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The grammar of *hitting*, *breaking* and *cutting* in Kimaragang Dusun

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Abstract

The *hit*, *break* and *cut* classes of verbs are grammatically relevant in Kimaragang, as in English. The relevance of such classes for determining how arguments are expressed suggests that the meaning of a verb is composed of (a) systematic components of meaning (the EVENT TEMPLATE); and (b) idiosyncratic properties of the individual root. Assuming this approach to be essentially correct, we compare grammatical phenomena in Kimaragang which are sensitive to verb class membership with phenomena which are not class-sensitive. The tendency that emerges is that class-sensitive alternations do not seem to be affix-dependent, and are quite restricted in their ability to introduce new arguments into the argument structure.

1. Verbs of *hitting* and *breaking* in English¹

This paper discusses the relationship between verbal semantics and clause structure in Kimaragang Dusun, an endangered Philippine-type language of northern Borneo. It builds on a classic paper by Charles Fillmore (1970), in which he distinguishes two classes of transitive verbs in English: “surface contact” verbs (e.g., *hit*, *slap*, *strike*, *bump*, *stroke*) vs. “change of state” verbs (e.g., *break*, *bend*, *fold*, *shatter*, *crack*). Fillmore shows that the members of each class share certain syntactic and semantic properties which distinguish them from members of the other class. He further argues that the correlation between these syntactic and semantic properties supports a view of lexical semantics under which the meaning of a verb is made up of two kinds of elements: (a) systematic components of meaning that are shared by an entire class; and (b) idiosyncratic components that are specific to the individual root. Only the former are assumed to be “grammatically relevant.” This basic insight has been foundational for a large body of subsequent work in the area of lexical semantics.

One syntactic test that distinguishes *hit* verbs from *break* verbs in English is the “causative alternation”, which is systematically possible with *break* verbs (*John broke the window* vs. *The*

¹ I would like to thank Jim Johansson, Farrell Ackerman and John Beavers for helpful discussion of these issues. Thanks also to Jim Johansson for giving me access to his field dictionary (Johansson, n.d.), the source of many of the Kimaragang examples in this paper. Special thanks are due to my primary language consultant, Janama Lantubon. Part of the research for this study was supported by NEH-NSF Documenting Endangered Languages fellowship no. FN-50027-07.

window broke) but systematically impossible with *hit* verbs (*John hit the window* vs. **The window hit*). A second test involves a kind of “possessor ascension”, a paraphrase in which the possessor of a body-part noun can be expressed as direct object. This paraphrase is grammatical with *hit* verbs (*I hit his leg* vs. *I hit him on the leg*) but not with *break* verbs (*I broke his leg* vs. **I broke him on the leg*). A third diagnostic relates to the potential ambiguity of the passive participle. Participles of both classes take a verbal-eventive reading; but participles of *break* verbs also allow an adjectival-stative reading (*the window is still broken*) which is unavailable for participles of *hit* verbs (**the window is still hit*).

Semantically, the crucial difference between the two classes is that *break* verbs entail a result, specifically a “separation in [the] material integrity” of the patient (Hale and Keyser 1987). This entailment cannot be cancelled (e.g., *I broke the window with a hammer; #it didn't faze the window, but the hammer shattered*). The *hit* verbs, in contrast, do not have this entailment (*I hit the window with a hammer; it didn't faze the window, but the hammer shattered*). A second difference is that *break* verbs may impose selectional restrictions based on physical properties of the object (*I {folded/?bent/ *broke/*shattered} the blanket*) whereas *hit* verbs do not (*I {hit/slapped/struck/beat} the blanket*). Selectional restrictions of *hit* verbs are more likely to be based on physical properties of the instrument.

In the years since 1970, these two classes of verbs have continued to be studied and discussed in numerous publications. Additional diagnostics have been identified, including the *with/against* alternation (examples 1–2; cf. Fillmore 1977:75); the CONATIVE alternation (*Mary hit/broke the piñata* vs. *Mary hit/*broke at the piñata*; Guerssel et al. 1985); and the Middle alternation (*This glass breaks/*hits easily*; Fillmore 1977, Hale and Keyser 1987). These tests and others are summarized in Levin (1993).

- (1) a. *I hit the fence with the stick.*
b. *I hit the stick against the fence.*
- (2) a. *I broke the window with the stick.*
b. *#I broke the stick against the window.* (not the same meaning!!)

Another verb class that has received considerable attention in recent years is the *cut* class (e.g., Guerssel et al. 1985, Bohnemeyer 2007, Asifa et al. 2007). In this paper I will show that these same three classes (*hit*, *break*, *cut*) are distinguished by a number of grammatical and semantic properties in Kimaragang as well. Section 2 briefly introduces some of the basic assumptions that we will adopt about the structure of verb meanings. Section 3 discusses criteria that distinguish *hit* verbs from *break* verbs, and section 4 discusses the properties of the *cut* verbs. Section 5 introduces another test, which I refer to as the instrumental alternation, which exhibits a different pattern for each of the three classes. Section 6 discusses the tests themselves, trying to identify characteristic properties of the constructions that are sensitive to verb classes, and which distinguish these constructions from those that are not class-sensitive.

2. What do verb classes tell us?

Fillmore's approach to the study of verb meanings has inspired a large volume of subsequent research; see for example Levin (1993), Levin and Rappaport Hovav (1995, 1998, 2005; henceforth L&RH), and references cited in those works. Much of this research is concerned with exploring the following hypotheses, which were already at least partially articulated in Fillmore (1970):

- a. Verb meanings are composed of two kinds of information. Some components of meaning are systematic, forming a kind of “event template”, while others are idiosyncratic, specific to that particular root.
- b. Only systematic components of meaning are “grammatically relevant”, more specifically, relevant to argument realization.
- c. Grammatically determined verb classes are sets of verbs that share the same template. The systematic aspects of meaning distinguish one class from another, while roots belonging to the same class are distinguished by features of their idiosyncratic meaning.

Levin (1993) states: “[T]here is a sense in which the notion of verb class is an artificial construct. Verb classes arise because a set of verbs with one or more shared meaning components show similar behavior... The important theoretical construct is the meaning component, not the verb class...” Identifying semantically determined sets of verbs is thus a first step in understanding what elements of meaning are relevant for determining how arguments will be expressed. Notice that the three prototypical verbs under consideration here (*hit*, *beak*, *cut*) are all transitive verbs, and all three select the same set of semantic roles: agent, patient, plus optional instrument. Thus the event template that defines each class, and allows us to account for the grammatical differences summarized above, must be more than a simple list of semantic roles.

In addition to identifying grammatically relevant components of meaning, the study of verb classes is important as a means of addressing the following questions: (a) What is the nature of the “event template”, and how should it be represented? and (b) What morpho-syntactic processes or constructions are valid tests for “grammatical relevance” in the sense intended above? Clearly these three issues are closely inter-related, and cannot be fully addressed in isolation from each other. However, in this paper I will focus primarily on the third question, which I will re-state in the following way: What kinds of grammatical constructions or tests are relevant for identifying semantically-based verb classes?

3. Verbs of *hitting* and *breaking* in Kimaragang

3.1 *Causative-inchoative alternation*

Kimaragang is structurally very similar to the languages of the central Philippines. In particular, Kimaragang exhibits the rich Philippine-type voice system in which the semantic role of the subject (i.e., the NP marked for nominative case) is indicated by the voice affixation of the verb.² In the Active Voice, an additional “transitivity” prefix occurs on transitive verbs; this prefix is lacking on intransitive verbs.³

Many verbal roots occur in both transitive and intransitive forms, as illustrated in (3) with the root *patay* ‘die; kill’. In the most productive pattern, and the one of interest to us here, the intransitive form has an inchoative (change of state) meaning while the transitive form has a causative meaning. However, it is important to note that there is no causative morpheme present in these forms (morphological causatives are marked by a different prefix, *po-*, as discussed in section 6.1).

² See Kroeger (2005) for a more detailed summary with examples.

³ For details see Kroeger (1996); Kroeger & Johansson (2005).

- (3) a. Minamatay(<in>m-poN-patay) oku do tasu.⁴
 <PST>AV-TR-die 1sg.NOM ACC dog
 ‘I killed a dog.’
- b. Minatay(<in>m-patay) it tasu.
 <PST>AV-die NOM dog
 ‘The dog died.’

Virtually all *break*-type roots allow both the causative and inchoative forms, as illustrated in (6–7); but *hit*-type roots generally occur only in the transitive form. Thus just as in English, the causative alternation is highly productive with *break* verbs but impossible with *hit* verbs. Note also that, as suggested by the glosses in (4–5), selectional restrictions for *break* verbs are based on properties of the patient, whereas selectional restrictions for *hit* verbs are more likely to be based on properties of the instrument. Again, this is highly reminiscent of the situation in English.

(4) *break* verbs:

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>babak</i>	‘shatter’	<i>mabak</i>	<i>mamabak</i>
<i>gapas</i>	‘tear’ (e.g. ear, nose)	<i>gumapas</i>	<i>mangagapas</i>
<i>kinis</i>	‘tear’ (e.g. cloth)	<i>kuminis</i>	<i>monginis</i>
<i>lapak</i>	‘split’	<i>lumapak</i>	<i>mangalapak</i>
<i>lupi</i>	‘fold (e.g. cloth)’	<i>lumupi</i>	<i>mongolupi</i>
<i>pika</i>	‘fold (e.g. leaf, perpendicular to stem)’	<i>mika</i>	<i>momika</i>
<i>putut</i>	‘break (rope etc.)’	<i>mutut</i>	<i>momutut</i>
<i>susak</i>	‘ruffle, roughen’	<i>sumusak</i>	<i>monusak</i>
<i>tangi</i>	‘dissolve’	<i>tumangi</i>	<i>manangi</i>
<i>tipu</i>	‘break (stick etc.)’	<i>tumipu</i>	<i>monipu</i>
<i>uyas</i>	‘pull apart’	<i>muyas</i>	<i>monguyas</i>
<i>wi’is</i>	‘split, strip’ (cane, bamboo, etc.)	<i>mi’is</i>	<i>momis’is</i>
<i>winsar</i>	‘splinter’	<i>minsar</i>	<i>mominsar</i>

(5) *hit* verbs:

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>bobog</i>	‘beat (with stick)’	* <i>mobog</i>	<i>momobog</i>
<i>duntuk</i>	‘bump, knock’	* <i>dumuntuk</i>	<i>mongoduntuk</i>
<i>duntung</i>	‘punch (with fist)’	* <i>dumuntung</i>	<i>mongoduntung</i>
<i>lapis</i>	‘slap’	* <i>lumapis</i>	<i>mangalapis</i>
<i>lapos</i>	‘cane, whip’	<i>lumapos</i> ⁵	<i>mangalapos</i>
<i>pasut</i>	‘cane’	* <i>masut</i>	<i>mamasut</i>
<i>puyay</i>	‘stroke, caress’	* <i>muyay</i>	<i>momuyay</i>
<i>sudsur</i>	‘poke’	* <i>sumudsur</i>	<i>monudsur</i>

⁴ The following abbreviations are used in this paper, in addition to others defined by the Leipzig Glossing Rules: AV, active voice; DUP, reduplication; DV, dative voice; FRUST, frustrative; HABIT, habitual; ITER, iterative; IV, instrumental voice; NVOL, non-volitive; OV, objective voice; PRTCL, particle.

⁵ *lumapos* is not an inchoative form; it has an idiosyncratic reflexive meaning ‘hurl oneself down; fall down flat (e.g. in pain or fatigue)’.

<i>suntutuk</i>	‘punch (with fist)’	* <i>sumuntutuk</i>	<i>monuntutuk</i>
<i>tutu</i>	‘pound in mortar and pestle’	* <i>tumutu</i>	<i>monutu</i>
<i>puyay</i>	‘stroke, caress’	* <i>muyay</i>	<i>momuyay</i>

- (6) a. Minomutut(<in>m-poN-putut) nopo yalo’ dilo’ tangaw tu’
 <PST>AV-TR-break PRTCL 3sg.NOM that(ACC) vine for
 ponuluw dilo’ kasut yo.
 IV:TR:string that(ACC) shoe 3sg.GEN
 ‘He *broke off* (trans.) the vine in order to tie his shoe with it.’
- b. Ami=i’ dati’ mutut(m-putut) ino wakaw
 not=PRTCL PRTCL AV-break that(ACC) ratan
 ong pi-to-tombibid-on.
 if ITER-DUP-coil-OV
 ‘The ratan will probably not *break* (intrans.) if you coil it around and around.’
- (7) a. Monginis(m-poN-kinis) yalo dilo’ baju yo tu’
 AV-TR-tear 3sg.NOM that(ACC) shirt 3sg.GEN for
 pongongkos dilo’ pilat.
 IV:TR:wrap that(ACC) wound
 ‘He is *tearing* (trans.) his shirt to bind up his wound with.’
- b. K<um>inis noono mari a kadut dilo’ ong s<um>unut no.
 <AV>tear PRTCL PRTCL NOM gunny that if <AV>fray COMPL
 ‘That gunnysack is about to *tear* (intrans.) if it is fraying already.’

3.2 Denying a result

We noted in section 1 that *break* verbs entail a result, whereas *hit* verbs do not. Kimaragang grammar provides a very interesting means of demonstrating this fact. Like many other Philippine-type languages, Kimaragang verbs may be optionally marked for NON-VOLITIVE modality (used to encode ability, involuntary actions, etc.). As Dell (1983) points out for Tagalog, the non-volitive form is under-specified with respect to intentionality, but entails that the described event has actually taken place, i.e. that the intended result has actually been achieved.⁶ The (morphologically unmarked) volitive form, in contrast, asserts that the action was intentional but is neutral with respect to the outcome of the action. In most contexts the volitive form creates a pragmatic implicature that the intended result has been achieved, but this implicature can be denied as in (8a). However, with the corresponding non-volitive form this negation would lead to self-contradiction, as in (8b).

- (8) a. Minamatay oku do wulanut nga’ amu’ minatay.
 PST:AV:TR:die 1sg.NOM ACC snake but NEG PST:AV:die
 ‘I killed a snake, but it didn’t die.’

⁶ See also see Kroeger (1990).

- b. *Naka-patay oku do wulanut nga' amu' minatay.
 AV.PST:NVOL-die 1sg.NOM ACC snake but NEG PST:AV:die
 *'I happened to/managed to kill a snake, but it didn't die.'

The pattern seen in (8a), where the same verb root is used to both assert the action and deny the result, is possible with most, if not all, *break* verbs, as illustrated in (9). It is systematically impossible with the *hit* verbs (10), because these verbs do not lexically encode a result. Notice, I am not saying that the result cannot be denied. To deny that the intended result of a *hit* verb was achieved is certainly possible; but in order to do so, a different root must be used to specify the result, as in (11). What crucially distinguishes the two classes is the use of the same root to simultaneously assert the (attempted) action and deny the achieved result. This is systematically possible with *break* verbs and impossible with *hit* verbs.

- (9) a. Minonginis oku do kadut nga', amu n-o-kinis.
 PST:AV:TR:tear 1sg.NOM ACC gunny but not PST-NVOL-tear
 'I (tried to) tear a gunnysack, but it didn't tear.'
- b. Minamabak oku do mantus nga', amu n-a-babak.
 PST:AV:TR:shatter 1sg.NOM ACC fruit.sp but not PST-NVOL-shatter
 'I (tried to) shatter a *mantus* (fruit with hard shell), but it didn't shatter.'
- c. Minomutut oku do wakaw nga', amu n-o-putut.
 PST:AV:TR:break 1sg.NOM ACC ratan but not PST-NVOL-break
 'I (tried to) break some ratan, but it didn't break.'
- (10) a. *B<in>obog-Ø ku it tasu nga', amu n-o-bobog-Ø.
 <PST>beat-OV 1sg.GEN NOM dog but not PST-NVOL-beat-OV
 (intended: 'I (tried to) beat the dog, but it didn't beat/get beaten.')
- b. *Minonutu oku do paray nga', amu n-o-tutu-Ø.
 PST:AV:TR:pound 1sg.NOM ACC rice but not PST-NVOL-pound-OV
 (intended: 'I (tried to) pound rice, but it didn't pound/get pounded.')
- c. *Minamasut oku do karabaw nga', amu n-a-pasut-Ø.
 PST:AV:TR:whip 1sg.NOM ACC buffalo but not PST-NVOL-whip-OV
 (intended: 'I (tried to) whip a buffalo, but it didn't whip/get whipped.')
- (11) B<in>obog-Ø ku it tasu nga', amu n-o-onong-Ø.
 <PST>beat-OV 1sg.GEN NOM dog but not PST-NVOL-hit⁷-OV
 'I (tried to) beat the dog, but I didn't hit it.' (i.e., failed to make contact)

4. Verbs of *cutting* in Kimaragang

As mentioned above, verbs of *cutting* constitute a third class that has been extensively studied, both in English and in other languages. These verbs involve the use of a sharp instrument to bring about a “separation in material integrity” of the patient. Some examples of this class are provided in (12).

(12) *cut* verbs:

⁷ *onong* means 'hit' in the sense of 'hitting the target'.

ROOT	GLOSS	INTRANSITIVE	TRANSITIVE
<i>ansap</i>	‘scrape’	* <i>mansap</i>	<i>mangansap</i>
<i>gamas</i>	‘cut (grass, weeds etc.)’	* <i>gumamas</i>	<i>mangagamas</i>
<i>lapak</i>	‘split’	<i>lumapak</i>	<i>mangalapak</i>
<i>pudung</i>	‘chop (e.g. branches, firewood)’	* <i>mudung</i>	<i>momudung</i>
<i>purok</i>	‘chop up (meat, fish, etc.)’	* <i>murok</i>	<i>momurok</i>
<i>tobok</i>	‘stab’	* <i>tumobok</i>	<i>monobok</i>
<i>tobuk</i>	‘slit open (e.g. stomach)’	* <i>tumobuk</i>	<i>monobuk</i>
<i>totok</i>	‘cut (wood, rope, vines, etc.)’	* <i>tumotok</i>	<i>monotok</i>
<i>wi’is</i>	‘split, strip’	<i>mi’is</i>	<i>momi’is</i>

The *cut* verbs are similar to *hit* verbs in that they do not participate in the causative-inchoative alternation, as indicated in (12). The roots *lapak* ‘split’ and *wi’is* ‘splinter, strip (e.g., rattan)’ seem to be exceptions to the latter generalization, since they (unlike the other *cut* verbs) have intransitive (inchoative) senses in addition to the normal transitive form. However, there is an important difference in meaning between the transitive and intransitive uses of these roots: the transitive forms imply the use of a sharp bladed instrument, but this is not part of the meaning of the (intransitive) inchoative forms.

For example, the orangutan is said to be powerful enough to split open a *durian* (a large spiky fruit with a very tough husk) with its bare hands; but this interpretation is not available for the transitive form used in (13a). That sentence can only be interpreted to mean that the orangutan used a bush-knife, axe, or other sharp instrument. In contrast, the intransitive form used in (13b) is normally interpreted as a spontaneous event involving neither instrument nor agent. Thus it appears that the transitive senses of *lapak* and *wi’is* belong to the *cut* class, while their intransitive senses belong to the *break* class.

- (13) a. Minangalapak(<in>m-poN-lapak) it kogiw do ratu.
 <PST>AV-TR-split NOM orangutan GEN durian
 ‘The orangutan split (open) a *durian*.’
- b. L<in><um>apak ilot niyuw.
 <PST><AV>split that(NOM) coconut
 ‘The coconut split.’

Most *cut* verbs do not lexically specify a result. Evidence for this comes from the fact that these roots cannot be used to deny that an intended result was achieved (14a–b). In order to deny the result, a different root must be used (14c). However, there are a few roots of this type that can be used in this way, as illustrated in (15), suggesting that these roots do lexically specify a result state.

- (14) a. *T<in>obok-Ø ku yalo nga’, amu n-o-tobok-Ø.
 <PST>-stab-OV 1sg.GEN 3sg.NOM but not PST-NVOL-stab-OV
 (intended: ‘I (tried to) stab him, but he didn’t stab/get stabbed.’)
- b. *P<in>urok-Ø ku ilo’ tonsi nga’, amu n-o-purok-Ø.
 <PST>-chop-OV 1sg.GEN that(NOM) meat but not PST-NVOL-chop-OV
 (intended: ‘I (tried to) chop up that meat, but it didn’t chop.’)

- c. T<in>obok-Ø ku yalo nga', amu n-o-togu-Ø
 <PST>-stab-OV 1sg.GEN 3sg.NOM but not PST-NVOL-pierce-OV
 tu', ki-kobol yalo.
 because have-invulnerability 3sg.NOM
 'I (tried to) stab him, but I didn't/wasn't able to pierce him because he has *kebal*
 protection (i.e., has been made invulnerable by performing certain rituals).'
- (15) T<in>otok-Ø ku ilo' tangaw nga',
 <PST>-chop-OV 1sg.GEN that(NOM) vine but
 amu n-o-totok-Ø.
 not PST-NVOL-chop-OV
 'I (tried to) cut that vine, but it didn't cut.' (it was too tough)

Levin (1993) distinguishes two classes in English, *cut* verbs which do not lexically specify a result and *carve* verbs which do. English *cut* and *carve* verbs share a number of grammatical properties. Both classes allow middle formation (*this meat cuts easily*, *this marble carves easily*), and both fail to undergo the causative-inchoative alternation and the *with/against* alternation. The two classes are distinguished by body-part possessor ascension (*I cut/slashed/stabbed him on the leg* vs. **I sliced/punctured/slit him on/in the stomach*) and the conative alternation (*Mary slashed/scratched at her attacker* and *The diver cut at the rope, trying to free himself* vs. **Mary diced/sliced/cubed at the meat*).

The semantic properties of the individual Kimaragang roots in the *cut/carve* domain are not yet understood well enough to know whether this distinction is valid for Kimaragang as well. For the moment I will continue to refer to *cut* verbs in Kimaragang as a single class, recognizing that this analysis will require further refinement.

5. The instrumental alternation

An alternation in the form of the Instrumental Voice provides another means for distinguishing the three verb classes under consideration here. Verbs marked for Instrumental Voice (IV) normally require the transitivity prefix *poN-*, which triggers a null allomorph of the IV prefix (16a). This construction is highly productive, and can be formed with a large number of transitive verb roots. A smaller number of transitive verbs can take the IV prefix without any transitivity prefix, as seen in (16b).

- (16) a. *Pinomoli*(<in>Ø-poN-boli) ku do tasin it siin nu.
 <PAST>IV-TR-buy 1sg.GEN ACC salt NOM money 2sg.GEN
 'I bought some salt with your money.'
- b. *N-i-boli* ku do tasin it siin nu.
 PAST-IV-buy 1sg.GEN ACC salt NOM money 2sg.GEN
 'I spent your money on salt.'

As these examples illustrate, both IV forms are grammatical with the root *boli* 'buy' and both can be used to describe the same basic type of event: the same participants appear in both clauses in the same semantic roles and with the same case marking. This does not mean that the two forms are semantically equivalent: the "bare" IV form in (16b) implies that all of the money was spent, whereas (16a) does not carry this implication.

This alternation between the two IV forms, with both forms describing the same type of event, is the pattern that I refer to as the INSTRUMENTAL ALTERNATION. We turn now to the question of which roots participate in this alternation.

The instrumental alternation is highly productive with *cut* verbs, as illustrated in (17–19). With these roots the two Instrumental Voice forms provide different descriptions for the same type of event, taking the same arguments with the same case marking. There is, however, a subtle semantic difference. The “bare” IV form in (19a), for example, addresses the question, ‘What will you do to my bush knife?’; whereas the normal IV form in (19b) answers the question, ‘What will you do to that leech?’

- (17) a. Nokuro.tu’ *n-i-ansap* nu do poring
 why PST-IV-scrape 2sg.GEN ACC bamboo
 ino dangol ku?
 that(NOM) bush.knife 1sg.GEN
 ‘Why did you use my bush knife to scrape bamboo?’
- b. Dangol tagayo ot awasi dot *pangansap(Ø-poN-ansap)*
 bushknife big NOM good COMP IV-TR-scrape
 do poring.
 ACC bamboo
 ‘A big bushknife is what is good to scrape bamboo with.’
- (18) a. Okon.ko’ *i-tibas* dot okodow ino dangol ku,
 do.not IV-slash ACC hard that(NOM) bush.knife 1sg.GEN
 o-podi dati’.
 NVOL-chip PRCL
 ‘Don’t slash/chop something hard with my bush knife or you may chip the blade.’
- b. Noonus(n-o-unus-Ø) yo no i gampa
 PST-NVOL-unsheath-OV 3sg.GEN COMPL NOM bush.knife
ponibas(Ø-poN-tibas) di wulanut dara.
 IV-TR-slash ACC snake FRUST
 ‘He had already drawn out his bush knife to slash the snake with (but didn’t slash it).’
- (19) a. Okon.ko *i-totok* do tulang ino dangol ku ki.
 do.not IV-chop ACC bone that(NOM) bush.knife 1sg.GEN PRCL
 ‘Don’t chop bones with my bush knife, okay?’
- b. Titio peno(po.ino) gampa, *ponotok(Ø-poN-totok)* ku
 give.here PRCL.that(NOM) bush.knife IV-TR-chop 1sg.GEN
 diti limbata.
 this leech
 ‘Give that bush knife here, I will chop up this leech with it.’

The choice between these two IV forms expresses a choice of PERSPECTIVE, in the sense of Fillmore (1977), which is somewhat analogous to the *with/against* alternation illustrated in

examples (1–2) above. With *cut* verbs (and with certain other verbs) the bare IV form (*i-ROOT*) indicates that the speaker is adopting a perspective in which the instrument (rather than the patient) is viewed as the affected entity, or the entity being acted upon. I refer to this use of the bare IV form as the AFFECTED INSTRUMENT construction. This is of course a relatively marked perspective; the Affected Instrument form occurs with much lower frequency than the normal IV form (\emptyset -*poN-ROOT*), even for roots which allow the Affected Instrument usage.

The instrumental alternation is much less productive with most other verb classes. It is systematically impossible with the *break* verbs (20a). Even though most if not all of these roots can occur in the normal Instrumental Voice form illustrated in (20b–c), they do not occur in the Affected Instrument construction. The “bare” IV form is idiosyncratically allowed with a few roots of this class, but gives rise to unpredictable secondary or metaphorical senses like that in (21). These are not Affected Instrument forms.

(20) a. **i-babak* (IV-shatter); **i-putut* (IV-break); **i-lupi* (IV-fold); **i-uyas* (IV-pull apart); etc.

b. Dunsul ot *pinangababak*(\langle in> \emptyset -poN-babak) dilot pampang.
hammer NOM <PAST>IV-TR-shatter that rock
'It was a hammer that that rock was broken up/shattered with.'

c. It dunsul ot awasi *ponguyas*(\emptyset -poN-uyas) di jing.
NOM hammer NOM good IV-TR-dismantle ACC zinc
'The hammer is what is good for tearing out zinc sheets (off the roof).'

(21) *I-kinis* ku dikaw it sonsibor dot tanaman nu
IV-tear 1sg.GEN 2sg NOM one.square COMP plant.DV 2sg.GEN

do paray.
ACC rice

'I will give you (lit: 'tear off for you') a small portion (of the paddy field) for you to plant rice on.'

The instrumental alternation seems (superficially) to be possible with some of the *hit* verbs, as seen in (22), (23), and (24). Notice, however, that the two IV verb forms in these pairs of sentences do not really describe the same type of event. The “instruments” in the (a) examples are not instruments in the normal sense. Note also the difference in the case marking patterns: the patients in (23a) and (24a) are marked for DAT case, rather than the expected ACC seen in (23b) and (24b). The patient in (22a) is totally unspecified, which is not normally possible with that root. Thus strictly speaking, the instrumental alternation is not productive with *hit* verbs either.

(22) a. Okon.ko' *i-bobog* ino payung ku tu',
do.not IV-beat that(NOM) umbrella 1sg.GEN because

ara'ag dati'.
ruined likely

'Don't beat (anything) with my umbrella, it might get broken.'
(or: 'Don't beat my umbrella against anything...')

b. Tongo ot *pinomobog*(\langle in> \emptyset -poN-bobog) nu dilo' tasu oy?
what NOM <PAST>IV-TR-beat 2sg.GEN that dog Q
'What did you beat that dog with?'

- (23) a. *N-i-duntung* dialo sid tobon a tonggom yo.
 PST-IV-punch 3sg DAT wall NOM fist 3sg.GEN
 ‘He punched his fist against the wall.’
- b. Gibang nopo ot *pongoduntung*(Ø-poN-duntung) ku dialo,
 left only REL IV-TR-punch 1sg.GEN 3sg
 aba no.
 faint PRTCL
 ‘Even if it is only my left (hand) that I hit him with, he will pass out.’
- (24) a. Matay beno(bo.ino) wulanut kukuyutan nu
 die PRTCL.that(NOM) snake holding 2sg.GEN
 ong *i-lapos* sid pampang.
 if IV-whip DAT rock
 ‘That snake you are holding will die if you whip it against a rock.’
- b. Iri tikuw ot babanar no ko’ abasag
 this(NOM) tail NOM truly PRTCL PRTCL strong
 dot *pangalapos*(Ø-poN-lapos) di sada.
 COMP IV-TR-whip ACC fish
 ‘It was the tail that was really powerful to strike the fish with.’
 (from a folk-tale about a giant python)

I suggest that these pairs involve a kind of polysemy: certain roots in the *hit* class have secondary senses which describe a particular manner of moving a theme in order to bring it into contact with a surface. These secondary senses pattern very much like source-theme-goal verbs, a class which we will discuss below.

To summarize our discussion thus far, the criteria which we have used to distinguish the *hit*, *break*, and *cut* classes in Kimaragang are listed in (25).

(25) Summary of three verb classes in Kimaragang:

	<i>hit</i> verbs	<i>break</i> verbs	<i>cut</i> verbs
selectional restrictions	instrument	patient	??
causative alternation	no	yes	no
used to deny result	no	yes	few
instrumental alternation	no	no	yes

6. How to determine “grammatical relevance”

6.1 Some constructions that are not sensitive to verb classes

Let us return now to the question posed at the end of section 2: What kinds of grammatical constructions or tests are relevant for identifying semantically-based verb classes? It turns out that not all morphological processes in Kimaragang are sensitive to the kinds of verb classes we have been discussing. The morphological causative *po-V*, for example, is extremely productive, and occurs with (almost?) every verb root in the language. Some representative examples from various classes of roots are presented in (26):

(26)

ROOT	GLOSS	CAUSATIVE	GLOSS
<i>ogom</i>	‘sit’	<i>po-ogom</i>	‘cause to sit’
<i>odop</i>	‘sleep, lie’	<i>po-odop</i>	‘cause to sleep/lie’
<i>podsu</i>	‘bathe’	<i>po-podsu</i>	‘cause to bathe’
<i>patay</i>	‘die’	<i>pa-patay</i>	‘allow to die’
<i>waya</i>	‘accompany’	<i>pa-waya</i>	‘allow to accompany’
<i>lo’o</i>	‘to fall’	<i>po-lo’o</i>	‘allow to fall’
<i>ansak</i>	‘ripe(n)’	<i>pa-ansak</i>	‘allow to ripen’
<i>talib</i>	‘pass by’	<i>pa-talib</i>	‘allow to pass by’
<i>uli</i>	‘return’	<i>po-uli</i>	‘cause to return’
<i>bobog</i>	‘beat’	<i>po-bobog</i>	‘cause to beat’
<i>idu</i>	‘flee, depart’	<i>po-idu</i>	‘cause to flee’
<i>pudung</i>	‘chop, cut’	<i>po-pudung</i>	‘cause to chop’
<i>akan</i>	‘eat’	<i>pa-akan</i>	‘cause to eat; feed’
<i>inum</i>	‘drink’	<i>po-inum</i>	‘cause to drink’
<i>waal</i>	‘build, make’	<i>pa-waal</i>	‘cause to build’

A second example is the benefactive use of the Dative Voice suffix *-an*. The benefactive construction can be formed from transitive roots of any verb class, as long as the specified action is conventionally understood as a means of obtaining or providing the substance named by the patient phrase. Some representative examples are presented in (27):

- (27)a. Isay b<in>oli-an nu diti tubat diti?
 who <past>buy-DV 2sg.GEN this medicine this
 ‘Who did you buy this medicine for?’
- b. Lapak-an ku do niyuw it wogok.
 split-DV 1sg.GEN GEN coconut NOM pig
 ‘I will split some coconuts for the pigs (to eat).’
- c. Kinis-ay oku po dino tosu nu.
 tear-DV.IMPER 1sg.GEN PRTCL that betel.leaf 2sg.GEN
 ‘Tear me off a piece of your betel leaf.’
- d. Tutuw-ay oku po dit paray.
 pound-DV.IMPER 1sg.GEN PRTCL ACC rice(with husk)
 ‘Pound the rice for me (to remove the husk so I can cook it).’
- e. Duntuk-ay oku po dit togilay.
 knock-DV.IMPER 1sg.GEN PRTCL ACC maize/corn
 ‘Pound these kernels of (dried) corn for me.’
- f. Pudung-ay oku tokibak dino tobu nu.
 chop-DV.IMPER 1sg.GEN short that sugar.cane 2sg.GEN
 ‘Cut me off a little piece of your sugar cane.’

Another, less productive use of the Dative Voice suffix is in the adversative construction. Dative Voice can be used with some unaccusative roots to add a “maleficiary” argument, someone who

suffers as a result of the described event, as illustrated in (28a). The truth of the adversative clause implies that the corresponding unaccusative (28b) is also true.

- (28) a. N-a-patay-an yalo do tanak.
 PST-NVOL-die-DV 3sg.NOM GEN child
 ‘He suffered the death of a child.’
- b. Minatay(<in>m-patay) it tanak yo.
 <PST>AV-die NOM child 3sg.GEN
 ‘His child died.’

At first glance we might suppose that the adversative construction provides another diagnostic for distinguishing *break* verbs from *hit* or *cut* verbs, since it occurs with a number of the *break* verbs (29a-c), but is systematically impossible with the *hit* verbs (29d), and similarly for *cut*. However, this is entirely predictable from the fact that *hit* and *cut* verbs do not allow an unaccusative form. The adversative construction can be formed with unaccusative roots of any type, including directed motion verbs (30a-b).

- (29) a. N-o-tipu-an oku do takod.
 PST-NVOL-break-DV 1sg.NOM GEN leg
 ‘I suffered the breaking of a leg. (i.e., I broke my leg.)’
- b. N-o-puut-an yalo do walay.
 PST-NVOL-collapse-DV 3sg.NOM GEN house
 ‘His house collapsed.’
- c. Naka-labus i karabaw tu’
 AV.PST.NVOL-escape NOM buffalo because
 n-a-gapas-an do todung.
 PST-NVOL-tear-DV GEN nose
 ‘The buffalo got loose because his nose tore through.’
 (lit: ‘suffered the tearing of a nose’, implying that it pulled free from a nose ring or rope)
- d. *N-a-babag-an oku do tanak.
 PST-NVOL-beat-DV 1sg.NOM GEN child
 (intended: ‘I suffered the beating of a/my child.’)
- (30) a. Norotuan(n-o-ratu-an) do niyuw i tulu ku.
 PST-STAT-fall-DV GEN coconut NOM head my
 ‘A coconut fell on my head.’
- b. Norikatan(n-o-rikot-an) i tanak dialo dit lubpu.di.ikus.
 PST-NVOL-arrive-DV NOM child 3sg GEN measles
 ‘His child caught measles (lit: suffered the arrival of measles).’
- c. Noliangan(n-o-liong-an) yalo dot siin sid walay yo.
 PST-NVOL-lost-DV 3sg.NOM GEN money DAT house 3sg.GEN
 ‘He lost some money in his house.’

- d. Nasaraban(n-o-sorob-an) yo'alo do walay.
 PST-NVOL-burn-DV 3pl.NOM GEN house
 'Their house burned down (lit: they suffered the burning of a house).'

As a final example, consider the petitive prefix *poki-*, which occurs with a wide range of verb and noun roots.

(31)

ROOT	GLOSS	PETITIVE FORM	GLOSS
<i>anu</i>	take	<i>mokianu</i>	ask for
<i>patay</i>	die	<i>mokipatay</i>	risk or seek death
<i>waya</i>	accompany	<i>mokiwaya</i>	ask to accompany someone
<i>atod</i>	send, take	<i>mokiatod</i>	ask for a ride
<i>suwang</i>	enter	<i>mokisuwang</i>	seek to enter
<i>gangot</i>	firewood	<i>mokigangot</i>	gather firewood
<i>lo'o</i>	to fall	<i>mokilo'o</i>	search for windfalls (fruit)
<i>gambar</i>	picture	<i>mokigambar</i>	have ones picture taken
<i>gunting</i>	scissors	<i>mokigunting</i>	get a haircut
<i>(t)ubat</i>	medicine	<i>mokiubat</i>	seek medical treatment
<i>sawo</i>	spouse	<i>mokisawo</i>	ask to marry
<i>rayow</i>	praise	<i>mokirayow</i>	seek praise; show-off
<i>ambaya</i>	friend	<i>mokiambaya</i>	try to make friends with

6.2 Characteristic properties of class-sensitive constructions

What properties do the constructions discussed in the preceding section have in common, and what sets them apart from the constructions that we used to identify members of the *hit*, *break* and *cut* verb classes?

6.2.1 Not 'affix-dependent'

First, the non-class-sensitive constructions can be described as 'affix-driven' or 'affix-dependent'. What I mean by this is that the adversative, benefactive, petitive, and morphological causative constructions are all triggered by specific affixes; and the grammatical and semantic changes that define each construction are found only when that affix is present. In contrast, class-sensitive constructions are not 'affix-dependent': morphological changes are frequently involved, but no specific affix can be identified as a consistent marker or trigger of the alternation.

In some cases, there is no morphological change whatsoever; the same verb form can be used in two different ways, as in the following examples of OBJECT ALTERNATIONS (cf. Kroeger & Johansson, 2005). It is striking that the kinds of verbs that allow this pattern in Kimaragang also tend to permit object-alternation in English: verbs of removal from a surface, verbs of creation, etc. (cf. Levin 1999, 2003; RH&L 1998). These classes have not yet been investigated in any detail in Kimaragang, but I will assume that this kind of object alternation is a class-sensitive construction in Kimaragang as in English.

- (32) Mong-ukad i ama do bayag/luwang suwab.
 AV.TR-dig NOM father ACC sweet.potato/hole tomorrow
 'Father will dig sweet potatoes/a hole tomorrow.'

- (33) Mong-imuaw yalo dit saap / lapik.
AV.TR-sweep 3sg.NOM ACC dead.leaves / floor
'He is sweeping the dead leaves / floor.'
- (34) Momiid yalo dit langow / todung yo.
AV.TR-wipe 3sg.NOM ACC snot / nose 3sg.GEN
'He is wiping his nose / snot.'
- (35) a. Urud-on dogon iti kupos diti.
squeeze-OV 1sg this.NOM boil this
'Squeeze this boil for me.'
- b. Urud-on dogon it nana mantad sid kupos diti.
squeeze-OV 1sg NOM puss from DAT boil this
'Squeeze the puss out of this boil for me.'
- (36) a. Surud-o' no pogi i susut owo....
rake-OV.IMPER PRTCL PRTCL NOM space.under.house PRTCL
'You'd better rake the space under the house (or father will scold you).'
- b. Surud-o' po ilo' sinupot.
rake-OV.IMPER PRTCL that.NOM trash
'Rake up that trash.'
- (37) a. W<in>atuw-Ø di aki iti saab.
<PAST>weave-OV GEN grandfather this.NOM tray
'Grandfather wove this winnowing tray.'
- b. W<in>atuw-Ø dialo do bakul bala i lias diri.
<PAST>weave-OV 3sg ACC basket PTCL NOM cane that
'He wove that cane into a basket.'

The morphological correlates of the class-sensitive constructions discussed in sections 3–4 primarily involve the voice markers and the transitivity prefixes. The causative-inchoative alternation involves a contrast between transitive and intransitive forms of the same root. This alternation was illustrated using just the Actor Voice forms in (3a-b), repeated here as (38a,c). But there are several other voice options available as well, in particular for the transitive sense of the root ('kill'). The Objective Voice form is illustrated in (38b). Notice that the two transitive verb forms (38a,b) do not share any affix in common which distinguishes them from the intransitive verb form (38c).⁸ This is what I mean by saying that the alternation is not 'affix-dependent'.

- (38) a. Minamatay(<in>m-poN-patay) oku do tasu.
<PST>AV-TR-die 1sg.NOM ACC dog
'I killed a dog.'

⁸ Of course in these particular examples, all three verbs are marked for past tense; but that is irrelevant to the present discussion.

- b. P<in>atay-Ø ku it tasu.
 <PST>die-OV 1sg.GEN NOM dog
 ‘I killed the dog.’
- c. Minatay(<in>m-patay) it tasu.
 <PST>AV-die NOM dog
 ‘The dog died.’

Similarly, the Instrumental alternation was illustrated in (17–19) using just the Instrumental Voice forms, but the same contrast in “perspective” is found in other voices as well. The Actor Voice forms corresponding to (18a-b) are illustrated in (39a-b).⁹ The AV form *Ø-po-tibas* in (39a) has the same affected instrument interpretation as the IV form *i-tibas* in (18a), and the AV form *m-poN-tibas* in (39b) has the same neutral or default interpretation as the IV form *Ø-poN-tibas* in (18b). Note that the two affected instrument forms do not share any affix in common. The “default” AV and IV forms both contain the transitivity prefix, *poN-*, but the corresponding OV form (*tibas-on*) does not. Once again, there is no single affix that is consistently associated with either the affected instrument or the “default” usage, and so this alternation is not affix-driven.

- (39) a. *Ø-po-tibas oku po diti dangol nu do pampang.*
 AV-TR-slash 1sg.NOM yet this bush.knife your ACC stone
 ‘I will slash a stone with your bushknife.’
- b. I Majabow nopo nga’ minonibas(<in>m-poN-tibas)
 NOM Majabow only TOPIC <PST>AV-TR-slash
 dilo’ Nabal, n-o-pi-duwo-Ø.
 that Mt.Kinabalu PST-NONV-RECIP-two-OV
 ‘That Majabow, he slashed (the peak of) Mt. Kinabalu and split it in two.’

6.2.2 Affect only “generic” aspects of meaning

Under the hypotheses outlined in section 2, class-sensitive alternations should affect only the systematic or templatic aspects of verb meaning. This claim is hard to verify (or to disprove) without developing a more complete model of what a verb’s event template should look like. But intuitively I do feel that the semantic effects of the class-sensitive alternations are more constrained and restricted than those of the non-class-sensitive alternations.

Class-sensitive alternations in Kimaragang generally affect one of the following three properties of the clause: transitivity (as in 3, 6, 7), affectedness/perspective (as in 17–19), or argument selection (as in 32–37). Non-class-sensitive alternations, in contrast, have a much wider range of meanings. In addition to the examples discussed in the preceding section, which included meanings such as ‘ask for’ and ‘suffer as a result of’, Kimaragang has a host of other derivational affixes, many of which have even more idiosyncratic meanings; see Kroeger (2005) for a partial listing.

Non-class-sensitive alternations frequently add an argument which has a very specific semantic role: beneficiary, maleficiary, causer, requester/seeker, etc. In contrast, most class-sensitive alternations do not affect argument structure at all. The one exception that I have found

⁹ These two AV forms differ only in the choice of transitivity prefix, *po-* vs. *poN-*; see Kroeger (1996) and Kroeger & Johansson (2005) for further discussion of the distribution of these prefixes.

is the causative-inchoative alternation. The contrasting forms in (3, 6, 7) have argument structures which differ in the presence vs. absence of an agent; but I would like to suggest that the fundamental issue is simply transitivity, rather than agentivity. The fact that the added argument is an agent is due to the semantics of the *break*-type roots, which lexically specify the presence of a patient. The same kind of transitivity alternation is found with roots of other classes, including certain unergatives and “semi-transitives” (Kroeger 1996). In the former case (40–41) a patient is added, and in the latter case (42–43) no argument is added; yet in both cases the alternation in verb morphology is identical to that we have already seen in the causative-inchoative alternation.

- (40) Intransitive verb form (*ogom* ‘sit’):
 M-in-ogom yalo sid rinantay.
 AV-PAST-sit 3sg.NOM DAT floor
 ‘He sat on the floor.’
- (41) Transitive verb form (*ogom* ‘sit on’):
- a. Minongogom(<in>m-poN-ogom) yalo dit tupi nu.
 PAST-AV-TR-sit 1sg.GEN ACC hat 2sg.GEN
 ‘He sat on your hat.’
- b. Nagaman(n-ogom-an)¹⁰ ku it tupi nu.
 PAST-sit-DV 1sg.GEN NOM hat 2sg.GEN
 ‘I sat on your hat.’
- (42) Intransitive verb form (*waya* ‘accompany’):
 Maya(m-waya) oku dikaw.
 AV-follow 1sg.NOM 2sg.ACC
 ‘I will come with you.’
- (43) Transitive verb form (*waya* ‘escort’):
- a. Yoku ot mamaya(m-poN-way) di Janama ong manansawo.
 1sg.TOP NOM AV-TR-follow ACC Janama if AV:get.married
 ‘I am the one who will escort Janama when he gets married.’
 (i.e., I will be the best man at Janama’s wedding.)
- b. Kada ko-susa, woyo’on(waya-on) tekaw(ku-ikaw).
 don’t worry follow-OV 1sg.GEN-2sg.NOM
 ‘Don’t be afraid, I will escort you.’ (e.g. at night)

The hypothesis that class-sensitive alternations do not add specific types of argument may help to explain the limited productivity of the instrumental alternation. In section 5 it was demonstrated that the instrumental alternation is productive with *cut* verbs but not with *hit* or *break* verbs. Intuitively, it seems likely that this difference is related to the fact that the class of *cut* verbs is in part defined by the use of a sharp instrument. In other words, the use of an instrument is part of the core meaning that all members of this class share in common.

Kroeger (1996) argues that the instrumental alternation reflects a choice as to which argument measures out the event, or is viewed as being “acted upon” in the event. Let us refer to

¹⁰ See Kroeger (1996) for a discussion of the use of DV rather than OV here.

this argument as the Proto-Patient (adopting a term from Dowty 1991). Since the alternation is sensitive to verb class membership, only the systematic or templatic aspects of verb meaning will be relevant. In order for there to be a choice of Proto-Patient, the event template must contain at least two non-agentive arguments. Thus if it were true that class-sensitive alternations do not introduce specific types of argument, we would predict that the instrumental alternation should be possible only for verb classes that systematically entail three arguments.

In fact, this seems to be the case. Aside from the *cut* verbs, there is one other type of verb for which the alternation between the two IV forms is productive, namely source-theme-goal verbs such as ‘give’, ‘pour’, ‘put’, etc. Some examples are provided in (44–46). Further work is needed to determine whether this general type should be sub-divided into two or more specific verb classes, but this issue is not crucial for our present discussion.

- (44) a. Subay.ko *i-suwang* ino paray sid kadut.
 should IV-enter that(NOM) rice DAT gunnysack
 ‘You should/must put that rice into a gunnysack.’
- b. Amu kosukup ilo’ weeg dot *ponuwang*(Ø-poN-suwang)
 NEG enough that(NOM) water COMP IV-TR-enter
 do botung.
 ACC paddy.field
 ‘There is not enough water to flood the paddy field with.’
- (45) a. *I-ta’ak* ku iti siin sid tanak ku.
 IV-give 1sg.GEN this(NOM) money DAT child 1sg.GEN
 ‘I will give this money to my child.’
- b. Nunu ot *pana’ak*(Ø-poN-ta’ak) nu ong orugi ko?
 what NOM IV-TR-give 2sg.GEN if fined 2sg.NOM
 ‘What will you give if you have to pay a fine?’
- (46) a. *N-i-tunguw* ku it weeg di sada sid
 PST-IV-pour 1sg.GEN NOM water GEN fish DAT
 poonumadan(<DUP>poN-sumad-an) do tasu.
 HABIT-TR-feed-DV GEN dog
 ‘I poured the water from (cleaning) the fish into the dog’s feeding dish.’
- b. I weeg sid gilán dîino ot *ponunguw* dino tinorimo.
 NOM water DAT container that.one NOM IV:TR:pour that cooked.rice
 ‘The water in that container there is what you should pour on/into the rice you are cooking.’

With verbs of this type, in contrast to the *cut* verbs, the bare IV form (*i-ROOT*) is the normal or default form when the displaced theme (the thing which is transferred or caused to move) is selected as subject;¹¹ it is thus much more frequent than the Ø-*poN-ROOT* form. (Note however that when the Actor is subject, the two corresponding AV forms occur with roughly equal frequency.) The use of bare IV form (as in the (a) examples) indicates that the displaced theme is

¹¹ This usage of the IV form is sometimes referred to as “Conveyance Voice” or “Conveyance Focus.”

the argument which measures out the event. For example, in (44a) the event will be complete when all of the rice is in the sack, whether or not the sack is full. The \emptyset -*poN-ROOT* form used in the (b) examples is relatively marked, and indicates a perspective in which the goal is viewed as measuring out the event. For example, in (44b) the event would be complete when the field is completely flooded.¹² See Kroeger (1996) and Kroeger & Johansson (2005) for further discussion of this semantic contrast.

To sum up, the instrumental alternation is productive only for verb classes that systematically entail the involvement of three arguments, an agent plus two others. The two most common classes of this type are the *cut* verbs and the source-theme-goal verbs (which may actually encompass several specific classes). I have suggested that this restricted productivity can be explained by the hypothesis that class-sensitive alternations are conditioned by the systematic or templatic aspects of verb meaning, if we assume that the involvement of three arguments is part of the event template for these classes of verbs.

7. Conclusion

It is striking that verb classes like *hitting*, *breaking* and *cutting* are grammatically relevant in two languages as different from each other as English and Kimaragang. This similarity offers additional support for the existence of strong cross-linguistic principles which govern the relationship between verbal semantics and argument expression. Moreover, it is notable that some constructions seem to apply to the same classes across a wide range of languages, e.g. the causative-inchoative alternation and various object alternations.

The comparison of verb classes across languages is important in order to distinguish those principles of argument realization which are truly universal from those that are language-specific. We have noted three inter-related questions which this comparison can help us to investigate: (a) What elements of meaning are relevant for determining how arguments will be expressed? (b) What is the nature of the “event template”, and how should it be represented? and (c) What kinds of grammatical constructions or tests are relevant for identifying semantically-based verb classes?

In discussing the Kimaragang evidence with respect to the third of these questions, we observed one morphological characteristic and, more tentatively, a possible semantic characteristic of class-sensitive alternations. The first of these claims, namely that class-sensitive alternations are not affix-dependent, cannot hold as an absolute cross-linguistic generalization. Even in English, which has relatively little in the way of verbal morphology, there are some class-sensitive derivational processes triggered by a specific affix, e.g. *out*-prefixation. And even in Kimaragang, it is not impossible that one of the numerous derivational affixes might turn out to apply to some verb classes but not others. I do expect, however, that further research across a variety of languages will reveal a tendency for the more idiosyncratic and specific semantic functions to be linked to specific affixes, and for morphologically unmarked alternations to express more generic or structural semantic functions.

Regarding the second generalization about the Kimaragang evidence, the claim that class-sensitive alternations will be conditioned by systematic aspects of verb meaning follows as a logical consequence of the hypotheses adopted in section 2. The empirical force of this claim

¹² Note also that the case marking on the goal argument changes with these source-theme-goal verbs: DAT with the “Conveyance Voice” form (*i-ROOT*) vs. ACC with the \emptyset -*poN-ROOT* form. Nevertheless, the semantic roles seem to be constant, and the alternation is highly productive with this verb class, so I take (44–46) to be true examples of the instrumental alternation.

must come from a more developed theory of the nature of the event template, and a number of competing ideas have been proposed; see for example Rappaport Hovav and Levin (1998). An overview of this and many related issues is presented in Levin and Rappaport Hovav (2005). In this paper I have not adopted any of these specific models. However, I have observed that class-sensitive alternations in Kimaragang seem to be limited to changes of transitivity, affectedness, or argument selection. I have, in addition, proposed one empirical generalization that seems to hold for Kimaragang, namely that class-sensitive alternations cannot introduce a specific type of argument into the argument structure. I do not know whether or to what extent this constraint may hold cross-linguistically.

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