

**AN AFFECTEDNESS CONSTRAINT
IN KIMARAGANG RESTRUCTURING**

Paul Kroeger
GIAL & SIL Intl.

Proceedings of the LFG14 Conference
Miriam Butt and Tracy Holloway King
(Editors)

2014

CSLI Publications

<http://csli-publications.stanford.edu/>

Abstract

Many transitive verbs in Kimaragang exhibit a kind of systematic polysemy similar to that observed in the English locative alternation. For most roots, the different construals require different voice paradigms. In this paper I argue that morphological constraints on restructuring in Kimaragang can best be explained as a requirement that the construals associated with the two verbs be unifiable, supporting an analysis of restructuring as unification of Lexical Conceptual Structures in the spirit of Butt (1995, 1997).

1. Introduction[†]

Restructuring (or “clause reduction”) involves two verbs occurring within a single clause. In this paper I discuss a morphological constraint on restructuring in Kimaragang Dusun (KQR), an endangered Philippine-type language of northeastern Borneo. The constraint I seek to explain has to do with the choice of transitivity prefix (*poN-* vs. *po-*) in the second verb of the construction, as illustrated in (1). These transitivity prefixes reflect a choice of voice-marking paradigm which in turn reflects a particular construal of the described event. (The first verb in this example is derived from the numeral root meaning ‘four’.)¹

- (1) Pi-apat-on nu m-poN-/*po-lapak ino niyuw.
RECP-four-OV 2sg.GEN AV.TR1-/TR2-split that.NOM coconut
‘Split that coconut into four parts.’

I will argue that restructuring in Kimaragang is best analyzed as a kind of complex predicate formation. I adopt the analysis of Butt (1995), who treats complex predicate formation in Urdu as an operation on a Jackendovian Lexical Conceptual Structure (LCS). I claim that the constraint observed in (1) is a consequence of the requirement that the construals associated with each verb individually must be unifiable to create a coherent and permissible

[†] I would like to thank Jim Johansson and Janama Lontubon for allowing me to use their draft dictionary, the source of many of the examples in this paper, and for helpful discussions of the data. Other examples come from my own field notes and transcribed texts.

¹ In addition to the Leipzig standard set, the following abbreviations are used:

<x>	infix	IV	instrumental voice
ASP	aspect	LNK	linker
ATMP	atemporal	NVOL	non-volitive
AV	actor voice	OV	objective voice
DESID	desiderative	POT	potential
DUP	reduplication	PTCL	particle
DV	dative voice	TR1, TR2	transitivity prefixes
EMPH	emphatic particle	Q	interrogative

construal for the complex predicate as a whole. In particular, both verbs must share a single affected argument.

I begin in section 1 by discussing affectedness and briefly describing the aspects of Jackendoff's model which are relevant to what follows. In section 2 I provide a sketch of the voice system and clause structure of Kimaragang. In section 3 I describe the two types of restructuring in Kimaragang which will be the focus of this paper, and provide arguments for monoclausality. In section 4 I return to the morphological constraint described above. I show how it follows from the proposed analysis, and why it cannot be treated either as some kind of inflectional agreement, or as "argument sharing" between two syntactically independent verbs as proposed for serial verb constructions by Baker (1989).

1. Affectedness

The "Locative alternation" illustrated in (2) is a well-known example of how different patterns of argument realization can express different construals of the same basic event. For most speakers, the argument which appears in the direct object position is interpreted as being totally affected by the action. Rappaport & Levin (1988) and Pinker (1989) suggest that (2b) describes a motion event (*x causes y to go to z*), while (2a) describes a caused change of state (*x causes z to become <loaded> by means of (x causes y to go to z)*). In (2a) Bill is construed as doing something to the cart, while in (2b) Bill is construed as doing something to the apples.

- (2) a. Bill loaded the cart with apples.
b. Bill loaded the apples onto the cart.

Similarly, in the much-studied "Dative alternation" the recipient must be interpreted as gaining possession of the theme in the double object construction, but not when the recipient is marked with a preposition. However, object alternations of this kind do not always involve a difference in semantic entailments. Sometimes they may simply reflect the current interests and purposes of the speaker. Fillmore (1977) uses the *with/against* alternation in English, illustrated in (3), as an example of how a speaker may adopt two different PERSPECTIVES on the same event. Sentence (3a) describes the agent doing something to the surface or thing being struck, while sentence (3b) describes the agent doing something to the instrument being used. (This perspective seems unnatural when the thing being struck is human.)

- (3) a. I hit the fence/Harry with the stick.
b. I hit the stick against the fence/??Harry. (Fillmore 1977:75)

A similar alternation is reported in causative constructions in a number of languages, in which the case marking or grammatical relation of the causee serves to indicate the affected argument. The Chichewa example (4a) (from

Alsina 1992:523) answers the question, *What did the porcupine do to the pumpkins?* (affected argument = pumpkins), while (4b) answers the question, *What did the porcupine do to the owl?* (affected argument = owl).

- (4) a. Nungu i-na-phik-its-a maungu kwa kadzidzi.
 porcupine(9) 9.SBJ-PST-cook-CAUS-ASP pumpkins(6) to owl(1a)
 ‘The porcupine had the pumpkins cooked by the owl.’
- b. Nungu i-na-phik-its-a kadzidzi maungu.
 porcupine(9) 9.SBJ-PST-cook-CAUS-ASP owl(1a) pumpkins(6)
 ‘The porcupine made the owl cook the pumpkins.’

Jackendoff’s (1990) model of Lexical Conceptual Structure (LCS) provides a very useful framework for analyzing the Kimaragang data discussed here. He separates information about thematic roles, encoded on the Thematic Tier, from information about affectedness, which is encoded on the Action Tier. A simplified representation of the LCS for examples (4a-b) is presented in (5a-b). Notice that the only difference between the two structures is the identity of the affected argument. Jackendoff refers to the argument which is viewed as being acted upon or whose affectedness is of primary interest, i.e., the second argument of the AFFECT predicate, as the “patient”. Since this term is often used as a label for a specific thematic role, I will instead use the term UNDERGOER (Foley and Van Valin, 1984) to refer to this argument.

- (5) a.

CAUSE (x, cook(y,z))]	—]	[Thematic Tier]	(=4a)
AFFECT (x,z)]	—]	[Action Tier]	
- b.

CAUSE (x, cook(y,z))]	—]	[Thematic Tier]	(=4b)
AFFECT (x,y)]	—]	[Action Tier]	

2. Kimaragang verb morphology and clause structure

2.1 Voice and case in a Philippine-type language

In Kimaragang, as in other Philippine-type languages, a wide variety of arguments may be selected as subject. The semantic role of the subject is signaled by a voice-marking affix on the verb.

In (6a), the actor voice marker (*m-*) signals that the agent is the subject, and so the agent pronoun (‘I’) appears in NOM case. In (6b), the objective voice marker (*-on*) indicates that the patient is the subject. In (6c), the instrumental voice marker (base form *i-*, with a zero-allomorph occurring before *poN-*) indicates that the instrument is the subject. In (6d), the dative voice marker (*-an*) indicates that the subject is a beneficiary.

- (6) a. Mangalapak(m-poN-lapak) oku do niyuw.
 AV-TR1-split 1sg.NOM ACC coconut
 ‘I will split a coconut/some coconuts.’

- b. Lapak-on ku do kapak ilo' niyuw ku.
 split-OV 1sg.GEN ACC axe that(NOM) coconut 1sg.GEN
 'I will split *my coconuts* with an axe.'
- c. *Tongo* ot pangalapak(Ø-poN-lapak) nu dilo' niyuw?
 what REL IV-TR1-split 2sg.GEN that.ACC coconut
 'What will you split those coconuts with?'
- d. 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).

Subjecthood tests include raising, control, floating quantifiers, relativization, and clefting. Any argument of the verb can in principle be selected as subject, and (as in most Philippine-type languages) the preferred choice is not the Actor but the Undergoer. Subjects are normally definite, as reflected in the translations for (6a,d). A definite Undergoer will generally be selected as subject unless some other argument of the clause is topicalized or extracted.

A characteristic feature of Philippine-type languages, and of a number of other Western Malayo-Polynesian languages, is the non-demoting or "symmetric" nature of the voice alternations. What this means is that non-subject Actors are not demoted to oblique or adjunct status, and so non-active clauses may have more than one core argument. Some authors take the non-subject Actor in ergative languages to be a primary object (OBJ). I will adopt a slightly different assumption here, namely that only Undergoers are primary objects in Kimaragang. I analyze non-subject Actors as restricted objects (OBJ_{agt}), and NP arguments marked with ACC case (aside from the Undergoer) as other types of restricted objects. PP arguments and NP arguments marked with DAT case are analyzed as oblique arguments (OBL_{theta}). The full pattern of case marking and grammatical relations for the verb *lapak* 'split' as illustrated in (6) above is summarized in (7).

(7) Case marking and grammatical relations for *lapak* 'split'

VOICE / SUBJ	Agent	Patient	Instrument	Beneficiary
AV (ex. 6a) <i>m-poN-Root</i>	NOM: SUBJ	ACC: OBJ	ACC: OBJ _{instr}	ACC: OBJ _{ben}
OV (ex. 6b) <i>Root-on</i>	GEN: OBJ _{agt}	NOM: SUBJ	ACC: OBJ _{instr}	ACC: OBJ _{ben}
IV (ex. 6c) <i>Ø-poN-Root</i>	GEN: OBJ _{agt}	ACC: OBJ	NOM: SUBJ	ACC: OBJ _{ben}
DV (ex. 6d) <i>Root-an</i>	GEN: OBJ _{agt}	ACC: OBJ	ACC: OBJ _{instr}	NOM: SUBJ

One piece of evidence supporting this analysis is that adjuncts and oblique arguments (including dative NPs) can occur in the Focus Fronting position, whereas non-oblique arguments cannot.

2.2 Voice paradigms and alternate construals

It turns out to be quite difficult to specify the full range of semantic functions for each voice affix in a Philippine-type system; however, some clear tendencies can be observed for Kimaragang. The actor voice marker (*m-*) selects the most prominent argument on the Thematic Tier as subject. The instrumental voice marker (*i-*) typically selects an instrument or displaced theme as subject. More generally, this voice is the expected choice (apart from a few lexical exceptions) when the subject is neither the agent/most prominent argument nor the terminus or end-point of the event (i.e., not the patient, goal or recipient; Kroeger 1996). When the subject is the terminus or end-point of the event, one of the other non-active voices (OV or DV) will be used instead. The semantic correlates of the transitivity prefixes are similarly difficult to pin down. However, there is a strong correlation between transitivity prefix and voice marking, which I will discuss below.

I believe that the best way to make sense of Kimaragang voice morphology is to identify paradigms of inflected forms that correspond to a single construal of the event. The examples in (6a-c) above, and also example (1), reflect a single perspective on the event of splitting coconuts; they answer the question, “What is the agent doing to the coconuts?” (The benefactive use of the Dative Voice suffix illustrated in (6d) seems to be a special applicative-type construction, and will not be considered to belong to any specific paradigm in the following discussion.) The examples in (8a-b) reflect a different perspective on the same kind of event. The verb forms which occur in these examples would be used to answer the question, “What is the agent doing to the axe?”

- (8) a. Ø-pa-lapak oku po diti kapak nu do niyuw.
 AV-TR2-split 1sg.NOM yet this.ACC axe your ACC coconut
 ‘I will (or ‘Let me’) split some coconuts with your axe.’
- b. Nokuro.tu n-i-lapak nu do niyuw it dangol ku?
 why PAST-IV- 2sg. ACC coconut NOM bush- 1sg.
 split GEN knife GEN
 ‘Why did you use my bush knife to split coconuts?’

The two paradigms which correspond to the construals in (6) vs. (8) are summarized in (9). Often such paradigms are shared by entire semantic classes of verbs. Kroeger (2010) shows that the Affected Patient paradigm in (9a) is shared by verbs of the *hit*, *cut* and *break* classes. (In fact, this paradigm seems to be the default pattern for agent-patient-type transitive verbs.) In contrast, the Affected Instrument paradigm in (9b) is available to

all *cut* verbs, only sporadically available to *hit* verbs, and never available to *break* verbs.

(9) **Affected Patient vs. Affected Instrument paradigms**

VOICE / SUBJECT	(a) U = Patient	(b) U = Instrument
AV / Actor	<i>m-poN-Root</i> (6a)	<i>Ø-po-Root</i> (8a)
OV / Patient	Root- <i>on</i> (6b)	(N/A??)
IV / Instrument	<i>Ø-poN-Root</i> (6c)	<i>i-Root</i> (8b)

Two paradigms which are employed by a number of source-theme-goal-type verbs are summarized in (10). Examples illustrating the two construals are presented in (11a) vs. (11b) and (12a) vs. (12b). All four of those examples involve the AV form of the verb, so the choice of construal is indicated by the choice of transitivity prefix.

(10) **Affected Theme vs. Affected Goal paradigms**

VOICE / SUBJECT	U = THEME	U = GOAL
AV / Actor	<i>Ø-po-Root</i>	<i>m-poN-Root</i>
IV / Theme	<i>i-Root</i>	<i>Ø-poN-Root</i>
DV / Goal	<i>po-Root-an</i>	Root- <i>an</i>

(11) a. *Ø-po-suwang oku diti sada sid pata'an.*
 AV-TR2-enter 1sg.NOM this.ACC fish DAT basket
 'I will put this fish in a/the basket.'

b. *Monuwang(m-poN-suwang) oku do pata'an do sada.*
 AV-TR1-enter 1sg.NOM ACC basket ACC fish
 'I will fill a basket with fish.'

The different construals — Theme-Undergoer in (11a) vs. Goal-Undergoer in (11b) — correlate with a difference in the case marking and GF of the goal argument 'basket': dative (OBL_{goal}) in (11a), but accusative (OBJ) in (11b). The contrast also has semantic consequences. For talking about a single fish, only (11a) would be appropriate, and not (11b); only in (11a) is the theme potentially individuated. On the other hand, (11b) implies that the basket is completely filled, while (11a) does not carry this implication. In other words, the goal is interpreted as being totally affected in (11b) but not in (11a). (These same semantic contrasts hold true for the other voice categories within each paradigm as well.)

(12) a. *Mana'ak(m-poN-ta'ak) oku dikaw do tana.*
 AV-TR1-give 1sg.NOM 2sg.DAT ACC earth
 'I will give you some land/dirt.'

- b. Ø-pa-ta'ak oku dikaw do tana.
 AV-TR2-give 1sg.NOM 2sg.DAT ACC earth
 'I will hand you some dirt (*land).'

The difference between these two paradigms produces a slightly different semantic contrast with the root 'give', as seen in (12). Example (12a), representing the Goal-Undergoer construal, entails change of ownership, whereas example (12b), representing the Theme-Undergoer construal, entails a transfer of physical possession. Now the noun *tana* is ambiguous between the meanings 'land' and 'dirt'. Thus example (12a) could mean either 'I will give you some land' or 'I will give you some dirt'; but the former meaning is more likely, since dirt is seldom given as a gift. However, since a piece of land cannot be physically moved (at least, not by human agency), example (12b) can only mean 'I will give/hand you some dirt'.

As the paradigms in (9)–(10) illustrate, the transitivity prefixes (of which *poN-* and *po-* are the most common) are overtly realized only when the Undergoer is not selected as subject. I do not have a completely satisfying explanation for this fact, but it is a very wide-spread pattern among Philippine-type languages. Pearson (2005) suggests that the corresponding stem prefixes in Malagasy are realized by a zero allomorph when the theme/patient is selected as subject, and Travis (2000) adopts a similar approach for both Malagasy and Tagalog.

However, a different kind of explanation might be developed based on the analysis summarized in (7) above. If only Undergoers can be primary objects, then when the Undergoer is selected as subject the clause does not contain a primary object. We might say that such a clause is not fully transitive, but (if it contains one or more restricted objects) only "semi-transitive". If the transitivity prefixes are simply markers of transitivity, it is not surprising that they would not occur in semi-transitive clauses. Kroeger (1996) shows that these prefixes also fail to occur with semi-transitive roots such as 'visit', 'follow', 'meet', etc.

Now here is the correlation between the choice of transitivity prefix and the voice marking categories: when the Undergoer is an argument that would be selected as subject by the IV prefix (*i-*), the prefix *po-* 'TR2' will occur with all other voice categories in the same paradigm. When the Undergoer is an argument that would be selected as subject by one of the other non-active voices (OV or DV), the prefix *poN-* 'TR1' will occur with all other voice categories in the same paradigm.

One consequence of this somewhat complex system is that the identity of the Undergoer is always reflected somewhere in the verb morphology: in the voice marker when the Undergoer is selected as subject, and in the transitivity prefix when the Undergoer is not selected as subject.

2.3 Phrase structure

As the examples above illustrate, Kimaragang is a verb-initial language. (Verbal clauses allow for a pre-verbal focus position that I will not discuss here.) Lexical verbs are inflected for tense, aspect, and mood (TAM) as well as voice. There are a few auxiliary verbs in the language which occur before the main verb and are inflected for TAM but not voice. The most common of these, *mangan* ~ *maan*, is illustrated in (13). This form seems to contribute very little to the meaning of the sentence, perhaps just a heightened sense of intentionality on the part of the Actor. It serves primarily as a bearer of the TAM features for the clause. The main verb which follows it must appear in the “atemporal” form (also used for imperatives and as a narrative tense) and in a non-active voice.

(13) **Auxiliary verb *mangan* ~ *maan***

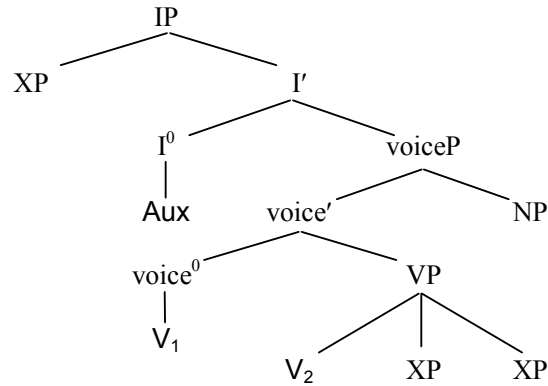
- a. Minaan akan-o' do tusing ilot sada.
PST.AUX eat-OV.ATMP GEN cat that(NOM) fish
'That fish was eaten by a cat.'
- b. Mangay oku po dagang-ay do buduy.
AUX.IMP 1sg.NOM PTCL buy-DV.ATMP ACC watermelon
'Please buy some watermelon for me.'

Complex predicates can co-occur with an auxiliary verb, as illustrated in (14). When this happens there are two lexical verbs (shown in italics below) following the auxiliary verb. The first of these will bear the voice marker for the clause, appearing in the atemporal form of a non-active voice as described above. The second verb appears in the citation form: invariant Active Voice marking with no TAM inflection.

- (14) a. Minaan ku *tuyuan-ay* *momodsu* ino tanak.
PAST.AUX 1sg.GEN gentle-DV.ATMP AV.TR1.bathe that.NOM child
'I bathed the child gently.'
- b. Minaan *owi-o'* di Jaiwan *mangkan* i rinapa.
PAST.AUX finish-OV.ATMP GEN Jaiwan AV.TR1.eat NOM viand
'Jaiwan (intentionally) ate up all the food.'

I am tentatively assuming the following phrase structure for examples like those in (14). This structure does not account for the full range of word-order variation for post-verbal elements, or for the kind of scrambling discussed in section 3 below. It does, however, provide a way of accounting for the order of the verbs and the distribution of inflectional features.

(15)



I assume that TAM features are always expressed in the I^0 position. When there is no auxiliary verb, I assume that the tensed verb occurs here. To accomplish this, I adopt the analysis of King (1995) for Russian, which assigns auxiliary verbs and finite (tensed) lexical verbs to category I, but non-finite verbs to category V.

Voice is obligatory in verbal clauses, but can only be expressed once. One way to insure uniqueness is to define VOICE as an instantiated feature.² The voice feature of the clause will always be marked on the highest/leftmost potential voice-bearing word, which could be a lexical verb in either the I^0 or voice^0 positions, or the first element of a complex predicate. I will not propose a formal account for these restrictions here.

A tentative set of phrase structure rules is proposed in (16). These rules would make it possible for two lexical verbs to occur as co-heads within the same clause, e.g. one in the V^0 position and the other in either the I^0 or voice^0 positions. Since each verb would have a PRED feature to contribute, the result would be an incoherent f-structure (PRED is an instantiated feature). So, crucially, this will actually be possible only when the two lexical verbs combine to form a complex predicate, which contributes only a single joint PRED feature to the f-structure of the clause, as sketched out in section 4.

(16) Proposed phrase structure rules:

- | | | | | | |
|--------------------------------|-----------------------------------|-----------------------|---------------------|-----------------------|----------------------------------|
| a. $IP \rightarrow$ | XP | I' | b. $I' \rightarrow$ | I^0 | voiceP |
| | $(\uparrow\text{FOC})=\downarrow$ | $\uparrow=\downarrow$ | | $\uparrow=\downarrow$ | $\uparrow=\downarrow$ |
| c. $\text{voice}' \rightarrow$ | voice^0 | VP | d. $VP \rightarrow$ | V | XP^* |
| | $\uparrow=\downarrow$ | $\uparrow=\downarrow$ | | $\uparrow=\downarrow$ | $(\uparrow\text{GF})=\downarrow$ |

² Thanks to Mary Dalrymple for this suggestion.

3. Restructuring in Kimaragang

In this paper I will focus primarily on two types of restructuring in Kimaragang. The first type, illustrated in (17), is similar to the “adverbial verb” construction described in many Formosan languages (see Chang 2010 and references cited there). In this construction, the first verb (V_1) is an adverbial or adjectival root which carries verbal inflection for voice and tense/aspect/mood (TAM). The second verb (V_2) is a normal verb root which appears in the citation form: invariant Active Voice marking with no TAM inflection. V_1 contributes adverbial meanings such as manner, frequency, etc., while V_2 describes the action which is being performed.

(17) Adverbial complex predicates (ACP):

- a. Induwa-an nopo momoog(m-poN-wo’og) ino wagas tobo.
twice-DV only AV-TR1-wash that.NOM rice PTCL
‘Just wash that (uncooked) rice two times.’
- b. Basag-on no mongogodong(m-poN-godong) ilo’ tali ...
strong-OV PTCL AV-TR1-pull that.NOM rope
‘Pull hard on the rope (when you enter the tug-of-war).’
- d. K<in>ondiri-Ø dialo mamatay(m-poN-patay) it tasu yo.
<PST>self-OV 3sg AV-TR1-kill NOM dog 3sg.GEN
‘He killed his dog himself.’
- e. G<in>ibang-Ø ku yalo manampar(m-poN-tampar).
<PST>left-OV 1sg.GEN 3sg.NOM AV-TR1-punch
‘I hit him with my left hand.’

The second type of restructuring that we will consider, illustrated in (18), is a Resultative construction in which the first verb names the result state or extent of the event, while the second verb names the action that is performed. The inflectional pattern in this construction is identical to that described above for Adverbial complex predicates: V_1 carries the normal range of inflection for voice and TAM, while V_2 appears in the citation form with invariant Active Voice.

(18) Resultative complex predicates (RCP):

- a. N-a-rasak do karabaw monginum at weeg.
PST-NVOL-dry.up GEN buffalo AV.TR1.drink NOM water
‘The stream was drunk dry by buffaloes.’
- b. N-a-awi-Ø do kara mangakan it togilay.
PST-NVOL-finish-OV GEN monkey AV.TR1.eat NOM maize
‘Monkeys ate up all the maize.’ (‘... finished off the maize eating.’)
- c. Adan-o’ yalo mamasut(m-poN-pasut)!
faint-OV.IMP 3sg.NOM AV-TR1-whip
‘Whip him unconscious!’

- d. Tuus-an no momo'og ino tunturu nu!
 bare-DV PTCL AV.TR1.wash that.NOM finger 2sg.GEN
 'Wash your fingers totally clean!'
- e. P<in>i-toning-Ø ku it sapi om karabaw Ø-po-ogot.
 RECP<PST>-near-OV 1sg.GEN NOM cow and buffalo AV-TR2-tie
 'I tied up the cow and the buffalo near each other.'

Restructuring is also possible with “tough” predicates, some control verbs, and a few light verbs, but these constructions are not discussed in the present paper. In the Adverbial complex predicate construction, the argument structure for the clause as a whole is determined entirely by V_2 ; the “adverbial verb” (V_1) does not contribute to argument selection. In the Resultative complex predicate construction, however, both verbs contribute to argument selection. In the terminology of Butt (1995, 1997), the ACP construction seems to involve “event fusion” while the RCP construction seems to involve “argument fusion”.

3.1. Evidence for monoclausality

One reason for thinking that the two verbs in a restructuring construction belong to the same clause is that they cannot be separated by a pause, conjunction, complementizer, linker, or any other marker of clause boundaries. This fact distinguishes restructuring from certain kinds of adverbial clause, which do not always require but normally do allow some overt marking of the clause boundary. Additional evidence for monoclausality comes from classic tests that have been used to argue for restructuring in a variety of languages: scrambling across (apparent) clause boundaries, long distance passive, and clitic climbing.

Kimaragang is a strongly verb-initial language: non-pronominal arguments always follow the verb which selects them, unless they are focused or extracted. (The relative ordering of these post-verbal arguments is somewhat flexible.) As (17–18) demonstrate, the subject of the restructuring clause (marked with NOM case) normally follows V_2 . However, it may also occur before V_2 , as illustrated in (19b); see also (18e). If there were a clause boundary between the two verbs, the boundary would fall immediately before V_2 and examples like (18e) and (19b) would involve scrambling across a clause boundary. But this kind of scrambling is never allowed out of any other type of subordinate clause in Kimaragang. Furthermore, examples like (18e) and (19b) cannot be analyzed as Raising, because raising the patient of a complement clause would be impossible when the complement verb is marked for Active Voice (only subjects can be raised).

- (19) a. Naawi ku no Ø-po-suwang sid lampu it tinasak.
 finish 1sg.GEN ASP AV-TR2-enter DAT lamp NOM oil
 'I poured all the oil into the lamp.'

- b. Naawi ku no it tinasak Ø-po-suwang sid lampu.
 finish 1sg.GEN ASP NOM oil AV-TR2-enter DAT lamp
 ‘I poured all the oil into the lamp.’

The apparent mismatch between the Active Voice marking of V_2 and the NOM case marking of the theme in sentences like (19a) is one of the most noticeable features of the restructuring construction. Recall from section 2.1 that the Undergoer of a verb marked for AV would normally get ACC case. This means that the case marking of the Undergoer arguments in examples (17–19) is not assigned by V_2 , but by V_1 . This is especially striking in the Adverbial complex predicate construction (17), where the Undergoer is not a semantic argument of V_1 . The pattern is analogous to “long distance passivization” in languages like German, where voice morphology on the syntactically higher verb promotes an internal argument of the lower verb to become the SUBJ of the entire restructuring clause.

The subjecthood of the nominative argument in the restructuring clause is confirmed by properties such as argument topicalization (20a) and clefted *wh*-questions (20b), which are possible only for grammatical subjects. These examples also provide additional evidence for monoclausality, since the AV form of V_2 would not allow a subordinate patient to undergo long-distance extraction.

- (20) a. It sapi om karabaw p<in>i-toning-Ø ku Ø-po-ogot.
 NOM cow and buffalo RECP<PST>near-OV 1sg.GEN AV-TR2-tie
 ‘The cow and the buffalo I tied up near each other.’
- b. Disay do tasu ot n-a-patay dialo momobog?
 whose LNK dog NOM PST-NVOL-kill-OV 3sg AV-TR1-beat
 ‘Whose dog was it that he beat to death?’

The distribution of second-position clitics provides additional evidence that there is no internal clause boundary in the restructuring construction. Clitic pronouns and particles must follow the first constituent of their immediate clause. Normally this will be the verb, but if a negation marker or focused adverbial precedes the verb, any 2P clitics belonging to that clause will also precede the verb as illustrated in (21a). The placement of the 2P clitics provides direct evidence for clause boundaries. Sentence (21b), for example, contains an internal clause boundary, as indicated by the occurrence of 2P clitics following the second verb. In contrast, there is no medial position in a restructuring clause that can host 2P clitics; all clitics must immediately follow the first constituent of the restructuring clause as a whole, including clitic pronominal arguments of V_2 as seen in (21c) and (17e). This is highly reminiscent of the “clitic climbing” associated with restructuring in Romance.

- (21) a. Amu oku po dati ko-guli...
 NEG 1sg.NOM yet probably POT.AV-return
 ‘I probably cannot return (to work here tomorrow).’

- b. [Opi-o' *pogi* a tobu ong [ti-uus *ko=no*]].
 cut-OV.IMPER PTCL NOM sugarcane if DESID-chew 2sg=PTCL
 'Go ahead and cut down the sugarcane if you want to chew it.'
- c. Amu *ku yalo* n-o-onong-Ø monimbak.
 not 1sg.GEN 3sg.NOM PST-NVOL-hit-OV AV-shoot
 'I didn't hit him when I shot.'

3.2 Argument structure and argument selection

As mentioned above, the argument structure for the restructuring clause as a whole is determined entirely by V_2 in the Adverbial complex predicate construction, but in the Resultative complex predicate construction both verbs contribute to argument selection. Many of the "adverbial verb" forms which occur as V_1 in the ACP cannot occur alone as clausal predicates (22–23); they are only inflected as verbs in the restructuring construction (see (36b) for one counter-example). In contrast, all of verbs which function as V_1 in the RCP construction can occur independently as main clause predicates.

- (22) a. Basag-on no mongogodong(m-poN-godong) ilo' tali...
 strong-OV FOC AV-TR1-pull that.NOM rope
 'Pull hard on the rope (when you enter the tug-of-war).'
- b. *Basag-on no ilo' tali.
 strong-OV FOC that.NOM rope
- (23) a. Induwa-an nopo momo'og ino wagas tobo.
 twice-DV only AV.TR1.wash that.NOM rice PTCL
 'Just wash that (uncooked) rice two times.'
- b. *Induwa-an ino wagas.
 twice-DV that(NOM) rice

In the Resultative complex predicate construction, the Undergoer must always be a semantic argument of V_1 and the Actor must always be a semantic argument of V_2 . This implies that V_1 must be either transitive or (as in 24) unaccusative, while V_2 must be either transitive or (as in 25) unergative. Example (26) is ungrammatical, because V_1 is unergative.

- (24) a. *N-o-rikot* ku momilay i walay nu.
 PST-NVOL-arrive 1sg.GEN AV.TR1.throw NOM house 2sg.GEN
 'I threw (something) all the way to your house.'
- b. *N-a-rasak* do karabaw monginum a weeg.
 PST-NVOL-dry.up GEN buffalo AV.TR1.drink NOM stream
 'The stream was drunk dry by buffaloes.'

- (25) a. Amu o-owit-Ø dit tombolog *t<um>ulud* it wulanut.
 not NVOL-lift-OV GEN bird <AV>fly NOM snake
 ‘The bird was not able to fly off carrying the snake.’
- b. N-a-dansaran-an dati’ *m-ogom* a takod da tanak...
 PST-NVOL-sit.straight-DV likely AV-sit NOM foot GEN child
 ‘Someone probably sat down squarely on the child’s foot (that is why he started crying).’
- (26) **Noko-odop* dit tidi mamayuk it tanak.
 PST.NVOL-sleep GEN mother AV.TR1.swing NOM child
 (intended: ‘The mother swung the baby to sleep.’)

A restructuring construction must contain no more than one affected argument (Undergoer). The resultative example in (27) is ungrammatical because the two verbs have distinct Undergoers: the sole of the speaker’s foot is the Undergoer of ‘wounded’, while the nail is the Undergoer of ‘stepped on’. The only way to express the intended meaning would be to use an adverbial subordinate clause, where each verb can have a distinct Undergoer.

- (27) *N-o-pilat ku mongulok(m-poN-ulok) do pansang
 PST-NVOL-wound 1sg.GEN AV-TR1-step.on ACC nail
 itit lukap ku.
 this.NOM sole 1sg.GEN
 (intended: ‘I wounded the sole of my foot stepping on a nail.’)

Resultative complex predicates always contain an Undergoer, but Adverbial complex predicates need not. Some examples of ACPs with no Undergoer are presented in (28).

- (28) a. Tanday-ay no mamanaw sid ralan dino.
 careful-DV.IMP PTCL AV.TR1.walk DAT road that
 ‘Walk carefully on that trail/road (it is not well maintained).’
- b. K<um>awo yalo k<um>araja, abagos babanar.
 <AV>wing 3sg.NOM <AV>work industrious very
 ‘He works as if he had wings (i.e., his arms never stop moving); he is very industrious.’

4. Accounting for the affectedness constraint

The requirement that a restructuring clause contain no more than one Undergoer is related to the morphological constraint illustrated in (1). Recall that this constraint has to do with the choice of transitivity prefix in the second verb of the construction. Because the Undergoer is normally selected as subject (nominative argument) by the voice marker on V_1 , the constraint in effect requires that the morphological form of V_2 be compatible with a

construal in which this nominative argument is the Undergoer. Of course, if V_2 is unergative (as seen in 25), it will normally not contain any transitivity prefix (*mamanaw* in 28a is an exception); but if V_2 is a transitive verb which allows a choice of transitivity prefix, only one choice will be permitted.

For example, the root *tumpos* refers to dropping rice seed into the dibble holes when planting rice in hillside swidden gardens. It is used in two different senses, or construals: one which takes the seed to be the affected argument, associated with the transitivity prefix *po-*, and another which takes the hole to be the affected argument, associated with the transitivity prefix *poN-*. When this root occurs as V_2 in a complex predicate, only *po-* is possible if the seed is selected as subject (29a), and only *poN-* is possible if the hole is selected as subject (29b). Further examples illustrating the restricted choice of transitivity prefix are provided in (30–32).

- (29) a. Tanday-ay no ino paray *potumpos*/**monumpos* ...
careful-DV.IMPER PTCL that.NOM rice AV-TR2/*TR1-sow.seed
‘Put the rice seed (into the dibble hole) carefully (lest it get scattered).’
- b. Tanday-ay no *monumpos*/**potumpos* ino luwang.
careful-DV.IMP PTCL AV-TR1/*TR2-sow.seed that.NOM hole
‘Fill the dibble hole (with rice seed) carefully.’
- (30) a. Tuyuan-ay *posuwang*/**monuwang* inot tontolu sid bakul.
slow-DV AV-TR2/*TR1-enter that.NOM egg LOC basket
‘Put those eggs into the basket gently/carefully.’
- b. Tuyuan-ay *monuwang*/**posuwang* do tinasak ino kasa.
slow-DV AV-TR1/*TR2-enter ACC oil that.NOM bottle
‘Fill that bottle with oil carefully.’
- (31) a. N-a-awi-Ø ku *pataak*/**manaak* sid tongo tanak
PST-NVOL-finish-OV 1sg.GEN AV-TR2-give DAT PL child
it siin ku.
NOM money 1sg.GEN
‘I used up all my money giving it to my children.’
- b. Neekid(n-o-ikid-Ø) nu=i’ *manaak*/**pataak*
PST-NVOL-each.one-OV 2sg.GEN=EMPH AV-TR1-give
do gula-gula a tongo tanganak oy?
ACC candy NOM PL child Q
‘Did you give each child a piece of candy?’
- (32) a. N-o-rikot ku *momilay*/**popilay* i walay nu.
PST-NVOL-arrive 1sg.GEN AV-TR1-throw NOM house your
‘I was able to pelt your house (with something) from a distance.’

- b. N-a-awi-Ø ku *popilay*/**momilay* sid walay nu
 PST-NVOL-finish-OV 1sg.GEN AV-TR2-throw DAT house your
 it tongo mangga.
 NOM PL mango
 ‘I used up all the mangoes throwing them at your house.’

What kind of constraint are we dealing with here? One plausible idea is that the morphological facts reflect a kind of syntactic argument sharing like that proposed by Baker (1989) for serial verbs. Resultative complex predicates like that in (33b) are in some ways similar to resultative serial verbs like that in (33a). Baker proposed that serial verb constructions (SVCs) contain two independent verbs, each of which has its own argument structure and subcategorization (or structural Case) features. In a SVC like (33a) the two verbs appear in a configuration which requires them both to assign an internal semantic role to the same argument.

- (33) a. Kofi naki Amba kiri.
 Kofi hit Amba kill
 ‘Kofi struck Amba dead.’ [Sranan, Suriname; Baker 1989]
- b. P<in>atay-Ø ku momobog(m-poN-bobog) ih wulanut.
 <PST>kill-OV 1sg.GEN AV-TR1-beat NOM snake
 ‘I beat the snake to death.’

However, the constraint under discussion here cannot be accounted for in terms of obligatory argument sharing. It applies not only to Resultative complex predicates, where the Undergoer is a semantic argument of both verbs, but also to Adverbial complex predicates where the Undergoer is a semantic argument only of V_2 , as demonstrated in (29) and (30). In the Adverbial type, V_1 has no theta-role to assign to the Undergoer, so the kind of argument sharing Baker described would be impossible.

Another approach that we might consider would be to treat the constraint as a requirement for the two verbs to agree with respect to some inflectional feature. This kind of inflectional agreement is not uncommon in serial verb constructions, for example. In light of the correlation between voice marking and transitivity prefix that we noted in section 2.2, we might expect that V_2 would bear the prefix *po*-whenever V_1 is marked for IV, and the prefix *poN*-whenever V_1 is marked for OV or DV. However, this prediction is not borne out by the data for either Adverbial complex predicates (29a, 30a) or Resultative complex predicates (20a, 31a, 32b).

The problems with any analysis based solely on inflectional agreement are seen even more clearly in the presence of an interrogative verb. Like many other Philippine-type languages, Kimaragang has 20+ question words which are inflected as verbs and occupy verbal positions. A few of these can function as “adverbial verbs”, that is, as the first verb in an Adverbial complex predicate. Some examples are provided in (34).

- (34) a. *K<in>u-kuro-Ø* nu mobpupu iti kumut diti...?
 <PST>DUP-what-OV 2sg.GEN AV.wash this.NOM blanket this...
 ‘How did you wash this blanket?’ (... because it has sand in it!)
- b. *Kuoy-on* ku mongidu i sodom sid gula diri?
 how-OV 1sg.GEN AV.TR1.remove NOM ant DAT sugar this
 ‘How am I going to remove the ants from this sugar?’

Sometimes the verb *kuoyon* ‘how’ is followed by two other verbs, creating a complex predicate that contains three verbs. In this construction *kuoyon* bears the voice feature for the clause, so the other two verbs both appear in the citation (AV) form, and thus both can bear transitivity prefixes. If the constraint that we are trying to account for were purely a matter of inflectional agreement, we would expect both of these AV verbs to bear the same transitivity prefix. But this need not be the case, as illustrated in (35): *monuyuan* contains the prefix *poN-* while *powiliw* contains the prefix *po-*.

- (35) *Kuoy-on monuyuan powiliw* iti lonjong...?
 how-OV AV.TR1.careful AV.TR2.set.down this.NOM pot
 ‘How can you set the pot down carefully (when it is hot)?’

I suggest that the observed restrictions on the form of V_2 follow from the semantic constraints on complex predicate formation together with the facts of voice morphology discussed in section 2.2. It is important to note that the constraint we are discussing applies only to restructuring clauses. The unacceptability of (36a), repeated from (29a), must be due to requirements on complex predicate formation, since its intended meaning can be expressed as a biclausal structure (note the presence of the COMP in (36b)). Crucially, in a biclausal structure each verb may have a distinct Undergoer.

- (36) a. **Tanday-ay no ino paray monumpos* ...
 careful-DV.IMP PRTCL that.NOM rice AV.TR1.sow.seed
- b. *Tanday-ay no ino paray do monumpos* ...
 careful-DV.IMP PTCL that.NOM rice COMP AV.TR1.sow.seed
 ‘Treat the rice seed carefully when you are filling (the dibble hole)...’

Following Butt (1995), I propose that complex predicate formation is accomplished by the unification of the Lexical Conceptual Structure (LCS) associated with each verb. In a RCP like (37a), repeated from (33b), each verb contributes to the Thematic Tier. I will not try to address here the constraints on unification of this tier, which presumably include limits on what can be construed or expressed as a “single event”, and perhaps also some specific constraints on the resultative construction in Kimaragang.

Unification of the Action Tier requires that the two verbs do not select different arguments as Undergoer. The unified LCS in (37d) shows that the two verbs ‘kill’ and ‘beat’ can be combined in a way that identifies the Undergoer arguments of the two verbs. This unified LCS provides a single

PRED feature taking a single array of arguments in a monoclausal f-structure, as shown in (37e). The unification of the Action Tier is trivial when V_2 is unergative, as in (25), because unergatives do not select an Undergoer and so the two verbs cannot clash in that respect. However, when V_2 is transitive and allows a choice of transitivity prefixes, only one choice is possible. In the vast majority of restructuring clauses, V_1 bears non-active voice marking which selects the Undergoer as subject (nominative argument). (As noted above, this is the most common voice selection for simple transitive clauses as well.) In this case, V_2 must bear the transitivity prefix associated with a construal under which V_2 's Undergoer can be identified with the argument selected as subject by V_1 .

(37) a. P<in>atay-Ø ku momobog(m-poN-bobog) i wulanut.
 <PST>kill-OV 1sg.GEN AV-TR1-beat NOM snake
 'I beat the snake to death.' (= 33b)

b. *pinatay* 'kill' (OV)

CAUSE (x, BECOME (<i>dead</i> (y)))
AFFECT (x,y)

c. *momobog* 'beat' (AV)

<i>beat</i> (x,y)
AFFECT (x,y)

d. *pinatay* ... *momobog*

CAUSE (x, BECOME (<i>dead</i> (y))) BY <i>beat</i> (x,y)
AFFECT (x,y)

e. PRED 'kill-hit <OBJ_{agt}, SUBJ>'

TENSE	PAST								
VOICE	OV								
OBJ _{agt}	<table border="1"> <tr> <td>PRED</td> <td>pro</td> </tr> <tr> <td>PERS</td> <td>1</td> </tr> <tr> <td>NUM</td> <td>SG</td> </tr> <tr> <td>CASE</td> <td>GEN</td> </tr> </table>	PRED	pro	PERS	1	NUM	SG	CASE	GEN
PRED	pro								
PERS	1								
NUM	SG								
CASE	GEN								
SUBJ	<table border="1"> <tr> <td>PRED</td> <td>'snake'</td> </tr> <tr> <td>CASE</td> <td>NOM</td> </tr> </table>	PRED	'snake'	CASE	NOM				
PRED	'snake'								
CASE	NOM								

Consider example (32b), repeated here as (38a). The LCS of *popilay* 'throw' can unify with that of *naawi* 'use up', as seen in (38e), because after something is thrown the agent no longer has possession of it; this is one way of using things up. The LCS of *momilay* 'throw at, pelt' cannot unify with that of *naawi*, presumably because throwing things at a target does not cause the target to be used up; there is no coherent construal under which the goal Undergoer of *momilay* can be identified with the Undergoer of *naawi*.

(38) a. Naawi ku popilay/*momilay ... it tongo mangga.
 finished.off-OV 1sg.GEN AV-TR2/*TR1-throw NOM PL mango
 ‘I threw all the mangoes (at your house).’ (or: ‘I used up the mangoes
 throwing.’)

b. *naawi* ‘use up, finish off’ (OV) c. *popilay* ‘throw’ (AV)
 $\left[\begin{array}{l} \text{CAUSE (x, BECOME (finished(y)))} \\ \text{AFFECT (x,y)} \end{array} \right]$ $\left[\begin{array}{l} \text{CAUSE (throw(x,y), GO (y, TO z))} \\ \text{AFFECT (x,y)} \end{array} \right]$

d. *naawi ... popilay*
 $\left[\begin{array}{l} \text{CAUSE (x, BECOME (finished(y))) BY CAUSE (throw(x,y), GO (y, TO z))} \\ \text{AFFECT (x,y)} \end{array} \right]$

“Adverbial verbs” typically contribute only modifier meanings such as manner or frequency to the Thematic Tier, and lack any specification on the Action Tier. The LCS of the complex predicate is almost entirely determined by V₂, as illustrated in (39). However, once again the normal rules of subject selection require that the Undergoer of the clause be selected as subject; and the transitivity prefix on V₂ must be compatible with this Undergoer.

(39) a. Induwa-an nopo momoog ino wagas tobo.
 twice-DV only AV.TR1.wash that.NOM rice PTCL
 ‘Just wash that (uncooked) rice two times.’ (= 17a)

b. *momoog* ‘wash’
 $\left[\begin{array}{l} \text{CAUSE (x, BECOME (clean(y)))} \\ \text{AFFECT (x,y)} \end{array} \right]$

c. *induwa’an... momoog* ‘wash two times’ (ex. 17a)
 $\left[\begin{array}{l} \text{twice(CAUSE (x, BECOME (clean(y)))} \\ \text{AFFECT (x,y)} \end{array} \right]$

It is also possible, though uncommon, for V₁ to be marked for active voice. Some apparent examples of this type are presented in (40). Once again, we see that the two verbs need not bear the same transitivity prefix (40b-c). What is required is that the two verb forms reflect construals which are unifiable, specifically, which can share the same argument as Undergoer.

(40) a. Monorodok yalo wagu tu’
 AV.TR1.rice.seedling 3sg.NOM again because
monginduwo mangaraja do ranaw.
 AV.TR1.twice AV.TR1.work ACC paddy.field
 ‘He is planting rice seedlings again because he wants to plant a second
 crop of rice this year.’

- b. *Monimuk* yalo *poboros* dilot i-suu yo.
 AV.TR1.whisper 3sg.NOM AV.TR2.say that.ACC IV-request 3sg.GEN
 ‘He spoke his request in a whisper.’
- c. *Mongombuyung* dilo’ koriday *Ø-po-tindal...*
 AV.TR1.lift.together that.ACC barking.deer AV.TR2.put.up
 ‘(We) all lifted the barking deer up (into the house) together.’

To summarize, we have seen in section 2 that the affixation of a transitive verb always reflects the identity of the Undergoer, either in the voice marker or the transitivity prefix. A fundamental requirement for complex predicate formation is that the two verbs must share a single coherent Lexical Conceptual Structure, which may contain at most one Undergoer. If both verbs in the complex predicate are transitive, both will reflect the same Undergoer in their affixation. We have shown that this constraint cannot be a requirement for identity of form or feature. What is needed is compatibility, or unifiability, of the construals associated with each verb form.

References

- Alsina, Alex. 1992. The argument structure of causatives. *Ling. Inquiry* 23:517-555.
- Baker, Mark. 1989. Object-sharing and projection in serial verb constructions. *Linguistic Inquiry* 20:513-553.
- Butt, Miriam. 1995. *The structure of complex predicates in Urdu*. CSLI Publications.
- Butt, Miriam. 1997. Complex predicates in Urdu. In Alex Alsina, Joan Bresnan and Peter Sells (eds.) *Complex Predicates*, 107–149. CSLI Publications.
- Chang, Henry Yunli. 2010. On the syntax of Formosan adverbial verb constructions. In R. Mercado, E Potsdam, and L. Travis (eds.), *Austronesian and theoretical linguistics*, 183–212. Amsterdam: John Benjamins.
- Fillmore, Charles. 1977. The case for case reopened. In *Grammatical relations*, ed. by Peter Cole and Jerrold Sadock, 59–81. New York: Academic Press.
- Foley, William A. and Robert D. VanValin. 1984. *Functional syntax and universal grammar*. New York: Cambridge University Press.
- Jackendoff, Ray. 1990. *Semantic Structures*. Cambridge MA: MIT Press.
- King, Tracy Holloway. 1995. *Configuring topic and focus in Russian*. CSLI Publ.
- Kroeger, Paul. 1996. The morphology of affectedness in Kimaragang Dusun. In H. Steinhauer (ed.), *Papers in Austronesian Linguistics No. 3*, 33–50. Pacific Linguistics A-84.
- Kroeger, Paul. 2010. The grammar of *hitting*, *breaking* and *cutting* in Kimaragang Dusun. *Oceanic Linguistics* 49.1: 1–20.
- Pearson, Matt. 2005. Voice morphology, case, and argument structure in Malagasy. *Proceedings of AFLA 11*, ed. P. Law, pp. 229–243. Berlin: ZAS.
- Pinker, Stephen. 1989. *Learnability and cognition*. Cambridge, MA: MIT Press.
- Rappaport, M. and B. Levin. 1988. What to do with theta-roles. In W. Wilkins, ed., *Syntax and Semantics 21: Thematic Relations*, 7–36. Academic Press.
- Travis, Lisa. 2000 The I-syntax/s-syntax boundary: evidence from Austronesian. In I. Paul, V. Phillips, L. Travis (eds.) *Formal Issues in Austronesian Linguistics*, 167-194. Dordrecht: Kluwer Academic Publishers.