobaya weye na+M
(man's.name).M collared.peccary.M carry AUX+M
'Mioto carried the peccary.'

36. In fact, virtually all verbal suffixes, inclucing derivational suffixes, attach to the auxiliaries for these verbs rather than to the verb root, and this is not predicted by the theory. The one exception is the distributive suffix *-ri,* which attaches to the verb root even for non-inflecting verbs (vi).

(vi) Aba tamabote mee mee tiwari
aba tama -bote mee mee tiwa -ri
fish.M many -VERY 3P.O.F 3P.S.F carry -DIST
kanemetemone, wawasi yaa.
ka- na -hemete -mone wawasi yaa
COMIT- AUX -FP.N+F -REP+F fish.trap.F ADJ
'They carried a whopping lot of fish home in their fish traps.'

37. The list in Table 10 nearly coincides with Dixon's (2002) list of the 'First Echelon' of the 'Miscellaneous' suffixes. There are however, some significant differences. Dixon recognizes two suffixes *-kosa* and I just one, and I analyze his suffix *-kasa* 'A LOT AT ONCE' as the combination of the comitative prefix *ka-* plus the auxiliary *na* (which is always deleted in this morphological context) and the suffix *-kosa.* The argumentation for these analyses is quite involved, and there is not space to detail it here. I distinguish the suffix *-hina* 'CAN' from Dixon's *-hina na* 'CAN', which he lists as occuring much further away from the root. Both suffixes may be glossed as 'CAN', but one occurs with an auxiliary *na* and the other does not. The one in Table 10 is the one which does not occur with the auxiliary, and only it affects argument structure.

38. This is the only suffix that attaches to the root of non-inflecting verbs, thus violating the division between inflecting and non-inflecting verbs. The verb *fito na* 'attack' (vii), for example, is always non-inflecting, and yet *-ri* 'DISTRIBUTIVE' is

attached to the root rather than to the auxiliary *na* (in contrast to *-kI* 'COMING', which like all other suffixes except for *-ri,* can never attach to a non-inflecting root).

(vii) Mee fitori nakemetemoneni.
mee fito-ri na -kI -hemete -mone -ni
3P.S.F run-DIST AUX -COMING-FP.N+F -REP+F -BKG+F
'They rushed (at him).'

39. I think the qualification 'almost always' must also be made for Levin and Rappaport Hovav's (1995) generalization for English, too, since verbs of spatial configuration with particles can be found in a maintain position sense, cf. *I stood up all day long* or *she is lying down right now.*

40. In the case of *howe nawaha* 'wipe off/wipe clean', the stem includes a derivational suffix *-waha* 'CHANGE' attached to the auxiliary *na.*

41. This is actually an detransitivized use of the verb *baa kana* 'hit', but a transitive version is easily elicited, e.g. *koba baa okanara oke, awa bite yaa* 'I hit into the sofa tree with a plug.'

42. Although the label 'transitivizing' appears to suggest that the transitive variant is derived from the intransitive variant, I do not mean to suggest this, but only that there is an alternation in transitivity from one alternant to the other. It could be that a better label could be found.

43. One of the consequences of this idea is that some adjectival predicates, i.e. those that are stage-level, should be treated the same as other atelic intransitives. Thus, the D-structure of a predicate such as *be angry* should be determined by whether it is considered internally caused or not: if internally caused, unergative, and if not internally caused, unaccusative. I am not sure

whether these predicates should be considered internally caused or not, but Bennis (2000) classifies them as unergative (without using internal cause as a criterion).

44. Levin and Rappaport Hovav (1995:209fn10) state that *run,* in contrast to *roll,* is 'necessarily agentive', and that the use in *the machine is running* is 'not basic'.

45. This verb seems to be parallel to English verbs like *measure* and *weigh,* cf. *the boat measures 60 feet* vs. *I measured the boat.* There are differences, especially the fact that the first sentence has a post-object NP, but the parallels with Jarawara include the fact that the verb in the first sentence is an individual-level stative, and the object of the second sentence corresponds to the subject of the first sentence. I have not seen pairs like this discussed in the literature.

46. One could argue that 'find' is not a causative meaning at all. Transitive *wasi* also may mean 'prepare (food)' (viii), and this appears to have a causative meaning, but then the relationship with the intransitive meaning 'get caught' is less transparent.

(viii) faya yamata yara mee wasiamaro mee amake.
faya yamata yara mee wasi -hamaro mee ama -ke
so food.F Brazilian.M 3P.S.F find -FP.E+F 3P.S.F EXT -DECL+F
'The Brazilians cooked food.'

The relationship does exist, though, because the same expression that means 'cook food' (viii) may also mean 'find game' (ix).

(ix) yamata wasibona tokematamonaka,
yamata wasi -hibona to- ka -himata -mona -ka
food.F find -INT+M AWAY- motion -FP.N+M -REP+M -DECL+M
'He went out to find game.'

47. In my database I have intransitive examples of this type with over 130 verbs.

48. The reason it is proposed that *a-ate na* is reduplicated is phonological, but also because of the comparison with *ate-ate na* 'make a lot of noise', as in (x).

(x) Porto Velho ate-ate na awineke.
Porto.Velho DUP- ate na awine -ke
Porto.Velho.F DUP- noise AUX+F SEEM+F -DECL+F
'There is a lot of noise in Porto Velho.'

49. The reason the auxiliary *na* is not present with *bere* is that in the context, this clause is part of a list construction. In a list construction involving non-inflecting verbs, the auxiliary with each verb is deleted as is the case with *hisi na* 'smell' in (xi) below. There is an auxiliary at the end of the last clause, the list auxiliary, but this too is sometimes deleted, as is the case in (14).

(xi) Sina mai hisi, yamata nafi mai
sina mahi hisi yamata nafi mahi
tobacco.F smell+F smell food.F all smell+F
hisi, nemetemoneheni.
hisi na -hemete -monehe -ni
smell AUX -FP.N+F -REP+F -BKG+F
'It (the snake) smelled the tobacco, and it smelled all the crops.'

50. This example is not actually transitive, being an instance of the implied agent alternation. A transitive is easily elicited, such as *moho akori fora nareka, karaboa yaa* 'he blew moho cotton out of the blowgun'.

51. The reason future tense is used in the right-dislocated clause is to indicate that the event occurred after the event of the main clause, but it is a past event with respect to the time of the telling of the story.

52. There is no future tense in the clause, but the main clause is future, and the event of the preposed clause is future in the context of the story.

53. Two examples are (xii) and (xiii). In (xii) the additional derivational affix is the comitative suffix *ka-,* indicating the rice was inside a bowl; and in (xiii) there is the additional derivational suffix *-risa* 'DOWN'.

(xii) ahosi wakara fana
ahosi wakara fana
rice.F Paumarí.F female.F
hikanawitare,
hi- ka- na- ita -rI
OC- COMIT- CAUS- sit -RAISED.SURFACE
'The Paumari woman set the rice down.'

(xiii) yifari nawitarerise,
yifari na- ita -rI -risa+M
banana.F CAUS- sit -RAISED.SURFACE -DOWN+M
'He set the bananas down.'

54. The second vowel of *kehemo* is a morphophoneme that alternates between *e* and *a*, depending on the number of moras preceding in the word, similar to the morphophoneme *I.* If the preceding number of moras is odd, the surface form is *e,* and if the preceding number of moras is even, the surface form is *a.* This morphophoneme is much rarer than *I.*

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