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## 11: HUNGER ACTS ON ME: THE GRAMMAR AND SEMANTICS OF BODILY AND MENTAL PROCESS EXPRESSIONS IN KALAM

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### 1. Introduction

This essay examines the way one broad domain of human experience, namely, bodily and mental processes (BMP), is represented in the Kalam language of Papua New Guinea.<sup>1</sup> Kalam is spoken by about 15,000 people living around the junction of the Bismarck and Schrader Ranges on the northern fringes of the Central Highlands, in the southwest corner of Madang Province.<sup>2</sup>

The term “bodily and mental processes” covers a diverse range of phenomena grounded in human physiology, including (i) transient observable processes like sweating, bleeding, vomiting, sleeping, snoring, sneezing, and giving birth, (ii) stable visible conditions like having boils, dandruff, or warts, or being pregnant, (iii) sensations like feeling sick or hungry, or tasting bitter, sweet, or salty, (iv) emotions such as

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1. It is a pleasure to be able to contribute a study on grammatical relations to a volume honoring Stan Starosta, among the most rigorous and original of modern thinkers in this field. Happily he and the first author are still friends in spite of having been colleagues for several years and coauthors of a much-criticized paper. We look forward to Stan telling us how a reformulation of this essay in the Lexibase framework reveals further insights. Although Pawley has written the text of this paper, the data and analysis stem from work over many years with a number of Kalam speakers, but above all Simon Peter Gi, John Kias, and Ian Saem Majnep. The field research on Kalam was supported by grants from the Wenner Gren Foundation for Anthropological Research and the Research Committees of the University of Auckland and the University of Papua New Guinea. We are grateful to Sasha Aikhenvald, Videa de Guzman, Alan Rumsey, Matt Shibatani, and Anna Wierzbicka for their helpful comments on a draft of the paper.
  2. Kalam belongs to the Madang branch of the large Trans New Guinea Phylum, to which most so-called “Papuan” languages belong. There are two main dialects that in morphology are about as different as Spanish and Italian and so might well be regarded as different languages. *Etp Mnm* is spoken in the Upper and Middle Simbai Valley and Kaiment Valleys and much of the Upper Kaironk. *Ti Mnm* is spoken in the Asai Valley and parts of the Upper Kaironk. Examples used here are in the Etp Mnm dialect as spoken in the Upper Kaironk Valley.

Linguistic analyses of Kalam include a general grammar by Pawley (1966), a detailed study of serial verb constructions by Lane (1991), and treatments of particular topics by Givón (1990), Pawley (1987, 1993), and Pawley and Lane (1998). There is a dictionary soon to be published (Pawley et al., in press).

feeling angry, sad, or jealous, and (v) cognitive processes like being awake, thinking, remembering, and dreaming.

Most kinds of BMP are usually expressed in Kalam by a single verbal clause, although some are represented by a multi-clausal construction. As is the case in many Papuan languages, two main classes of single-clause BMP constructions can be distinguished, which we will call *Experiencer Subject* and *Experiencer Object* constructions. The two types are illustrated by the sentences in (1) and (2), respectively.<sup>3</sup>

**Table 1. Consonant Allophones**

	WORD-INITIAL	MEDIAL	FINAL
ORAL OBSTRUENTS			
p	[p̥]	[β]	[p] or [b]
t	[t̪]	[ɾ]	[ɾ]
c	[č]	[č]	[č]
s	[s]	[s]	[s]
k	[k]	[ɣ]	[k]
PRENASALIZED OBSTRUENTS			
b	[mb]	[mb]	[mp]
d	[nd]	[nd]	[nt]
j	[ɲ]	[ɲ]	[ɲč]
g	[ŋg]	[ŋg]	[ŋk]
RESONANTS			
m	[m]	[m]	[m]
n	[n]	[n]	[n]
ñ	[ɲ]	[ɲ]	[ɲ]
ŋ	[ŋ]	[ŋ]	[ŋ]
l	[ɭ]	[ɭ]	[ɭ]
w	[w]	[u] /C_C	[w]
y	[y]	[i] /C_C	[y]

3. The consonants and their allophones (a rough indication of the pronunciation of each, but excluding the consonant-release vocoid) are given in table 1. There are three vowel phonemes, *a*, *e*, *o*, realized as [a], [e] and [o], and two semivowels, spelled *w* and *y* when nonsyllabic and *u* and *i* when syllabic.

Many words contain no phonemic vowels. Consonant phonemes standing alone or before another consonant in a word are released with a predictable epenthetic vowel, which may be called a “consonant release” vowel, as in /wsn/ [wusɪn] ‘sleep’, /ytk/ [yirík] ‘forest’, /mlp/ [miɾip] ‘dry’, /gpnp/ [ŋɪβinɪp] ‘I might have done’.

In words consisting of a single consonant other than a palatal, the release vowel is a very short stressed [ə], e.g., [mbə] ‘man’. In the context C\_CVC it may be a very short, near copy of V or a short central or high central vowel, e.g., /kañ/ ‘blood’ is [laɣá.ɲ] or [liɣá.ɲ]. Elsewhere before and after /y/, the epenthetic vowel is usually [i]. Elsewhere before and after /w/, it is usually [u].

- (1) a. Nad suk a-sp-an.  
you (SUBJ) laughter say-PROG-2S<sup>4</sup>  
'You are laughing.'
- b. Nuk kñk g-s-a-p.  
he saliva do-PROG-3S  
'He is spitting.'
- c. Yad ss ki-sp-in.  
I urine excrete-PROG-IS  
'I am urinating.'
- d. Nuk aññ ay-s-a-p.  
he breath/pulse put-PROG-3S  
'He is breathing'/'He is catching his breath.'
- e. Yad ñb nñb-in.  
I eat perceive-PF-IS  
'I tasted (it) (deliberately).'
- (2) a. Np suk ow-p.  
you (OBJ) laughter come-PF.3S  
'You felt like laughing/You couldn't help laughing.'
- b. Nup kñk ow-p.  
him saliva come-PF.3S  
(i) 'He is salivating.' (also [ii] 'He feels a craving.' [iii] 'He feels revulsion.')
- c. Yp ss yow-p.  
me urine fall-PF.3S  
'I feel like urinating/I need to urinate.'
- d. Np aññ yow-p.  
you (OBJ) breath/pulse fall-PF.3S  
'You are out of breath.'
- e. Yp ydk g-p.  
me tasty do-PF.3S  
'It tasted good to me.'

In grammatical terms, the sentences in (1) have the following in common: (a) the Experiencer is represented by a pronoun from the Subject set of pronouns and (b) the person-number suffix on the verb, which marks Subject, is coreferential with the Experiencer. The sentences in (2) differ in that (a) the Experiencer is represented by a

4. Key to abbreviations used in glosses: D, dual; DS, different Subject (from following verb); DUR, durative; FUT, future; HORT, hortative; I, Instrument; IMM, Immediate past; L, Locative; lit., literally; NDR, noun derivative suffix; OBJ, Object (case); OPT, optative; P, plural; PF, perfect (denotes today's past, present perfect, or present-iterative); PAST, remote past (yesterday or earlier); PAST.HAB, past habitual; PRIOR, prior or preceding (the event denoted by following verb); REC, recent past; PROG, present progressive; S, singular; SIM, simultaneous (with the event denoted by following verb); SS, same Subject (as following verb); SUBJ, Subject.

pronoun from the Object set and (b) the person-marker suffix on the verb always marks 3rd person singular. It is clear that in (2) the suffix does not refer to the Experiencer, but it is not always clear whether or not it refers to the other nominal in the clause. Foley (1986:121–127, 190–194) discusses comparable examples from a selection of Papuan languages under the rubric of events that the animate participant controls or does not control.

BMP expressions are a rich field for the study of human perceptions of the body and mind, a domain of considerable interest to philosophers, psychologists, and anthropologists. For linguists, such expressions are of special interest in connection with the debate about how iconic the design of languages is with human perceptions of the world, because BMP expressions refer to a domain of experience that is presumably the same for all people.

In the transformation of experience into conventional linguistic representations, there are certain interfaces where there is potential either for iconicity or for arbitrariness. One such interface resides in the speaker's initial interpretation of sensations and perceptions as meaningful entities. "Making sense" of experience is a complex process that involves paying attention to particular bits of sensory input, while ignoring others, and placing a construction on those bits that are attended to. For example, someone tasting a bottle of wine at dinner may experience many different sensations at once—the feel of the glass on the lips, the temperature of the room, the flickering of lights, the hum of conversation, etc.—and pay little or no attention to any of the sensations except for the effect of the wine on the palate and the nose. Categorizing that sensation will be a matter of judgment, and translating that judgment into words will require still other judgments.<sup>5</sup>

A second interface resides in the matching of syntax and semantics. If choice of grammatical category and construction were fully determined by semantic categories and relations, there would, by definition, be a perfect correspondence between syntax and meaning. However, in all languages there are more semantic distinctions than there are grammatical ones, and this mismatch creates a design problem—how to squash a wide range of semantic structures into a smaller range of formal structures—which guarantees some degree of arbitrariness in the coding of meaning. Even though all formal constructions may be in large part semantically motivated, in that each represents a canonical semantic type, most construction types also accommodate more than one kind of conceptual construction. Thus, transitive constructions in English represent both canonical transitive relations such as "The man ate his lunch" and "Mary kicked the cat," where an agent does something to a patient, and quite different sorts of relations, such as "The man heard the noise" and "Mary feared the worst."

In the present essay, our primary concerns will be with certain basic questions in the domain on grammar and semantics. What kinds of syntactic constructions are used to represent particular bodily and mental processes? To what extent is the choice of construction for particular BMP expressions determined by semantic consider-

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5. In his book *The Linguistic Construction of Reality*, George Grace (1987) discusses these issues at length.

ations? Investigation of these matters will lead us to consider some questions about other issues in Kalam grammar and semantics—for example, what properties define “Subject” and “Direct Object?” How do notions like ‘cause’, ‘volition’ and ‘control’ figure in the grammar? What factors trigger switch reference morphology on verbs?

Comparison of the examples in (1) and (2) suggests that Kalam BMP constructions show a neat fit between syntax and semantics. The sentences in (1) denote processes that are controlled by the Experiencer (at least to some extent) and the sentences in (2) represent processes that are *involuntary* or *uncontrolled*. However, examination of a wider range of processes shows that things are not so straightforward.

Before we go deeper into BMP expressions, a few remarks are needed on relevant points of Kalam grammar. (For phonology and orthography see n. 3 and table 1.)

## 2. Notes on Kalam Grammar

### 2.1 Verbal Clauses

A verbal clause consists minimally of an inflected verb. It may also contain a number of core and adjunct noun phrases and adverbial elements.

### 2.2 Verbs

**2.2.1 Verb roots and verb morphology.** Verb roots or bases are a closed class with about 130 recorded members. Their morphological and syntactical properties are highly distinctive. They are the only part of speech to carry inflectional suffixes marking tense, aspect, or mood, Subject person-and-number, and switch reference.

Inflected verbs are either independent or dependent. Independent verbs carry suffixes marking absolute tense, aspect, or mood, and suffixes marking Subject-reference independently of any other verb. Dependent verbs carry suffixes marking relative tense (prior, simultaneous with, or subsequent to) and relative Subject reference (same or different), the comparison being with the next verb in the construction. These markers of relative tense and Subject-reference are discussed in 2.6 under the heading “switch reference and relative tense marking.” Some dependent verbs are also marked for absolute tense, aspect, or mood, and person-number of Subject.

**2.2.2 Generic verb roots.** In forming its verbal lexicon and in certain other respects, Kalam relies heavily on a small number of “generic” verb roots. These are verbs that have a very broad meaning (e.g., *g-* ‘happen, act, do, make, work’, *ag-* ‘make a sound, say’, *ay-* ‘put, form, stabilize, become’, *d-* ‘touch, have, control, finish’, *ny-* ‘perceive, know, see, hear, smell, feel, be conscious, be aware, observe’ ) and that, as well as occurring alone, occur as a component in many conventional expressions, in sequence with verbal adjuncts (2.2.3) and/or with other verb roots (2.2.4). Fifteen generic roots alone account for nearly 90 percent of verb-root tokens in text. Thirty-five verb roots account for some 98 percent of all such tokens.

**2.2.3 Complex verbs: Verbal adjuncts + verb root.** A verbal adjunct is a word or phrase that occurs only in partnership with a verb root, helping to define its meaning more specifically and that, together with the verb root, forms a complex verb. They differ from clausal adverbs in that verbal adjuncts always form a constituent with the verb, although not necessarily a continuous constituent. True verbal adjuncts cannot stand in a case relation with the verb, that is, cannot be Subject, Direct Object, Locative, and so forth, cannot be possessed or modified by an adjective, and cannot modify a noun. However, there is a cline between true adjuncts and quasi-adjuncts that have adverb-, adjective- and noun-like properties. In the following examples, *si* ‘illegally’ and *dad* ‘carrying, being in possession of, controlling’ are true adjuncts and *wsn* ‘sleep, sleeping’ is a quasi-adjunct. Verbal adjuncts differ from adverbs in that they are always constituents of a complex verb and cannot modify larger constituents.

- (3) a. Kik wog-yad si amn-ya-k.  
       they garden-my illegally go-3p-PAST  
       ‘They trespassed on my garden.’
- b. Cn np mdak ayn-bogs dad n-ng g-p-un.  
       we you(OBJ) later iron-box carrying join-SS.FUT do-PF-1P  
       ‘We will join you later bringing the metal trunk.’
- c. Cn wsn kn-nu-k.  
       we sleep(ing) lie-1P-PAST  
       ‘We slept.’

A large part of the verbal lexicon of Kalam consists of adjunct + verb-root sequences. For example, the adjunct *si* ‘unlawful, illegal’ occurs paired with a variety of verbs, as in *si am-* (illegally go) ‘trespass’, *si bsg-* (illegally sit) ‘steal s.o.’s seat’, *si d-* (illegally take) ‘steal’, *si g-* (illegally do) ‘transgress’, *si ñag-* (illegally shoot) ‘poach (game)’, *si tb-* (illegally cut) ‘poach timber’, *mgn si daŋ-* (vagina illegally copulate) ‘(of a man) commit adultery’.

**2.2.4 Complex verbs: Serial verb constructions.** Kalam makes extensive use of serial verb constructions, in which one or more bare verb stems precede an inflected final verb, usually under a single intonation contour. With certain exceptions, the nonfinal verbs in such a series share the same Subject and the same tense, aspect, or mood as the final verb, as in (4).

- (4) a. Am kmn pk d ap ad ñb-igp-ay.  
       go game.mammal kill get come cook eat-PAST.HAB-3P  
       ‘They used to hunt game mammals for food.’ (lit. ‘They used to go and kill game mammals and bring back and cook and eat.’)
- b. Yp wik d ap tan d ap yap g-a-k.  
       me rub touch come ascend touch come descend do-3S-PAST  
       ‘He massaged me.’ / ‘He gave me a rubdown.’

Serial verb constructions are an important means of augmenting the verbal lexicon. The number of conventional expressions consisting of two or more verb stems runs

into the thousands. A few examples: *d am-* (get go) ‘take’, *d ap-* (get come) ‘bring’, *am d ap-* (go get come) ‘fetch’, *ptk am-* (fear go) ‘flee’, *kn am-* (sleep go) ‘drift off to sleep’, *ag ñ-* (say transfer) ‘tell’, *ag ask-* (say avoid) ‘refuse’, *ag ay-* (say stabilize) ‘make an appointment, ask to stay’, *ag nŋ-* (say perceive) ‘ask’, *ag slok-* (say slip.off) ‘reneg’, *ag g-* (say do) ‘insist, command’, *pk cg-* (strike adhere) ‘attach, stick on’, *tk ay pk ay-* (give.birth complete strike complete) ‘commit infanticide’, *kat d ap puji tb tk-* (car hold come press cut interrupt) ‘put the brakes on a car’, *d ap tan d ap yap-* (hold come ascend hold come descend) ‘move back and forth’, *wik d ap tan d ap yap g-* (rub hold come ascend hold come descend do) ‘massage something, give someone a rubdown’.

## 2.3 Other Parts of Speech

Several parts of speech other than verbs and verbal adjuncts can be distinguished, chiefly on syntactic grounds. The following discussion treats only those word classes relevant to this essay.

**2.3.1 Personal pronouns.** There are two main sets of personal pronouns: the Subject (or nominative) and Object (or accusative) sets. They are most often used with humans, less often with higher animals, and rarely with low-ranking animals such as insects. They very rarely occur with inanimate referents, which are usually represented by a full NP or, anaphorically, by zero or by a demonstrative such as *mey* ‘that (previously mentioned)’. The most basic forms in each pronoun set are given in table 2.

Table 2. Subject and Object Pronouns (Animate)

	1S	2S	3S	1D	2D	3D	1P	2P	3P
SUBJECT	yad	nad	nuk	ct	nt	kikmay	cn	nb	kik
OBJECT	yp	np	nup	ctp	ntp	kuypmay	cnp	nbp	kuyp

Object pronouns are used both for canonical Direct Objects and for Indirect and Dative Objects. Possessive pronouns are drawn from one or the other of these sets, according to whether the possessive phrase is the grammatical Subject or Object.

**2.3.2 Common nouns.** Common nouns can serve as Subject or Object of a verb and can take articles and demonstratives, can be modified by a possessor or adjective, and can serve as modifiers before another noun, as in *smi kotp yob ak* (dance.festival house large that) ‘that large dance festival house’.

**2.3.3 Proper nouns.** Proper nouns can serve as Subject or Object of a verb but cannot be possessed and cannot take articles or demonstratives.

**2.3.4 Question-words.** The question-words *an* ‘who?’, *an-nup* ‘whom?’, *etp* ‘what?’, *etp-nen* ‘how, what for?’, *akay?* ‘where?’, *won akay?* ‘when?’ are nominals.



**2.3.5 Adjectives.** Adjectives, for example, *kls* ‘strong’, *sketk* ‘wrong’, *tep* ‘good’, *yob* ‘big’, *ydk* ‘tasty’, can occur after a noun or verb root as a modifier. All adjectives can also occur in partnership with a verb in predicate position, e.g., *kls g-* (strong do) ‘be strong, do strongly’. Unlike common nouns, adjectives cannot be possessed and cannot be modified except by reduplication and by intensifiers such as *tmey* ‘bad, extremely’ and *yb* ‘true, truly, extremely’. However, certain groups of adjectives show some noun-like properties. In meteorological and certain bodily process expressions, an adjective can occur as the only element other than the verb (as in 5a), or the only element other than the Experiencer (5b).

- (5) a. Takl g-p.  
cold do-PF.3S  
'It's cold.'
- b. Yp km g-p.  
me bitter do-PF.3S  
'It tastes bitter to me.'

**2.3.6 Negation.** The negative clitic *ma-* (*m-* before bases beginning with *o*) can occur only once in a clause. It always precedes the verb. Although it most often attaches directly to the inflected verb, it can also occur earlier in the clause, attached to the first element in a complex verbal group (to a verbal adjunct or the first bare verb root in a serial verb sequence) or, less commonly, to a Direct Object, Instrument, or Locative phrase. It cannot precede a Subject or Object pronoun but does occasionally occur before Subject NPs when they are in second (nontopic) position, as in (6).

- (6) a. Yp    ma-    mablep    ay-p.  
          me   not   wart       form-PF.3S  
          'I don't have warts.' ('Warts do not form on me.')
- b. \*Ma-   yp       mablep    ay-p.  
          not   me   wart       form-PF.3S.  
          'I don't have warts.' ('Warts do not form on me.')

## 2.4 Nominal Clauses

A nominal clause consists of a topic nominal and a comment or question nominal, as in (7).

- (7) B      yob   yb-nuk   Biski.  
man   big   name-his   Biski  
'The big-man's name is Biski.'

## 2.5 Verbal Clauses and Case Relations

A verbal clause or simple sentence consists minimally of an inflected verb. In canonical transitive clauses, the distinction between NPs representing the core grammatical relations, Subject and Object, is usually well-marked.

**2.5.1 Subject.** The Subject NP can be identified using the following criteria: (a) The Subject is the NP that is coreferential with the person-number suffix on the main verb.

- (b) When the Subject is a free pronoun, it selects a pronoun from the Subject class (which marks subject, independent or topic referent, or non-Object possessor).
- (c) Subjects control switch reference (within certain bounds discussed in 2.6).
- (d) Subjects prefer first position in the sentence.
- (e) Subject denotes the participant that plays the most active role in transitive verbs.
- (f) The verbal negative clitic *ma-* seldom precedes Subjects, but more readily (under some conditions) precedes Objects (when these are a full NP) and Instruments.

**2.5.2 Agreement between subject and verb.** Among the Subject person-and-number suffixes, 1st, 2nd, and 3rd singular and plural are distinguished; in the dual the distinction is between 1st person and 2nd/3rd. An animacy hierarchy operates in marking number. With human Subjects, the verbal suffix must distinguish singular, dual or plural. When higher animals are Subjects, the suffix usually distinguishes number but in some contexts need not do so. With lower animal Subjects, the suffix seldom distinguishes number but may do so. With inanimate Subjects, the verbal suffix is always 3rd person singular.

**2.5.3 Direct and indirect objects.** Direct and Indirect Object NPs differ from Subjects as follows: (a) When the Object NP is a pronoun, the pronoun is drawn from the Object class. (However, only animate referents are represented by independent pronouns.)

(b) When an animate Object is represented by a full NP, the NP is optionally followed by an Object pronoun.

(c) The preferred position for Objects is after the Subject and before the verb.

(d) The verbal negative clitic *ma-* can, under certain conditions, readily precede an Object NP other than pronouns.

(e) The Direct Object NP is the Patient of two-place action verbs and the Location of existential and posture verbs. There are a few three-place verbs that take both a Direct Object and an Indirect Object in a Beneficiary or Associative role.

The order of core constituents has some degree of flexibility. In transitive clauses with an animate Subject and a single Object (Direct or Indirect), the canonical word order is SOV, as in (8).

- (8) a. Bin      kaj-nup   piow-ya-k.  
          woman pig-it   search-3P-PAST  
          'The women searched for the pig.'
- b. An      np      ñ-a-k?  
          who you   give-3S-PAST  
          'Who gave (it) to you?'

However, a highly topical Object (animate or inanimate) can precede an animate Subject. Direct Objects occasionally follow the verb. When the Object is animate and the Subject is inanimate, the Object usually comes first, as in (2a–e) above and (9).

- (9) Np et g-p?  
 you what do-PRES:PF.3S  
 'What happened to you?'

Direct Objects usually follow Indirect Objects (10a), but a Direct Object that is topic (10b) or head of a relative clause (10c) precedes the Indirect Object.

- (10) a. Np moni ñ-n-k.  
 you money give-IS-PAST  
 'I gave money to you.'
- b. Yad np b ñ-ng-ayn!  
 I you man give-FUT-IS  
 'I will give you to a man!'
- c. Moni np ñ-n-k, mey akay?  
 money you give-IS-PAST, that where  
 'The money I gave you, where is it?'

**2.5.4 Peripheral or adjunct NPs.** Peripheral or Adjunct NPs include Location, Time, and Instrumental phrases. Locative phrases are sometimes marked by postpositions. Peripheral phrases other than Time usually follow Objects. For Locatives, the preferred order is SOLV or SOVL. Seldom does a simple verbal clause contain a peripheral instrumental NP. Usually the instrument role is coded as a Direct Object in a separate "instrumental" clause.

## 2.6 Switch Reference and Relative Tense Marking

Switch reference and relative tense are grammatical relationships that hold between successive clauses. Relative tense has to do with the sequential relationship between the events marked by the verbs. Both categories are signaled by a portmanteau suffix on the first verb in the pair. In Kalam, switch reference refers to marking of identity or change of Subject in the second of two inflected verbs. In this respect, it differs from some Papuan languages (Farr 1997, Foley 1986:190–195, Roberts 1997) in which switch reference tracks clause topics rather than Subjects.

**2.6.1 Suffixes marking same subject.** Four suffixes indicate Same Subject reference combined with relative tense: *-i* 'action prior to next verb' and *-tag* 'action prior to next verb' (the latter is used mainly in folk tales) (both are abbreviated as SS.PRIOR), *-ig* 'action simultaneous with next verb' (SS.SIM), *-ng* 'action subsequent to next verb' (SS.FUT). *-ng* is not inherently a Same Subject marker but it has this interpretation unless it is preceded by *-e-*, which marks Different Subject (see 2.6.2).

When a verb carries a Same Subject suffix, as in (11) below, it usually has no suffix marking absolute person-and-number of its Subject. That information is normally carried by the next independent verb, usually the final verb in the sentence.

- (11) a. Am-i, ap-i, wog g-ng g-p-in ag-p.  
 go-SS.PRIOR come-SS.PRIOR work do-SS.PRIOR do-PF-1S say-PF-3S.SS.FUT  
 'He said he will do the work when he gets back.' (lit. "Having gone, having come, intending to do work I do," he said.)
- b. Nad cnp gos nŋ-ig md-enm-n.  
 you us thought perceive-SS.SIM stay-OPT-2S  
 'You should keep thinking of us.' (lit. 'You should stay thinking of us.')

**2.6.2 Suffixes marking different subject.** Two suffixes indicate Different Subject reference combined with relative tense: *-e-* (or its conditioned variant *-o-*) denotes action prior to next verb (DS.PRIOR), and *-nŋ* marks action simultaneous to next verb (DS.SIM). The sequence *-e-ng-* (DS-FUT) marks future action by Different Subject.

Any verb marked for Different Subject in the next clause is also marked for the person and number of the Subject of its own clause. Examples are given in 2.6.3.

**2.6.3 Rules for same and different subject marking.** The following is a rough approximation of the rules for marking switch reference. Successive animate Subjects take Same Subject marking on the verb if at least one referent of the first Subject is shared with the second. For example, 1S and 1P count as Same Subject. If the Subjects of both the first and second verbs are animate and if they do not share at least one participant in common, the first verb is marked for Different Subject, as in (12).

- (12) a. An ag-e-k g-na-k?  
 who say-DS.PRIOR-3S.PAST do-2S-PAST  
 'Who told you to do it?'
- b. Nad ag-e-na-k g-n-k.  
 you say-DS.PRIOR-2S-PAST do-1S-PAST  
 'I did it because you told me.'
- c. Kik bsg md-ya-knŋ ow-ya-k.  
 they sit stay-3P-DS.SIM come-3P-PAST  
 'While they<sub>i</sub> stayed sitting they<sub>j</sub> arrived.'
- d. Kaj yp suw-e-k yuwt g-p.  
 pig me bite-DS.PRIOR-3S-PAST pain do-PF-3S  
 'The pig bit me and it's painful.'

If the Subject of the first verb is inanimate, and does not share at least one participant in common with the following independent verb, the first verb may be marked either for Same or Different Subject. The choice seems to depend, in at least some uses, on whether the speaker wants to present the two clauses as representing closely integrated or separate events. Compare (13a) and (13b).

- (13) a. Ygen ap cec-kotp d-e-k,  
 Wind come tent take-DS.PRIOR-3S.PAST  
 kuptut a-s-a-p.  
 vibrating.noise sound-PROG-3S  
 'The wind caught it (the tent) and it's making a vibrating noise.'

- b. Ygen ap cec-kotp d-i ap yow-p.  
 Wind come tent take-SS.PRIOR come fall-PF.3S  
 'The wind blew the tent over.' (lit. 'The wind caught the tent and it fell down.')

### 3. Bodily and Mental Processes: Experiencer Object Expressions

Let us now return to BMP constructions, beginning with the Experiencer Object type. In this type there is, it seems, a perfect fit between syntax and semantics in at least one respect. All such constructions express processes that are involuntary. To be more precise, the Experiencer does not initiate or control these processes; they just happen to him or her. The encoding of the Experiencer as Object is consistent with this conception. There are three reasons why the Experiencer NP must be regarded as Object rather than Subject of the verb. First, it is represented by a pronoun from the Object set. Second, the person-number suffix on the verb does not agree with the Experiencer NP; it is always marked for 3rd person singular. Third, switch reference marking, a syntactic process sensitive to subject identity or change across clauses, cannot be triggered by the Experiencer NP in Experiencer Object constructions.

For the grammarian, the vexing problem is to understand the grammatical roles played by the other nominal or noun-like elements in Experiencer Object constructions.

#### 3.1 Single Clause Constructions

Such constructions typically contain, in addition to the VERB and EXPERIENCER, one or two NPs (or NP-like constituents) labeled here as CONDITION and BODY-PART.

CONDITION is a loose cover term for an NP or constituent whose head denotes a bodily or mental condition, product, process, or sensation. Condition nouns (we use "noun" to include noun-like adjuncts) include the following rough semantic subgroups: (i) Visible conditions or products, e.g., *mablep* 'wart', *sbek* 'pimple', *sɣl* 'boil', *soy* 'sore, ulcer', *slañ* 'scab', *si-ñg* 'tears', *ss* 'urine', *sb* 'dung', *wsb* 'sweat'.

(ii) sounds (i.e., vocal products) such as *mukbel* 'belch', *suk* 'laughter', *mnm* 'speech', *si* 'crying', *jup* 'squeak', *wal* 'scream, shriek, strident call'.

(iii) invisible persisting conditions or products such as *tap* 'sickness', *suŋ* 'good health, ritual purity', *asɣ* 'state of ritual contamination', *nɣep* 'comprehending, knowing', *saki* 'uncomprehending, forgetting, deaf, insane'.

(iv) sensations or feelings such as *slk* 'itching', *yuwɬ* 'pain', *yuan* 'hunger', *wokep-tek* 'feeling like vomiting', *ydk* 'tasty, tastiness', *tep* 'good, pleasure'.

The nouns in semantic groups (i) and (ii) can take a determiner and are readily modified by a possessive pronoun, quantifier or other modifier. Those in groups (iii) and (iv) seldom take any modifier other than an intensifier.

BODY-PART refers to an NP whose head names the locus of a condition or sensation in the body, such as *alkjon* 'armpit', *jun* 'head', *kogi* 'belly', *mapn* 'liver', *ss-kogi* 'bladder', *sb-wt* 'guts, innards', *wak* 'skin, body'. The Body-Part noun usually stands alone but may be accompanied by a possessive pronoun and/or determiner, quantifier or another kind of modifier.

Note that in most constructions containing a Body-Part noun, an Object pronoun can occur either as Possessor of a body-part, immediately after the possessed noun, or as a Direct Object immediately before the possessed noun, but not in both positions. The following arrangements of constituents occur:

EXPERIENCER	CONDITION	VERB	
EXPERIENCER	BODY-PART	VERB	
EXPERIENCER	BODY-PART	CONDITION	VERB
EXPERIENCER	CONDITION	BODY-PART	VERB

These can be reduced to the formula:

EXPERIENCER	(BODY-PART)	(CONDITION)	VERB
	: CONDITION may precede BODY-PART		

In most Experiencer Object constructions, the selection of verb stem(s) is narrowly constrained by the choice of Condition noun. Some Condition nouns are compatible with only one verb stem. Others allow some variation, the choice of verb stem either being free or correlating with “aspectual” meaning. Thus the Condition noun *mablep* ‘wart’ takes either *ap-* ‘come’ (which marks onset or incipience) or *ay-* ‘form, put, stabilize’ (which marks an established, persisting condition).

What grammatical relations hold between the verb and the nominals in this class of constructions? Do all Experiencer Object constructions have a Subject and if so, which NP has this function? The alternatives that must be considered are that: (i) all such constructions have a Subject, which, in some instances, is the Condition and in others is the Body-Part NP; (ii) some types have a Subject, others do not; (iii) none have a Subject.

The following sentence exemplifies some of the issues.

- (14) *Sb-wt yp gullag a-s-a-p.*  
*Innards/stomach my (OBJ) rumbling(s) sound-PROG-3S*  
 ‘(a) My stomach is rumbling.’ (b) ‘Rumblings sound in my stomach.’

It is tempting here to interpret *sb-wt yp* ‘my stomach’ as the Subject, parallel to the English translation (a). However, the occurrence of an Object pronoun as the possessor in this NP rules out this analysis: *sb-wt yp* is a Locative Object here. A possessive pronoun in the Objective form can never appear in a Subject NP. A second analysis would treat *gullag* ‘rumbling(s)’ as the Subject (in accord with the translation ‘Rumblings sound in my stomach’), by analogy with, say, (15a-b).

- (15) a. *Tob-yp soy ay-p.*  
*leg-my (OBJ.) ulcer form-PF.3S*  
 ‘Ulcers have formed on my leg’.
- b. *Tumuk a-s-a-p Sbay ebnej.*  
*thunder sound-PROG-3S Simbai upriver*  
 ‘Thunder is sounding at Simbai in the up-river direction.’

The chief difficulty with this last analysis is that *gullag* does not behave like a canonical noun in that it cannot be possessed. It resembles a true verbal adjunct (see 2.2.3) in occurring only as a satellite of a verb *ag-* ‘make a sound, say, emit’. It is possible to interpret *gullag ag-* ‘make rumbling sounds’ as a complex predicate in which *gullag* is regarded either (i) as a verbal adjunct of *ag-*, which does not stand in any sort of case relation to the verb, or (ii) as a defective noun acting as generic object of *ag-*. Finally, a third analysis might be proposed, in which sentence (14) is said to have no Subject, only a complex verb *gullag ag-* ‘to rumble’ with Locative Object *sb-wt yp* ‘(in) my innards’. For rough analogies we could appeal to “meteorological” and “impersonal” verbs, which in many languages occur with no Subject, or with a dummy Subject, as in *It is raining*.

With these alternatives in mind, let us now look at a range of different Experiencer Object expressions. It is convenient to subclassify such expressions, in the first place, by the interaction of (i) the verb root and (ii) the Condition nominal.

### 3.2 Cases Where the Condition Nominal Is Clearly the Subject

Let us consider constructions where the Condition NP can be uncontroversially interpreted as Subject because it shows the same features as canonical inanimate Subjects. These are clauses where the head of the Condition NP is clearly a noun that can be possessed or modified by adjectives of, for example, quantity or size, where it stands in the same semantic relation to the verb as other nominals that are clearly the Subject, and where it can control the marking of switch reference (see 3.3.4).

**3.2.1 Stable conditions marked by *ay-* ‘form, put, stabilize’.** The verb *ay-* ‘form, stabilize, become’ characteristically occurs with Condition nouns denoting a stable, visible external condition, such as *kñowŋ* ‘birthmark’, *magi-wt* ‘scar’, *sbek* ‘pimple’, *sŋl* ‘boil, abscess’, *soy* ‘sore, ulcer’, *slañ* ‘scab’, *tmd sb* ‘ear-wax’, *wdn-sgalb* ‘sleep (dry secretion in eyes)’, *ypl-nep* ‘baldness’, to indicate that the condition is already established. In such cases the Condition constituent behaves like a canonical noun and a canonical Subject of the verb *ay-* (16a–c). However, a few other Condition nominals denoting stable Conditions that are not visible occur with *ay-*, as for example *saki* ‘uncomprehending, disoriented, deaf, crazy’ (16d). See 3.3.2 for another use of *ay-*.

- (16) a. Nup sŋl yob alkjon ay-a-k.  
           him boil big armpit form-3S-PAST  
           ‘A large boil has formed in his armpit.’  
       b. Sŋl alkjon-nup yob ay-a-k.  
           boil armpit-his large form-3S-PAST  
           ‘He had a large boil in the armpit.’  
       c. Kogm-np mablep koŋay ay-p.  
           knee-your warts many form-PF.3S  
           ‘You have many warts on your knee.’

- d. Yp tmud saki ay-p.  
 me ear deaf form-PF.3S  
 'I am deaf.' / 'I have become deaf.'

**3.2.2 Stable conditions marked by *pag-* 'broken, creased'.** Certain Body-Part nominals occur with the intransitive verb *pag-* 'change shape: break, broken, creased, bent, dented, shattered, etc.' and the Condition nominal *gu* 'depression, furrow, crease, hollow' to refer to the presence of furrows, creases or dimples in the skin.

- (17) a. Ñn yp gu pag-p.  
 hand my depression break-PF.3S  
 'My hand has creases.'
- b. Mkem nup gu pag-p.  
 cheek her depression break-PF.3S  
 'Her cheeks are dimpled/furrowed.'

**3.2.3 Onset of a sensation or visible condition marked by *ap-* 'come'.** When the Condition noun denotes a stable, visible skin condition (see 3.2.1), the use of *ap-* marks incipience of the condition, whereas *ay-* marks stability or persistence. When the Condition noun denotes a transient process or an unstable product such as *kuñk* 'saliva', *slg* 'cramp', *si-ñg* 'tears', *suk* 'laughter', *wsn* 'sleep', the verb *ap-* 'come' marks the onset of the condition. These nouns never select the verb *ay-*.

- (18) a. Yp wsn (wsn) ow-p.  
 me sleep sleep come-PF.3S  
 'I felt (quite) sleepy.'
- b. Yp si-ñg ow-p.  
 me tears come-PF.3S  
 'I feel like crying/I'm ready to cry.'
- c. Yp ypl slg ow-p, sayn g-p;  
 me muscle cramp come-PF.3S soft do-PF.3S  
 ypl tp ok kawboŋ g-p.  
 muscle again that relaxed do-PF.3S  
 'The cramp that came in (my) muscle has eased; the muscle has relaxed again.'

**3.2.4 Processes marked by *yap-* 'fall', *jak-* 'rise', *tan-* 'grow, climb'.** The verb *yap-* 'fall, descend' combines with certain terms for body parts or products to indicate a process in which the part or product falls or is displaced.

- (19) a. Yp lkañ yow-p.  
 me blood fall-PF.3S  
 'I am bleeding.'



- b. Np wdn pug ju yow-p.  
 you eye stretched displace fall-PF.3S  
 'Your eyes have become glazed.'
- c. Yp komlj yow-p.  
 me groin fall-PF.3S  
 '(The gland in) my groin is swollen.'

When the body part or product has to do with body wastes (*ss-kogi* 'bladder', *ss* 'urine', *sb* 'bowel, excrement'), the conventional implicature is that the speaker has become aware of the need for elimination, as in (2c) and (20).

- (20) Yp sb yow-p.  
 me excrement fall-PF.3S  
 'I need to defecate/I feel like defecating.'

The verbs *jak-* 'rise' and *tan-* 'grow, climb' combine with certain terms for body parts or products (e.g., *kas* 'hair', *meg* 'teeth', *kogi* 'belly', *wsb* 'sweat') to indicate a process in which the part or product grows, swells, or rises.

- (21) a. Np wsb jak-p.  
 you (OBJ) sweat rise-PF.3S  
 'You are starting to sweat.'
- b. Yalk nup dsn jak-p.  
 Yalk him beard rise-PF.3S  
 'Yalk has grown a beard.'
- (22) a. Nup dsn skoy tan-b.  
 him beard small grow-PF.3S  
 'He has grown a small beard.'
- b. Cnp tob-pñg tan-b.  
 us toe-nail grow-PF.3S  
 'Our toe-nails have grown.'
- c. Np meg omñal tan-b.  
 you (OBJ) tooth two grow-PF.3S  
 'You have grown two teeth.'
- d. Yp lkañ-kogi tan-b.  
 me blood-swelling grow-PF.3S  
 'I have a bloodblister.'

**3.2.5 Internal discomfort, marked by ññ-** 'consume, eat'. The verb ññ-, loosely glossed in examples as 'eat', most commonly means 'consume (eat, drink, smoke) something'. However, it also has the senses '(of a sharp object) nick someone, make a cut in the skin or body', and 'cause internal pain or pressure'. Sometimes it is preceded (in a serial verb construction) by a verb of penetration *puñi-* 'pierce', *su-* 'bite' or *ak-* 'scrape'.

- (23) a. Yp ña-pan-ŋaŋ ñb-s-a-p.  
 me baby eat-PROG-3S  
 ‘I feel labor pains.’ (lit. ‘the baby is eating me.’)
- b. Yp sb-wt su ñŋ-b.  
 me guts-cluster bite eat-PF.3S  
 ‘My stomach hurts. / I have a pain in my gut.’
- c. Tglm wagn yp puŋi ñŋ-b.  
 ribs base me press eat-PF.3S  
 ‘I have a pain in my rib cage.’
- d. Tap ñb-ab-in yp mdmagi ak ñŋ-b.  
 food consume-REC-1S me heart scrape eat-PF.3S  
 ‘After I ate, I felt a sharp pain in the heart.’

**3.2.6 Involuntary processes marked by other verbs.** A few other verb stems and series of verb stems occur as the main verb in an Experiencer Object construction. For example, *am-* ‘go’ indicates movement away, as when one’s life force (*noman*) or spirit (*kawnan*) leaves the body temporarily during dreams and permanently on death; *kum-* ‘die, cease to function’ indicates numbness or paralysis of a body-part, *pag-* ‘break, distort, disturb, fold’ indicates breaking or distortion of a body-part’, *tk-* ‘separate, sever’ indicates cracking, and any of *pag yk-* ‘burst open’, *pk-* ‘strike’ and *plg-* ‘block’ can indicate pulsation or throbbing.

- (24) a. Tob yp kum-b.  
 leg my die-PF.3S  
 ‘My leg is numb/paralyzed.’
- b. Tŋl np pag-p.  
 bone your (OBJ) break-PF.3S  
 ‘Your bone is broken.’
- c. Spsep yp pag yk-ng g-s-a-p.  
 temple me break open-SS.FUT do-PROG-3S  
 ‘My temple is pulsating/throbbing.’ (lit. ‘my temple veins are pulsating as though about to burst.’)
- d. Yad spsep np d-i ŋŋ-b-in,  
 I temple your touch-SS.PRIOR perceive-SS.PRIOR  
 aŋŋ- magi plg-p.  
 pulse.unit throb-PF.3S  
 ‘When I touch your temple I can feel the pulse throb.’
- e. Tob-yp pub ŋŋ-i gug tk-p.  
 foot-my sun perceive-SS.PRIOR crack cut.across-PF.3S  
 ‘My feet have developed cracks from the sun.’

- f. Yp lkañ-mñ pag ow-a-k.  
 me blood-cord break come-3S-PAST  
 'I had a miscarriage.' (lit. 'umbilical cord break it came')
- g. Yad wsn nŋ-i, kceki nŋ-ab-in,  
 I sleep perceive-SS.PRIOR forest-goblin perceive-REC-1S  
 ju d-ab-in, yp kawnan am-b.  
 withdraw seize-REC-1S, me spirit go-PF.3S  
 'I dreamed that when I saw a forest demon, I was startled and my spirit left me.'

### 3.3 Cases Where the Role of the Condition Nominal Is Less Certain

Let us turn now to cases where the grammatical role of the Condition nominal is somewhat less certain. These are chiefly expressions where the main verb is *g-* 'act, do, make' or *ay-* 'become' and where the Condition nominal denotes a sensation or feeling. Sections 3.3.1 and 3.3.2 introduce the kinds of Condition nominals that occur with these verb stems and a later section (3.3.3) considers evidence concerning the grammatical role of the Condition nominals.

**3.3.1 Sensations and feelings with the verb *g-* 'happen, act, do, etc.'** The verb *g-* can be used either intransitively ('happen, occur, act, function') or transitively ('do, make, act or work on, affect something'). In BMP clauses, *g-* appears always to be transitive, because the Experiencer is invariably marked by an Objective pronoun. *g-* combines with nominals and adjectives representing several types of Condition, including the following: (i) Sensations or processes that involve sensations such as *yuan* 'hunger', *yuwɪ-bt* 'exhaustion', *pboŋ* 'heat, hot, warm', *ygen* 'cold (from wind)', *takl* 'cold' (general), *km* 'bitter', *ydk* 'good taste, tasty' (it also means 'salt'), *slk* 'hot-tasting, pungent' (it also means 'itching'), *ñekñek* 'hiccups', *jiken* 'cough, head-cold', *tap* 'sick, sickness', *kajknm* 'wince'. Names of sensations tend not to be so nouny as most other Condition nouns. The sensation terms listed above cannot be possessed or quantified. They can, however, be modified for intensity, as in (25).

- (25) a. Yp ydk tmey g-p.  
 me good-tasting bad do-PF.3S  
 'It tastes awfully good to me.'
- b. Yp takl tmey g-p.  
 me cold awful act-PF.3S  
 'I am terribly cold.'
- c. Yp ytuk naban g-p.  
 me lethargy extremely act-PF.3S  
 'I feel extremely lethargic/lazy.'

However, a few sensation nouns, such as *yuwɪ* 'pain', can be possessed:

- (26) Yuwt yp sayn g-p.  
 pain me weak do-PF.3S  
 'My pain has eased.' / 'The pain has gone.'

(ii) Nouns denoting emotions and feelings, as for example *nabŋ* 'shame, shyness, embarrassment', or body parts that are the seat of emotions, such as *sb* 'bowels, sympathy', *mapn* 'liver, sympathy', *mluk* 'nose, bad humor'. Certain emotion words are not so nouny. They can be modified but they cannot be possessed or quantified.

- (27) a. Yp nabŋ yob g-a-k.  
 me shame big do-3S-PAST  
 'I was very ashamed/shy/embarassed.'
- b. Yp sb g-a-k.  
 me bowels act-3S-PAST  
 'I was emotionally moved (upset, happy, angry).'
- c. Yp tep yb g-a-k.  
 me good true do-3S-PAST  
 'I felt truly happy/pleased.'
- d. Sb-wt yp tmeŋ g-p.  
 guts-cluster my bad do-PF.3S  
 (i) 'I feel angry/upset.' (ii) 'My guts feel bad.'

Note that in (27c–d) the adjectives *tep* 'good' and *tmeŋ* 'bad' probably do not function as modifiers marking opposing extremes on a good–bad scale. Instead they refer to kinds of feelings: 'pleasure, feeling good' and 'unpleasant, feeling bad', analogous to 'feeling sick', 'being hungry', or 'being tasty'.

**3.3.2 Feelings marked by derived nominal and *ay-* 'become, form, stabilize'.** An adjective or noun can be derived from any verb root by adding the suffix *-eb* or *-ep* 'V-ing, characterized by V-ing, associated with V-ing', for example, *ñŋ-* 'consume, eat' yields *ñŋ-eb* 'for consumption'. A complex noun can be formed by adding *-eb*, *-ep* to an Object + verb sequence. For example, *tap ñŋ-* 'eat food' yields *tap ñŋ-eb* 'thing for eating, food'; *kotp am-* 'go home' yields *kotp ameb* 'going home'. Any such derived word (call it X) can be used as a noun together with the clitic *-tek* 'like, resembling, as if' and the verb *ay-* 'become, form, stabilize' to form a construction (OBJ) *X-tek ay-*, which can be translated fairly literally as (a) 'X is about to/is likely to happen (to OBJ)' or (b) 'A need/desire to do X has come over OBJ'. A more colloquial translation of (b) is '(Experiencer) feels like doing X', as, for example:

- (28) a. Yp kotp am-eb -tek ay-p.  
 me house go-NDR like form-PF.3S  
 'I feel like going home.'
- b. Np wok-ep -tek ay-p?  
 you vomit-NDR like form-PF.3S  
 'Do you feel like vomiting?'

- c. Tap wok-ep -tek ay-p!  
 thing vomiting -like form-PF.3S  
 'It's a thing that makes one want to vomit!'

**3.3.3 Do all experiencer object clauses have a subject?** In Experiencer Object clauses, we know that the Experiencer NP is not the subject. The difficulty is to know which, if any, of the other NPs is Subject. Unfortunately, the candidates for Subjecthood are almost always inanimate NPs, and the two most reliable tests for identifying Subjects, namely (i) selection of a nominative pronoun and (ii) Subject-verb agreement, do not work for inanimate NPs. The first test does not work because inanimate nouns cannot be pronominalized (see 2.3.1). The second test does not work because in Experiencer Object clauses the verb "agreement" suffix is invariably 3rd singular. Pluralizing an inanimate NP makes no difference, for reasons noted in 2.5.2.

It might be argued that, if there is only one inanimate NP present in an Experiencer Object construction, that NP must, by default, be the Subject, and it must be that NP that governs verb agreement. However, in the light of comparative evidence, such an argument is not persuasive. It is a commonplace that some languages have "dummy subjects" manifested as a 3rd singular Subject pronoun (compare English 'It is a pity it is raining') or as a 3rd singular ending on the verb. As the next most useful diagnostic procedures for identifying Subjects, we are left with (i) seeking parallelism with canonical transitive clauses in the semantic relations between NP and verb, (ii) capacity to trigger switch reference, and (iii) tests designed to eliminate all but one candidate.

As we have seen, the first procedure works fairly well for those Experiencer Object clauses discussed in 3.2, but not for those exemplified in 3.3.1 and 3.3.2, where the semantic relation between the NP denoting a sensation or feeling is not transparently similar to that in canonical Subject-verb relations. Let us now turn to other tests.

**3.3.3.1 Switch reference as a test of subjecthood.** It was noted earlier (2.5, 2.6) that verbs that belong to separate clauses within the same sentence typically carry suffixes marking identity or change of Subject. (There are certain exceptions, chiefly having to do with embedded clauses, that we need not discuss here.) This system of "switch reference" marking provides a potential test of Subjecthood for the nominals in BMP constructions.

Each of the sentences in (29) consists of two or more clauses denoting a sequence of bodily processes. In each case the Subject of the first clause is the Experiencer NP and this NP is coreferential with the (overt or understood) Direct Object of the last clause.

- (29) a. Ñb-e-n                      (yp) tep      g-p.  
          eat-DS.PRIOR.IS      me      good      act-PF.3S  
          'It tastes good.' (lit. 'When I eat, good/pleasure acts [on me].')
- b. Aññ      ay-e-y,                                      tep      md-p.  
          pulse      form-DS.PRIOR.2S.HORT      good      stay-PF.3S  
          'Your pulse is good.' / 'Your breathing is normal.'

- c. Ñŋ-in!            ag-e-n,            (yp) yuwt g-s-a-p.  
eat-IS-HORT say-DS.PRIOR.IS me pain do-PROG-3S  
'It hurts when I try to eat.' (lit. 'When I say 'I'll eat!' pain is acting [on me].')
- d. Ñb-e-n            amn-aŋ,            (yp) yuwt g-s-a-p.  
eat-DS.PRIOR-IS go-HORT.IS me pain act-PROG-3S  
'It hurts when I swallow.' (lit. 'When I eat it goes down, it is painful [to me].')
- e. Sb            ki-ng            g-e-k,            (nup) kls            g-i,  
faeces, guts excrete-SS.FUT do-DS.PRIOR.3S him tight do-SS-PRIOR  
(nup) plg-p.  
(him) block-PF.3S  
'He was constipated.' (lit. 'He tried to defecate, it was tight, it was blocked.')

The examples in (30) differ from those in (29) in that in each sentence *both* clauses have Experiencer Objects. In (30a) the first clause has an inanimate Subject: *sŋl* 'boil', with the Body-Part nominal as Locative Object; the second clause refers to the pain (*yuwt*) caused to the (optionally specified) Experiencer. In (30b) the first clause also has a Body-Part as Locative Object ('our innards'), but the clause has an animate Object.

- (30) a. Sŋl nñ-yp            ay-e-k,            (yp) yuwt g-p.  
boil arm-me form-DS.PRIOR.3S (me) pain do-PF.3S  
'A boil has formed on my arm and it's painful (to me).'
- b. Sb-wt-cnp            gley boley            ag-a-knŋ,            np yuan            g-p.  
innards-our rumbling say-3S-DS.SIM us hunger act-PF.3S  
'When our stomachs rumble we are hungry' ('When rumblings are sounding in our innards, hunger has worked on us.')

In (31) the first clause has an Experiencer Object, the second an Experiencer Subject. The first verb is marked for change of Subject.

- (31) Toytk            nup mñak g-e-k,            kum            md-e-k.  
yesterday him sick do-DS.PRIOR-PAST.3S indisposed stay-DUR.3S-PAST  
'Yesterday sickness affected him and he wasn't able to do anything.'

The fact that in (29)–(31) the verb in the penultimate clause is always marked for change of Subject is consistent with the pronominal marking, which shows the Experiencer is the Object of this clause. As the only remaining overt NP is the Condition nominal, we are left with this as Subject—unless we want to posit verbal sentences with no Subject.

The weakness in the switch reference test is that the marking of different Subject is only automatic when the first verb has an animate subject. The sentences in (32) each consist of two clauses with different Subjects. In (32a–c) the Subjects are two different Condition nominals. In (32d) they are a Condition and a Body-Part nominal. (See also [13b] in 2.6.2.)

- (32) a. Sŋl nñ-yp            ay-i            (yp) yuwt g-p.  
boil (arm-my) form-SS.PRIOR (me) pain act-PF.3S  
'A boil has formed (on my arm) and it's painful (to me).'

- b. Yp wog yuwt-bt g-i, yp ytuk g-p.  
me work exhaustion do-SS.PRIOR me lethargic act-PF.3S  
'I'm worn out from working.' (lit. 'Work weariness having acted on me, lethargy has affected me.')
- c. Yp tap g-i, tap-ñgeb ma-tek ay-a-k.  
me sickness act-SS.PRIOR food not-like form-3S-PAST  
'I got sick and lost my appetite.' (lit. 'Sickness having acted on me, a feeling for food did not form [in me].')
- d. Nup sud-cp g-i, (nup) bay ay-a-k.  
him malaria do-SS.PRIOR him spleen form-3S-PAST  
'After he got malaria, it affected his spleen.' (lit. 'Malaria having acted on him, his spleen formed, i.e., became enlarged.')

**3.3.3.2 Clauses with both body-part and condition NP.** Many BMP clauses with Experiencer Object also contain both a Body-Part NP and a Condition NP, as in (30a–b) above and (33). Which of these NPs is the Subject?

- (33) a. Wak ytuk g-p.  
body lethargy do-PF.3S  
'The body feels lethargic.' / 'Lethargy is affecting the body.'
- b. Wdn lkañ ya-s-a-w.  
eye blood fall-PROG-3S  
'The eye is bleeding.' / 'Blood is coming from the eye.'
- c. Alkjon magi yk yow-p.  
armpit lump open fall-PF.3S  
'The armpit has a lump' / 'A lump has swelled up in the armpit.'

A crucial observation is that if a pronominal possessor of the Body-Part nominal is specified, that pronoun must be drawn from the Object set, as in (34):

- (34) a. Wak-yp ytuk g-p.  
body-my (OBJ) lethargy do-PF.3S  
'My body feels lethargic.' / 'Lethargy is affecting my body.'
- b. Wdn-np lkañ ya-sa-w.  
eye-your (OBJ) blood fall-PROG-3S  
'Your eye is bleeding.' / 'Blood is coming from your eye.'
- c. Alkjon-nup magi yk yow-p.  
armpit-his (OBJ) lump open fall-PF.3S  
'His armpit has a lump.' / 'A lump has swelled up in his armpit.'

Thus, if there is an overt Subject in the sentences in (33) it can only be the Condition NP. It is, however, possible to have an Object pronoun and a Body-Part NP as separate phrases, as in (35). In such cases the Body-Part NP can be interpreted as a Locative Object (see also [26] and [27]).

- (35) a. Nup wdn lkañ a-s-a-w.  
 him eye blood fall-PROG-3S  
 'His eye is bleeding.' (lit. 'Blood is falling from his eye.')
- b. Yp sb-wt tmey g-p.  
 me guts bad do-PF.3S  
 'I am upset.' (lit. 'A bad feeling is affecting me in the guts'.)

**3.3.3.3 Clauses where there are two condition nominals.** Some BMP clauses contain two condition nominals, neither of which is possessed. In such cases, three alternative interpretations of their grammatical relations suggest themselves. One is that one nominal modifies the other, forming a complex NP that is the Subject. In (36a) the first Condition nominal, *ñig-saki-nen* 'for liquor' arguably modifies *yuan* 'craving, hunger, thirst'. In (36b) *bok* 'pus' may modify *soy* 'sore'. In (36d) *mñak* 'non-serious, short-lived sickness' may modify *jlken* 'cough' or vice versa.

- (36) a. Yp ñig-saki-nen yuan g-p.  
 me liquor-for hunger make-PF.3S  
 'I have a craving for liquor.' / 'A craving for liquor is affecting me.'
- b. Yp soy bok ay-p.  
 me sore pus form-PF.3S  
 'I have an infected sore.' / 'Pus has formed in my sore.'
- c. Yp snl yuwt g-s-a-p.  
 me boil pain act-PROG-3S  
 'A boil is causing me pain.' / 'A painful boil is affecting me.'
- d. Yp jlken mñak g-p.  
 me cough sickness do-PF.3S  
 'I am a bit sick with a cough.' ('A cough sickness is affecting me.')

A second possibility is that one of the Condition NPs is the Subject and the other is an Adjunct NP (36a–c). A third is that one Condition NP is Subject and the other a verbal adjunct in a complex verb. Both the first and second analyses make sense when one of the nominals carries the clitic *-nen* 'purpose: for, after', as in (36a) and (37a–b), where the *-nen* phrase nominal could be either a reason or cause Adjunct of the verb or a modifier of the following nominal. The third interpretation makes better sense in the case of (36d).

- (37) a. Np etp-nen yuan g-p.  
 you (OBJ) what-for hunger act-PF.3S  
 'What are you hungry for?'
- b. Yp pis-nen yuan g-p.  
 me tinned.fish-for hunger act-PF.3S  
 'I'm hungry for tinned fish.'

**3.3.3.4 Constructions where the sole condition nominal is not the subject.** There are certain Experiencer Object constructions containing a single Condition nominal



that is apparently not the Subject. This class is illustrated by the three paraphrases in (38a–c), all grammatical and all translatable as ‘I don’t like the taste of pork’ or ‘Pork is not tasty to me’.

- (38) a. *Kaj yp ydk ma-g-p.*  
           pork me tasty not-do-PF.3S
- b. *Yp kaj ma-ydk g-p.*  
           me pork not-tasty do-PF.3S
- c. *Yp kaj ydk ma-g-p.*  
           me pork tasty not-do-PF.3S

In (38) the sensation noun *ydk* is best interpreted as a verbal adjunct that is part of a complex verb: *ydk g-* ‘be tasty’. The Subject of *gp* ‘it does’ is presumably *kaj* ‘pig, pork’, naming the source or cause of the sensation, yielding the literal translation ‘Pork does not cause tastiness in me’. It is possible, however, to argue that *kaj* is a peripheral Adjunct (‘Tastiness does not act on me with respect to pork.’). Compare (36c) where one might propose competing grammatical analyses corresponding to either of two literal glosses: ‘A boil is causing me pain’ or ‘Pain is affecting me in a boil.’

### 3.4 Conclusion

Experiencer Object clauses are a mixed bag. In many cases (3.2) the Condition nominal is clearly the Subject. In others (3.3) it is hard to find compelling grounds for choosing between an analysis that treats the Condition nominal as a “funny” Subject and one that treats it as a verbal adjunct within a complex verb. The clear cases are chiefly those where the Condition nominal denotes a visible and/or stable entity. The problematic cases are those where the Condition nominal denotes a sensation, emotion, or feeling. When we consider the sharp semantic difference between these two classes of Condition nominal, it is not surprising that they behave somewhat differently.

## 4. Experiencer Subject Constructions

Section 2 began with a binary division of BMP clauses, on grammatical grounds, into Experiencer Subject and Experiencer Object types. We noted that this grammatical division is apparently motivated by semantics. In one class of expressions, the Experiencer typically initiates the process and so has some measure of control over it. In the other class, the Experiencer is the involuntary undergoer.

On closer examination, the correlation between syntactic and semantic types turns out to be less than perfect. Experiencer Subject constructions are not a unified class with respect to the semantic role of the Subject. Although in most cases the Subject is clearly the initiator and controller of the process, there are a fair number of exceptions to this equation. This section will first briefly review a small sample of Experiencer Subject constructions and then seek to make sense of the exceptions.

#### 4.1 Types of Experiencer Subject Constructions

**4.1.1 Perception and cognition, marked by *nɲ*- ‘perceive’.** The verb *nɲ*- ‘perceive, sense, be aware, cognize’ is neutral between intent and lack of intent. It can be translated, in context, as any of the following: ‘see, hear, listen, smell, taste, feel, know, think, understand, remember, try, notice, recognise, consider, observe’. When there is intent *nɲ*- always takes an Experiencer Subject. Deliberate feeling and tasting are treated as two successive actions by the Subject, as in (39).

- (39) a. *Yad kaj d nɲ-b-in.*  
           I   pig hold perceive-PF-1S  
           ‘I (deliberately) felt the pig.’  
       b. *Yad kaj nɪb nɲ-b-in.*  
           I   pig consume perceive-PF-1S  
           ‘I tasted the pig.’

Smelling something accidentally and on purpose can be expressed by either an Experiencer Object or an Experiencer Subject construction:

- (40) a. *(Yp) kaj kuy ow-p.*  
           (me) pig odor come-PF.3S  
           ‘I can smell pork/pig.’  
       b. *(Yad) kaj kuy nɲ-b-in.*  
           (I) pig odor perceive-PF.1S  
           ‘I smell pork/pig.’

A distinction between different kinds of perception can be shown either by naming a specific organ as an instrument (41a–b), or by naming the thing produced or perceived (41c–d). Note that although seeing and hearing may be involuntary experiences, they are expressed with an Experiencer Subject.

- (41) a. *Yad wdn nɲ-b-in.*  
           I   eye perceive-PF-1S  
           ‘I saw (it).’  
       b. *Tumuk ag-e-k, yad (tmd) nɲ-b-in.*  
           thunder sound-DS.PRIOR-PAST I ear perceive-PF-1S  
           ‘I heard thunder (with my own ears).’ (‘Thunder sounded, I heard with my ears.’)  
       c. *Yad gos nɲ-sp-in.*  
           I thought perceive-PROG-1S  
           ‘I am thinking.’  
       d. *Nad wsn nɲ-b-an.*  
           you sleep perceive-PF-2S  
           ‘You had a dream.’

**4.1.2 Sound-making processes, marked by *ag-*.** The verb *ag-* ‘sound, say’ refers to making any kind of sound. The person or thing making the noise is always the Subject of *ag-*, regardless of whether the noise is made deliberately or involuntarily. The object of *ag-* can be a vocal product, such as *mnm* ‘speech’, *mukbel* ‘belch’, *guglum* ‘snore’, *suk* ‘shout’, *gullag* ‘croak’.

- (42) a. *Yad mnm a-sp-in.*  
           I     talk   say-PROG-1S  
           ‘I am talking.’  
       b. *Nad si a-sp-in.*  
           you cry   say-PROG-2S  
           ‘You are crying.’  
       c. *Guglum a-sp-an.*  
           snore   say-PROG-2S  
           ‘You are snoring.’

**4.1.3 Consuming, marked by *ññ-*.** With the verb *ññ-* or *ñb-* ‘consume, eat, drink, chew, smoke, suck, nick, nip’, the person or thing doing the consuming is always the Subject.

- (43) a. *Yad tap ñb-sp-in.*  
           I     food   consume-PROG-1S  
           ‘I am eating.’  
       b. *Nuk snb sat ñb-s-a-p.*  
           he   ginger   chewing   consume-PROG-3S  
           ‘He is chewing ginger.’  
       c. *Yp ña-pan-ñaj puñi ñb-s-a-p.*  
           me   baby       press   eat-PROG-3S  
           ‘I have labor pains.’ (lit. ‘Baby is pressing and eating me.’)

(43c) has both an Experiencer Subject and Experiencer Object. The Subject is the baby, who is both ‘pressing’ (*puñi-* ‘pierce, poke, press against a point’) and ‘eating, nipping’. The Object is the mother in labor, represented here by *yp* ‘me’.

**4.1.4 Excreting and laying eggs, marked by *ki-*.** The verb *ki-* ‘excrete’ is used for defecating, urinating, and laying eggs. The excreter is always the Subject, as in (44) and the following:

- (44) a. *Nuk sb ki-a-k.*  
           He   faeces   excrete-3S-PAST  
           ‘He defecated.’  
       b. *Yakt magi omñal ki-p.*  
           bird   egg     two   excrete-PF.3S  
           ‘The bird has laid two eggs.’

- c. Np            yman    magi    ki-p.  
 you (OBJ)   lice       egg       excrete-PF.3S  
 'You have nits' (lit. 'Lice have laid eggs on you.')

**4.1.5 Sleeping and lying down, marked by *kn-*.** The verb *kn-* has two senses: 'lie down, recline' and 'sleep'. These can be disambiguated by adding the verbal adjunct *wsn* 'sleep(ing)'.

- (45) a. Kik    wsn    k-jp-ay.  
           they sleep   lie-PROG-3P  
           'They are sleeping.'
- b. Yad (wsn)    kn    tep    g-p-in.  
           I        (sleep) lie    good   do-PF-1S  
           'I slept well.'
- c. Kik    wsn    k-jp-ay.  
           they sleep   lie-PROG-3P  
           'They are sleeping.'

Feeling sleepy is expressed by an Object Experiencer construction (see 18a).

**4.1.6 Dying or being nonfunctional, marked by *kum-*.** The verb *kum-* has several senses: 'die', 'be nonfunctioning, unwell', 'have no feeling, be numb or paralyzed'. In the normal course of events dying and being nonfunctional are not done on purpose, but in Kalam these senses occur with an Experiencer Subject. Note the following contrast between (46a), where the people dying are the Subject and (46b) where those feeling like or in danger of dying are the Object:

- (46) a. Bin-b    og-ok    kum-ya-k.    Koyb    pk-ya-k.  
           People the-PL die-1S-PAST    witches   strike-3P-PAST  
           'They died. Witches killed (them).'
- b. Kuyp    kum-eb    tek    ay-p.  
           them   die-NDR   like   form-PF.3S  
           (i) 'They felt like dying.' (ii) 'They almost died.' (lit. 'Like-dying formed in them.')

## **4.2 Apparent Exceptions to the Principle That Experiencer Subject Equals Initiator/controller.**

A sizeable minority of Experiencer Subject expressions denote acts or processes that are *not* initiated or controlled by the Experiencer. We referred above to the way dying or being nonfunctional is expressed. Forgetting is not, usually, a deliberately initiated or controlled process, but in Kalam it is expressed with an Experiencer Subject clause that means, literally, 'make (something) out of mind'.

- (47) Yad    yb-nad        saki            g-p-in.  
           I        name-your   out-of-mind   do-PF.1S.  
           'I have forgotten your name.'

Feeling sorrow or sympathy, or being in a bad mood, can be expressed either with an Experiencer Object or with an Experiencer Subject construction, without apparent semantic difference, as in the pairs (48a, b) and (49a, b):

- (48) a. Yp sb g-p.  
me guts act-PF.3S  
'I feel upset.'
- b. Yad mapn nɲ-b-in.  
I liver perceive-PF-1S  
'I feel sorrow/sympathy.'
- (49) a. Yp mluk yow-p.  
me nose fall-PF.3S  
'I am in a bad mood.' (lit. 'Nose has fallen in me.')
- b. Yad nup mluk nɲ-b-in.  
I him nose perceive-PF-1S  
'I feel angry at him.' ('I perceive him with the nose.')

Sleeping and dreaming are both expressed by a Subject Experiencer construction.

- (50) a. Kayn og-ok wsn kn-ya-k.  
dog the-pl sleep lie/sleep-3P-PAST  
'The dogs were asleep.'
- b. Yad wsn nɲd nɲ-sp-in.  
I sleep true perceive-PROG-1S  
'I had a true dream.'

Being startled or taken by surprise is usually expressed by an Experiencer Subject clause:

- (51) a. Yad ju d-p-in.  
I withdraw hold-PF-1S  
'I was taken by surprise.'
- b. Monmon ap-ab, bin-b glk-p-ay.  
earthquake come-REC.3S people startle-PF-3P  
'When there's an earthquake, people are startled.'

Being afraid or frightened can be expressed by either an Experiencer Object or an Experiencer Subject construction, as in (52).

- (52) a. Yp jel g-p.  
me fear/nervousness do.PF.3S  
'I'm afraid/nervous.'
- b. Yad ptk-sp-in.  
I afraid-PROG-1S  
'I'm afraid.'

Giving birth and being someone's parent are expressed by an Experiencer Subject construction, using the verb *tk-* 'give birth, be parent (father or mother) to an offspring'.

- (53)    Bin        ak        ña-pan-ŋaŋ    tam-sek    tk-a-k.  
           woman   that   baby                    joined        give.birth-3S-PAST  
           'That woman gave birth to twins.'

#### 4.3 Can the Exceptions Be Explained?

Experiencer Subject constructions are best regarded as a semantically disparate class with two main subclasses: (1) a majority of members in which the Experiencer is the initiator or semantic Agent, and (2) a fair number of exceptions—cases where the Experiencer is the involuntary Patient.

Can the exceptions be explained in a systematic way? We believe they can, at least to some extent. Subclass 2 does not consist of a wholly arbitrary set of exceptions to subclass 1, all of which are indistinguishable, semantically from Experiencer Object constructions. It seems that, in languages around the world, processes like sleeping and dreaming, seeing, hearing and feeling something accidentally by touch, belching and snoring, and forgetting and dying tend to be pushed into the same sorts of syntactic frames as wilful actions. In the Kalam case it would be stretching things to try to offer a semantic explanation for every apparent exception, but some sort of systematic explanation may be found for most cases. Some can be explained either in terms of speakers giving higher priority to particular semantic components of a verb and its arguments other than the involuntary component, or in terms of speakers drawing analogies with other uses of the verb where the Experiencer is plainly the initiator.

Seeing, hearing, and feeling accidentally, for instance, are perceptual processes, processes closely related to watching, listening, and feeling deliberately, which involve a focusing of the perceiver's attention. Accordingly, it is more natural to attribute control or agency to these processes than, say, to feeling itchy or hungry.

While sleeping is not an Experiencer-controlled process, it can be argued that it begins when the Experiencer decides to lie down and rest. In Papuan languages generally, 'lie down' and 'sleep' are expressed by the same verb. Dreaming is hardly Experiencer-controlled but it is expressed using the verbal adjunct *wsn* 'sleeping' plus the verb *ŋŋ-* 'perceive, cognize', and in Kalam that verb often refers to deliberate acts.

Why is dying normally encoded with an Experiencer Subject in Kalam and nearly every language, rather than, say, as 'death comes to one'? Perhaps because it is opposed to *md-* 'live, be alive, stay, remain', a stative verb that is also Experiencer Subject.

#### 5. Bodily and Mental Processes Expressed by Clause Sequences or Serial Verb Constructions

Not all bodily and mental processes are expressed by a simple sentence with one verb. A number require a two- or three-clause construction, or a single "extended" clause containing a serial verb sequence. We must limit discussion to a few examples.

Consider the senses seeing, hearing, smelling, tasting, and feeling (by touch). In English we say *I saw the pig*, *I heard the pig*, *I smelled the pig*, etc. using single clause structures identical save for the verb of sensing. The earlier discussion of Kalam single clause constructions for BMPs and their correlation with semantic types may lead the reader to expect *seeing* and *hearing* to be treated similarly in Kalam. In fact, they are treated very differently. To say ‘I saw the pig’, Kalam need only mention (as English does) the Experiencer, the sensing, and the concrete Object that is sensed.

- (54) Yad kaj (wdn) nɲ-b-in.  
 I pig (eye) perceive-PF-1S  
 ‘I saw the pig.’

But to say ‘I heard the pig’, one must say ‘I perceived the pig make a (certain kind of) sound’, or ‘I perceived the sound made by the pig’ with an embedded clause as the Object of ‘perceive’.

- (55) Yad [kaj ag-e-k] (tmd) nɲ-b-in.  
 I pig sound-DS.PRIOR.3S (ear) perceive-PF-1S  
 ‘I heard the pig.’

It is not necessary to mention the source Object (this may not be known, in some instances), but it is necessary to mention the sound that is heard, and specifically, the act of sound-making. Thus, in Kalam one cannot say *I heard you*; one must say *I heard you speak/call/cry*, etc. A partial explanation for this may reside in the common-sense view of visual and auditory perception. Only scientists think of seeing in terms of the eyes receiving light waves radiated by an object. The ordinary man thinks of the eyes perceiving the Object itself. The connection is a direct one. Not so with hearing. Sounds obviously come from a source, but exist independently of the source. We can hear a shout without seeing the shouter, and we can hear an echo reverberate as it travels across an enclosed space.

Similarly with smelling. Odor moves from source to smeller. The Kalam say ‘odor comes to me, I perceive (with the nose)’, although the second clause, denoting the act of perception, is optional. *I smelled the pig* is expressed in full as:

- (56) [kaj kuy ap-e-k], (mluk) nɲ-b-in.  
 pig odor come-DS.PRIOR-3S (nose) perceive-PF-1S

As with hearing, one can leave out the source object, but one cannot leave out the stimulus. Although hearing and smelling are expressed somewhat similarly in Kalam (and both are treated quite differently from seeing) they are not given identical syntax. Again, it can be argued that the syntactic differences reflect commonsense awareness of objective differences. Whereas a sound is normally produced by an event of sound-making—someone talking, a tree falling, water moving over rocks—a smell is not necessarily the result of an event. Instead, the odor coming from an object is often a persisting attribute, just as its shape and color are. However, the Kalam speak of an odor (but not shape and color) as something that moves through the air and is perceived with the nose.

Tasting and feeling are different again, in Kalam. As with hearing and smelling, the constructions are complex, but the complexities are different. Once more, the differences reflect real world differences. In Kalam, deliberate feeling and tasting take agent subjects and involve two successive actions by the subject.

- (57)   Yad kaj d       nɲ-b-in.  
           I    pig touch perceive-PF-1S  
           'I felt the pig (intentionally).'
- (58)   Yad kaj ñb       nɲ-b-in.  
           I    pig consume perceive-PF-1S  
           'I tasted the pig (intentionally).'

The use of two verbs here is typical of Kalam treatment of closely related event sequences that share a single actor while the use of a single clause with a single verb 'taste' or 'feel' in the English translation is typical of English treatments, where such event sequences are often compressed into a single semantically complex verb with its associated NP.

Accidental feeling and tasting are depicted differently from deliberate acts of feeling or tasting. In the former case, the focus is usually on the outcome, the resulting sensation. But, in both cases, the specific sensation experience can only occur if there are prior acts. Thus, in order to experience a certain kind of taste, the source must be consumed or at least put in the mouth, and, in order to feel an object, one must first come into contact with it. In Kalam, a full expression of *The axe felt sharp to me* involves saying, roughly, *I touch perceived the axe, it was sharp*.

- (59)   Tu d       nɲ-e-n,                   ytk   g-p.  
           axe touch perceive-DS.PRIOR-1S sharp do-PF-3S  
           'The axe felt sharp to me.'

## 6. Conclusions

In Kalam expressions for bodily and mental processes there is high correlation between a semantic parameter—the animate experiencer's control vs lack of control over initiation of a process—and a syntactic parameter—choice of Experiencer Subject vs. Experiencer Object construction. There are, however, a number of exceptions. The most clearcut exceptions are cases where an uncontrolled process is expressed by an Experiencer Subject construction. In addition, when we come to examine variation within subtypes of Experiencer Subject constructions, we also find some apparently arbitrary pairings of meaning with grammatical type. In general, it appears that there are always more semantic contrasts than there are grammatical constructions. Speakers prefer to economize on the number of grammatical patterns, and to tolerate form-meaning mismatches, rather than to increase the number of grammatical types. However, the exceptions are not entirely arbitrary.

How much variation is there in the way different languages express bodily and mental processes? Here is a challenging research project for someone. Casual com-



parisons suggest that languages vary considerably in the kinds of semantic variables they make pivotal when assigning a particular semantic type of BMP to a particular grammatical construction. When we think of the complexity of variables involved in BMP processes it would be surprising if it were otherwise. Besides the opposition control vs. lack of control over the initiation or the entire course of a BMP, there are other oppositions—visible vs. invisible, transient vs. longlasting, stable vs. dynamic, pleasant vs. unpleasant, and bodily vs. mental, and so on—any of which might be chosen as the basis for a primary division into grammatical types. At the same time, basic patterns in BMP constructions tend to be strongly persistent within language families, such as the large Trans New Guinea Phylum to which Kalam belongs.

To what extent do different encodings of BMPs (and other events) present different perceptions of “the same” events? McElhanon (1978, 1992) takes up this question, drawing chiefly on data from a Trans New Guinea Phylum language, Selepet, and Tok Pisin. He concludes that these two languages present a radically different world view from that of English in respect of the causes of people’s physical and psychological states and in respect of the degree of control that human beings exert over the elements in their world. He suggests, further, that the linguistic differences are commensurate with differences in cosmology and behavior—that Papua New Guinea people have different perceptions of and reactions to natural events from, say, Americans. But these are complex issues that lie beyond the scope of this essay.

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