The Dual Structure of Halkomelem Motion Verbs[1]

Donna B. Gerdts
Simon Fraser University

Thomas E. Hukari
University of Victoria

Most intransitive verbs in Halkomelem straightforwardly subcategorize into unergatives and unaccusatives, based on combinatorial diagnostics. However, one group of verbs, motion verbs, exhibits mixed properties, behaving like both unergatives and unaccusatives. We present an analysis of motion verbs that reconciles this paradox: Halkomelem motion verbs are simultaneously both agent-oriented and patient-oriented. To be more precise, verb structure consists of three tiers: a valence tier, a thematic tier, and an action tier. Motion verbs differ from other intransitives in how their action tiers are structured. The theme of the motion is both an actor and an undergoer. The presence of an actor satisfies conditions on unergatives, and the presence of an undergoer satisfies conditions on unaccusatives. Cross-linguistically, verbs of motion tend to present a puzzling array of properties. Our work on Halkomelem contributes to the catalog of facts about motion verbs in the world's languages.

KEYWORDS: Hul'q'umi'num'/Halkomelem, Salish, verb classes, motion verbs, transitive, causative, antipassive

1. Introduction.

Most recent literature on verb classes takes the viewpoint of aktionsart. Verbs are classified according to such Vendlerian features (Vendler 1967) as achievement, accomplishment, telicity, and compatibility with different aspects (cf. Smith 1996). Our work on verb classes in Halkomelem, a Salish language of south-western British Columbia, takes a very different tack. Rather than superimposing Eurocentric concepts on the Halkomelem data, we develop an analysis of verb classes based upon the compatibility of verb bases with various derivational affixes, following Gerdts (1991, 2006). Halkomelem, a polysynthetic language, has over 200 prefixes and suffixes. So testing the combinatorial array of possible

[1] We would like to thank the various elders who have shared data on verbs in the Island dialect of Halkomelem (Hul'q'umi'num') over the years, especially Ruby Peter, Theresa Thorne, and Arnold Guerin. Thanks to Tim Montler, Charles Ulrich, and an anonymous NWJL reviewer for their comments and corrections. We would also like to thank audiences at HPSG and WAIL conferences for their questions and suggestions. This research was supported in part by the Jacobs Research Fund and SSHRC (through standard grants and internal grants from Simon Fraser University and the University of Victoria).

data for each verb is not a trivial task. Nevertheless, our tests reveal three major classes of intransitive verbs: unergatives (agent-oriented verb bases), process unaccusatives (patient-oriented verb bases), and states.[2] Furthermore, we have identified a handful of verbal suffixes as diagnostic of the verb class of the base. These suffixes include transitive, intransitive, antipassive, reflexive, reciprocal, and desiderative. For example, unergatives take the causative suffix *-stəxʷ* with the transparent meaning of 'cause x to do y', while process unaccusatives do not. In contrast, process unaccusatives take the transitive suffix *-t*, allowing the expression of a transitive event with an agent argument, while unergatives do not.

In Section 2, we review our results with respect to unergatives and process unaccusatives. Section 3 narrows the focus to unergative and unaccusative verbs of motion. Unergative motion verbs which encode a trajectory as object are discussed in Section 4. Section 5 presents the most challenging case, namely unergative verbs of motion that are unique in that they combine with the causative suffix but also permit an antipassive suffix, which is normally restricted to non-causative transitive verbs. We discuss HPSG analyses of the various verb classes in Section 6, and, in particular, we propose that unergative motion verbs are intransitive in argument structure but link to both actor and undergoer semantic roles and, by virtue of this latter fact, show special properties normally associated with transitives.

2. Unergative and Unaccusative Verbs.

The basic combinatorial properties of Halkomelem unergative and process unaccusative bases are summarized in Table 1.

	SUFFIX	UNERGATIVE	PROCESS UNACCUSATIVE
TRANSITIVE	-t	*	adds agent
CAUSATIVE	-stəxʷ	adds causer	*
LIMITED CONTROL	-nəxʷ	limited control causative	limited control transitive
REFLEXIVE	-θət	*/gr: 'alone'	action on self
ANTIPASSIVE	-els	*	action on notional object
LIMITED CONTROL	-naməṯ	gr: 'manage to'	accidental action on self
DESIDERATIVE	-əlmən	'want'	*/gr: 'about to, almost'

Table 1. Combinatorial Properties

Combinations that do not exist are marked *. Combinations that are allowed but have grammaticized to take on specialized meanings are marked 'gr'. For example, the suffix *-ələmən* 'want to', which combines with unergative and

[2] We use the terms unergative and unaccusative without any theoretical stand on the issue of unaccusativity as a syntactic phenomenon. The account we develop is more semantic. See Kathol (1991) and Pollard (1994) for an HPSG treatment of German passives employing an ergative feature to single out unaccusative subjects & transitive objects. On that account, couched in current HPSG features, the highest argument of an unaccusative verb would link with the subject feature and the highest argument of an unergative would not.

transitive verbs, may appear with unaccusatives but meaning 'start to' or 'on the verge of' (Gerdts and Hukari 2006b). So the classification of verbs must be done with great care to ensure that not only is the combination of root and suffix allowed but also the precise nature of the meaning of the resulting form.

Since we discuss the properites of the various suffixes elsewhere, we give only a synopsis here. Relevant examples are given in Tables 2 and 3 below. Transitive *-t* generally goes on unaccusative bases. It adds an agent subject and the derived verb is morphosyntactically transitive; thus it licenses a (direct case) object. Only verbs which have some sort of transitive suffix (including the causative suffix) license a direct case object. Thus Halkomelem, like other Salish languages, overtly marks morphosyntactic transitivity (Gerdts and Hukari 2012).[3] The suffix *-stəxʷ* also derives transitive verbs, although it goes on unergative bases and adds a causer. Limited control *-nəxʷ* functions as a counterpart to both transitive *-t* and causative *-stəxʷ*. Verbs with this suffix express attenuated control on the part of the subject and are often glossed as 'managed to do it' or 'accidentally did it' (Gerdts 2008). The reflexive *–θət* is historically derived from transitive *-t* plus additional material and reflexive verbs are intransitive. The reflexive appears only spottily on unergatives, with the grammaticized meaning 'alone' (Gerdts 1998, 2000). With unaccusatives it is a bona fide local reflexive, indicating that the subject acts upon itself. The antipassive suffix *-els* generally combines with unaccusative bases, never with unergatives, except for data discussed below. Usually, it is a morphosyntactically intransitive counterpart to transitive *-t* . Limited control *-namət* leads a double life (Gerdts 1998, 2000). It is the reflexive counterpart of the limited control suffix *-nəxʷ*. The suffix *-namət* functions only as the limited control counterpart to reflexive *-θət* in the *-t* paradigm. Unergatives do not take reflexives in their literal sense. However, *-namət* also has a grammaticized meaning 'manage to' and provides a fairly robust indicator of unergatives as opposed to unaccusatives, as long as meaning is taken into account. Desiderative *-əlmən* (Gerdts 1988b) combines with unergatives in its core meaning of 'want to' and takes on an aspectual meaning of 'about to' or 'almost' in combination with unaccusatives, when it is accepted by speakers (Gerdts and Hukari 2006b).

Of these suffixes, the ones most relevant to motion verbs are *-t*, *-stəxʷ*, *-els*, *-namət*, and *-əlmən*, so we confine our discussion to these suffixes for the remainder of the paper. Table 2 and Table 3 illustrate the use of the diagnostic suffixes with verb bases in sentences.[4]

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[3] Some verbal bases take the transitive suffix *-š* instead of *–t*, for example *hakʷəš* 'use it' and *leʔš* 'put it away'.

[4] The following abbreviations are used in glosses:
1 = first person, 2 = second person, 3 = third person, ACT = activity suffix (antipassive), AUX = auxiliary, CS = causative, DESID = desiderative, DET = determiner, DYN = dynamic, FUT = future, HS = hearsay, quotative evidential particle, FUT = future, IMPF = imperfective aspect, LCREFL = limited control reflexive, LNK = linker, NOM = nominalizer, OBL = oblique case marker, PL = plural, PRF = perfect, SUB = subject, TR = transitive, UNEXP = modal particle of unexpected, surprising, or switching.

BASE	q̓ʷəyiləš ‘dance’
	niʔ cən q̓ʷəyiləš. AUX 1SUB dance ‘I danced.’
TRANSITIVE	*q̓ʷəyiləš-t
CAUSATIVE	q̓ʷəyiləš-stəxʷ ‘make someone dance’
	niʔ ct q̓ʷəyiləš-stəxʷ łə q̓eḿiʔ. AUX 1PL.SUB dance-CS DET young.lady ‘We made the young girl dance.’
ANTIPASSIVE	*q̓ʷəyiləš-els
LIMITED CONTROL REFLEXIVE	q̓ʷəyiləš-naməṯ ‘manage to dance’
	niʔ q̓ʷəyiləš-naməṯ. AUX dance-LCREFL ‘He got to dance.’
DESIDERATIVE	q̓ʷəyiləš-əlmən ‘want to dance’
	niʔ q̓ʷəyiləš-əlmən. AUX dance-DESID ‘He wanted to dance.’

Table 2. Unergatives

BASE	ḳaʔ ‘get added to’
	niʔ ḳaʔ kʷθə-nə šeləmcəs ʔə kʷθə-nə skʷuːkʷ. AUX added DET-1POS ring OBL DET-1POS cooking ‘My ring got added to my cooking.
TRANSITIVE	ḳaʔ-t ‘put it in with’
	niʔ cən ḳaʔ-t tᶿə sciẏə ʔə tᶿə sx̌ʷesəm. AUX 1SUB add-TR DET strawberry OBL DET soapberry ‘I added strawberries to the soapberry desert.’
CAUSATIVE	*ḳaʔ-stəxʷ
ANTIPASSIVE	ḳəʔ-els ‘contribute’
	niʔ cən ḳaʔ-els ʔə kʷθə sḳpels. AUX 1SUB add-ACT OBL DET collection ‘I contributed to the collection.’
LIMITED CONTROL REFLEXIVE	ḳaʔ-namət ‘manage to get oneself in with’
	niʔ ḳaʔ-namət. AUX add-LCREFL ‘He managed to get in with them.’
DESIDERATIVE	ḳaʔ-əlmən ‘almost added’
	niʔ ḳaʔ-əlmən ʔə kʷθə-nə sṯᶿx̌ʷəlwətəm. AUX add-DESID OBL DET-1POS washing ‘It wanted to get mixed up in my washing.’

Table 3. Unaccusatives

Overt syntactic objects appear in some of the examples in table 2 and 3. Whether the NP is an object of a causative or a transitive, it is in the direct case, which is unmarked, as opposed to being oblique, i.e. flagged with the oblique preposition *ʔə* (Gerdts 1988a, 2010).

In summary, previous research has set up a number of verb classes based on their potential to combine with certain suffixes. Among these classes are those which we have labeled ‘unergatives’ and ‘unaccusatives’. While there is overlap in the distribution of suffixes with these classes, this overlap can be attributed to grammaticization, whereby certain suffixes have taken on extended meanings.[5] And in those cases, we often find that speakers’ judgments vary.[6]

[5] The limited control *-nəxʷ* overlaps because it functionaly corresponds to both transitive *-t* and causative *-stəxʷ*. We might conceivably treat it as homophones, but we leave this as an issue for further research. It is, however, a well-known phenomenon in Salish.

[6] An exception is the limited control reflexive *-namət*, whose use as a general limited control suffix meaning ‘manage to’ is quite productive.

Thus this set of suffixes provides, we believe, an effective set of contexts for isolating classes of verbs in Halkomelem, provided the forms are carefully checked for their meanings in the context of sentences.

The following are sample unaccusative and unergative verbs from Gerdts (1991).

Process Unaccusatives

kʷiʔeʔ	'be separated'	x̌əɬ	'get hurt'
təqʷ	'be taut , be tight'	q̓ep̓	'get inflected/tied/initiated'
ləkʷ	'break'	q̓is	'get knotted'
ʔiyeʔq	'change'	t̓θək̓ʷ	'get light directed onto'
yəx̌ʷ	'come undone, get untied'	ʔik̓ʷ	'get lost'
t̓θas	'get bumped'	maləqʷ	'get mixed in with'
k̓ʷes	'get burnt'	ʔix̌	'get scratched, scraped'
məyaʔ	'get cheaper'	liqʷ	'get slack'
q̓ʷaqʷ	'get clubbed'	k̓ʷəɬ	'get spilt, upset'
ɬiċ	'get cut'	t̓θəx̌ʷ	'get washed'
ċəẏxʷ	'get dry'	ʔet̓θ	'get wiped'
θəyqʷ	'get dug'	q̓iẇ	'get wrapped around s.t.'
məq̓	'get full of food'	qʷix̌ʷ	'miss'
pas	'get hit'	səq̓	'tear'
ʔak̓ʷ	'get hooked, snagged, hung up'	q̓ʷap̓	'wrinkle'

Unergatives

het̓θəm	'breathe'	yənəm	'laugh'
ʔa:m	'call for'	t̓iləm	'sing'
sq̓əl̓cəp	'chop wood'	ʔitət	'sleep'
t̓θəp̓nəxʷ	'close eyes'	ya:ys	'work'
ʔəɬtən	'eat (intr.)'	q̓ʷəyiləš	'dance'

3. Verbs of Motion. Basic motion unergatives and accusatives.

We can identify unergative and unaccusative subtypes among the verbs of motion, showing profiles as in Table 1 above. Again, grammatized usages are flagged as 'gr'.

	SUFFIX	MOTION UNERGATIVE	MOTION UNACCUSATIVE
CAUSATIVE	-stəxʷ	adds causer	*
TRANSITIVE	-t	*	adds agent
ANTIPASSIVE	-els	*	action on notional object
DESIDERATIVE	-ələmən	'want'	*/gr: 'about to, almost'
LIMITED CONTROL	-namət	gr: 'manage to'	accidental action on self

Table 4. Combinatorial Properties of Motion Verbs

BASE	łaḵʷ ‘fly’
	yə-łałəḵʷ tᶿə sq̓ʷəleš. DYN-fly(IMPF) DET bird ‘The bird is flying.’
TRANSITIVE	*łaḵʷə-t
CAUSATIVE	łəḵʷ-stəxʷ ‘make it fly/send it by air’
	neṁ č łəḵʷ-stəxʷ tᶿə sx̌əl̓əm neṁ ʔə go 2SUB fly-CS ART writing go OBL kʷθəṅ šəyəł. DET.2POS older.sibling ‘Send the letter by airmail to your brother.’
ANTIPASSIVE	*łḵʷ-els
DESIDERATIVE	łałəḵʷ-əl̓məṅ ‘wanting to fly’
	ʔeʔəθ wəł łałəḵʷ-əl̓məṅ θə sq̓ʷəleš. AUX.DET PRF fly(IMPF)-DESID DET bird ‘The bird wants to fly.
LIMITED CONTROL REFLEXIVE	łəḵʷnamət ‘managed to fly’
	naʔəθ wəł łəḵʷ-namət θə q̓əle:q̓eʔ. AUX.DET PRF fly-LCREFL DET crow ‘The crow has managed to fly.’

Table 5. Motion Unergative

Notice that *łəḵʷ-stəxʷ* ‘make it fly/send it by air’ has the semantics of a causative. It does not entail, for example, that the subject is directly involved in the flying event, whereas the transitive of an unaccusative motion verb *seʔ-t* ‘raise it’ in Table 6 below is typical of such transitives in that the subject is an actor who is directly involved in the lifting event. We return to the semantics of causation in Section 4, where we discuss unergative motion verbs that take *-stəxʷ* and *-els*.

BASE	seʔ ‘rise’
	naʔət seʔ tθə łq̓e:n-s tθə ləplaš. AUX.DET rise DET end-3POS DET board ‘One end of the board has lifted.’
TRANSITIVE	seʔ-t ‘raise it’
	nem̓ seʔ-t tθə x̌θəm ʔə tθə lətem. go lift-TR DET box OBL DET table ‘Go lift the box and put it on the table.’
CAUSATIVE	*seʔ-stəxʷ
ANTIPASSIVE	səʔ-els ‘lift’
	xʷiʔ səʔ-els c̓ə kʷθə swaẇləs pəptitəl̓. UNEXP lift-ACT HS DET young.men competing ‘The young men are into competitive lifting.’
LIMITED CONTROL REFLEXIVE	seʔ-naməṭ ‘manage to lift self up’
	sk̓ʷey k̓ʷə nə-s-seʔ-naməṭ kʷis can’t DET 1POS-NOM-lift-LCREFL DET.NOM.AUX.3POS nan ʔəẇ-x̌̓iλ̓əp kʷθə šxʷʔam̓əṭ. too LNK-deep DET bed ‘I couldn’t manage to get myself up because the bed was too low.’[7]
DESIDERATIVE	*seʔ-əlmən

Table 6. Motion Unaccusative

These subclasses of motion verbs are listed here. The class labeled ‘Motion Unergatives’ seems to comprise manner-of-motion verbs, a fact which will not be pursued here but one which merits further study. Not all unaccusatives of motion take *-els* (just as not all process unaccusatives do). The class which does is labeled ‘Motion Unaccusatives’ and the one which does not is ‘Motion Unaccusative **-els*.’ We also have verbs which seem basically unaccusative, but take *-əlmən* and *-naməṭ* in the unergative sense when the subject is animate; these are labeled ‘Unaccusatives with Animate-Subject Desideratives.’

[7] The predicate *sk̓ʷey* ‘cannot’, ‘be impossible’ takes a nominalized clause.

Motion Unergatives

ʔiməš	‘walk’
siǩʷəm	‘wade’
łaḵʷ	‘fly’
štem	‘swim underwater’
łx̌iliš	‘stand up’
ʔəmət	‘sit down, rise out of bed’

Motion Unaccusatives

kʷeʔ	‘drop down , come lose’
hiləm	‘tumble, fall’
xʷeʔ	‘lower, go down’
təyqəl	‘move’
ʔəƛ̓qəl	‘go out’
ṗłiq̓	‘move closer’
hiq	‘under’
c̓iməl	‘get near to’

Motion Unaccusative *-els

tan	‘leave’
qix̌	‘slide’
siləm	‘roll’
šic̓	‘hide in bush’
ʔəyq	‘go off path, miss’
θəxʷ	‘fade away’
łasəm	‘slip down, slide down’

Unaccusatives with Animate-Subject Desideratives

kʷeẏ̓	‘move away’
ṗəkʷ	‘float, go up to surface’
cłaqʷ	‘go through’
wiḷ̓	‘appear’
q̓ʷim	‘get off vehicle’
xʷəc̓	‘go between, get in the middle’

4. Motion Verbs which Encode Trajectory/Goal.

We have isolated a class of motion verbs which, when made transitive with *-t*, encode a trajectory. Some of these are otherwise manner-of-motion (e.g. ‘swim along’, ‘crawl’), while others already have a trajectory (‘go around’, ‘go over a mountain’). These verbs pattern (other than taking *-t*) as motion unergatives: they take causative *-stəxʷ*, desiderative *-əlmən*, and ‘manage to’ *-namut*. As transitive *-t* generally appears on bases which are unaccusative, it may be surprising that the verbs of this class seem otherwise to pattern as unergatives. The following table gives a profile of these verbs.

CAUSATIVE	-stəxʷ	causative or adds associative object
TRANSITIVE	-t	trajectory
ANTIPASSIVE	-els	*/?
DESIDERATIVE	-əlmən	‘want’
LIMITED CONTROL	-namət	‘manage to’

Table 7. Verbs which Encode Trajectory/Goal

Sentence examples are provided for a verb of this class in the following table.

BASE	ṯicəm ‘swim along’
	niʔ wəł ṯicəm tθə swiẇləs niʔ ʔə tθə staləẇ. AUX PRF swim DET young.man be OBL DET river. ‘The young man has swum in the river.’
TRANSITIVE	ṯcəm-t ‘swim after’
	niʔ ṯcəm-ət-əs tθə ḵʷant tθə snəxʷəł. AUX swim-TR-3SUB DET porpoise DET canoe ‘The porpoise swam after the canoe.’
CAUSATIVE	ṯicəm-stəxʷ ‘make him/her swim’
	neṁ č ceʔ ṯicəm-stəxʷ tθə swiẇləs niʔ go 2SUB FUT swim-CS ART young.man be ʔə tθə staləẇ. OBL DET river ‘Go have the young man swim in the river!’
ANTIPASSIVE	*ṯicəm-els
LIMITED CONTROL REFLEXIVE	ṯicəm-naməṯ ‘manage to swim’
	niʔ ṯicəm-naməṯ tθə sqʷəmeẏ ni ʔə tθə staləẇ. AUX swim-LCREFL DET dog be OBL DET river. ‘The dog managed to swim in the river.’
DESIDERATIVE	ṯicəm-əl̓məṉ ‘want to swim’
	ʔi wəł ṯicəm-əl̓məṉ tθə maʔaqʷ-alł niʔ ʔə AUX PRF swim(IMPF)-DESID DET duck-young be OBL tθə x̌acaʔ. DET lake ‘The duckling wants to swim out into the lake.’

Table 8. Encoding Trajectory

As we noted above, transitive *-t* generally appears on bases which are unaccusative, so it may initially seem surprising that the verbs of this class seem to pattern as unergatives. We explore this fact in Section 5. The following verbs fall into this class.

Trajectory Verbs

ṯicəm	'swim along'	ṯcim-ət	'swim after it (to get it)'
ċtem	'crawl'	ċtemət	'crawl after it'
nəqəm	'dive down'	nəqem-ət	'dive down for it'
x̌ʷčenəm	'run'	x̌ʷčenəm-ət	'run after it'
səwq̓	'seek'	səwq̓-t	'go and look for it'
cx̌əm	'jump'	cx̌əm-ət	'jump after it'

5. Unergative Motion Verbs that take *-stəxʷ* and *-els*.

We have discovered a subclass of unergative-like motion verbs that take *-els*. This is surprising in that *-els* is otherwise restricted to verbs which take transitive *-t* (or *-š*), never appearing on verbs that take *-stəxʷ*. However, it seems noteworthy that the function of *-stəxʷ* here is not the one that is generally associated with Halkomelem causatives of unergatives, namely to have or make someone do something. The unergative verb *ʔiməš* 'walk' combines with the causative suffix *ʔiməš-stəxʷ* to mean 'make it walk, walk it', a typical causative meaning. In contrast, the motion verb *ṯaḵʷ* 'go home' combines with the causative sufix *ṯəḵʷ-stəxʷ* to mean 'bring/take it home'. Following Gerdts and Hukari 2006a, we refer to the latter construction as an associative causative, as the object designates an item associated with the motion of the agent. The object of an associative causative need not be something that is capable of moving on its own accord (e.g. a sack of potatoes) and the subject is involved throughout the motion event. It is noteworthy that this sense is preserved in the corresponding antipassive *-els* form. The following is a profile of these verbs. They are mixed in some respects, particularly with respect to *-t* for promoting trajectory to object (cf. the trajectory verbs in Section 3).

CAUSATIVE	-stəxʷ	adds associative object
TRANSITIVE	-t	*/trajectory
ANTIPASSIVE	-els	associative
DESIDERATIVE	-əlmən	'want'
LIMITED CONTROL	-namət	'manage to'

Table 9. Motion Unergatives with Associative Causative

BASE	ṯaxʷ ‘go down from mountains/to beach’
	xʷəṅ netəł ʔiʔ wəł neṁ ṯaxʷ. still morning and PRF go go.down ‘Early the next morning, he went down to the beach.’
TRANSITIVE	*ṯaxʷə-t
CAUSATIVE	ṯəxʷstəxʷ ‘take it down’
	neṁ cən ṯəxʷ-stəxʷ kʷθə nə syał. go 1SUB go.down-CS DET 1POS firewood ‘I am going to take my firewood down.’
ANTIPASSIVE	ṯxʷels ‘bring down’
	x̌əθi:nə c̓ə kʷθə ṁi ṯxʷ-els four.people HS DET come go.down-ACT ʔə kʷθə syał. OBL DET firewood ‘Four people brought down the firewood.’
LIMITED CONTROL REFLEXIVE	ṯaxʷ-naməṯ ‘manage to go down’
	x̌əʔaθən skʷeyəl yeł sis ṯaxʷ-naməṯ kʷθə four day finally and go.down-LCREFL DET niʔ-əł yə-ʔəṁəš. AUX-past DYN-hunting. ‘It was four days before the hunters managed to get down.’
DESIDERATIVE	ṯaṯəxʷ-əl̓məṅ ‘wanting to go down’
	wəł ṯaṯəxʷ-əl̓məṅ tθə-əṅ šx̌ʷəṁnikʷ. PRF go.down(IMPF)-DESID DET-2POS uncle/aunt ‘Your uncle wants to go down (to the river to fish).’

Table 10. Unergative Motion Verb with Associative Causative

Verbs of this class seem to involve a trajectory or path. Given the variability of the use of *–e1s* with verbs of other classes, it is unsurprising that not all associative motion verbs combine with antipassive *-e1s*, thus we have two lists.

Associative Motion [+ *els*]

k̓ʷiʔ	‘climb’	t̓ak̓ʷ	‘go home’
šaqʷəl	‘cross to the other side’	t̓axʷ	‘go down from mountains’
nem̓	‘go’	c̓a:l̓əc	‘go over mountain’
cam	‘go up to house/mountains’	ʔem̓əq	‘return something’
łe:l	‘go ashore’	q̓teqən	‘go along base of mountains’
ʔa:ł	‘get on vehicle’	xʷəʔaləm̓	‘return’

Associative Motion [- *els*]

təs	‘arrive there, get here’
wəq̓ʷiləm	‘go downstream’
he:ẇə	‘go away on a trip’
q̓taθən	‘go along shore’
x̌ʷteʔ	‘come/go toward’
ta:l	‘go to the middle of floor’
x̌̓pil	‘go down’

We noted earlier that outside this set of motion verbs, antipassives are based on verbs that take transitive *-t* (or *-š*), although not all such verbs have acceptable antipassives. Thus in both cases, a subset of transitive verbs have corresponding antipassives. It seems clear that some account should be given for the correspondence between *-els* antipassives and transitives, a point to which we return in the next section.

6. Analysis.

To summarize our results, some subclasses of motion verbs have mixed properties, passing the diagnostics for both unergatives and unaccusatives, as detailed above. This presents a challenge to views of the unergative/unaccusative distinction that relate it to differences in argument struture. The sole argument in an intransitive verb is either an agent in an unergative structure or a patient in an unaccusative structure, but not both. In this section, we present an alternative account of unergativity versus unaccusativity in terms of semantic mapping. At the semantic level, the sole NP associated with a motion verb can be simultaneously assigned both the actor and the undergoer role, thus accounting for the mixed properties found in some subclasses of motion verbs.

Rather than representing unergativity and unaccusativity in terms of argument structure, we will assume instead an analysis that posits that both urgatives and unaccusatives are intransitive configurations but linked in different ways to semantic protoroles (Dowty 1991, Davis 1996) in the action tier (Jackendoff 1987, 1991).[8] So simple unergatives and unaccusatives can be represented roughly as follows, where the actor and undergoer roles are semantic and ARG-ST (argument structure) is at the interface between syntax and

[8] For a somewhat different perspective on event structure, see Pustejovsky (1986, 1991).

semantics.

Diagram 1. Unergative

actor – pred	
ARG – ST	<a>
ACTOR	a

Diagram 2. Unaccusative

undergoer – pred	
ARG – ST	<a>
UNDERGOER	a

We propose that our class of associative motion verbs derive from bases which all share the following configuration:

Diagram 3. Motion Verb Bases that Combine with Associative *-stəxʷ*

motion – actor – undergoer	
ARG – ST	<a>
ACTOR	a
UNDERGOER	a

This is still intransitive with respect to argument structure, and the single argument will link to subject. However, in terms of its semantics, the subject of an agentive motion verb simultaneously plays two roles, the role of doer and, in a sense, the role of undergoer, in that this participant is an incremental theme or theme of motion.

6.1. *-t* Transitives and Trajectory/Goal Objects.

We can think of the motion-actor-undergoer configuration given above as a lexeme type. Bases of this type (all of which are motion verbs as far as we know) qualify for *-t* suffixation in that they are intransitive—a single argument in argument structure—and this argument is linked to undergoer, which is typical of *-t* transitive bases.[9]

While we will not formalize a transitive-formation rule here, Diagram 4 provides an approximation of salient aspects of the trajectory *-t* transitive forms.

[9] A problematic case is inherent antipassives, which we take to have underlying transitive argument structures yet combine with *-t*. This leads perhaps to another view of transitive formation, where the affix combines with lexemes which already have transitive argument structure, but this is beyond the focus of the present paper. Note however that we are in fact assuming that antipassives are formed on abstract lexemes with 'transitive' argument structures.

Diagram 4. *-t* Transitive Trajectory

PHONOLOGY	X + t
SUBJ	a
OBJ	b
ARG – ST	<a, b>
ACTOR	a
UNDERGOER	a
DIRECTION	b

Transitive motion verbs with *-t* add a directional argument, which we represent simply as 'DIRECTION' here (leaving open whether this is a place-holder for a proto-role or simply part of the thematic/semantic 'soup' which could be covered by entailments derived from the appropriate semantic type). However the specific semantic links are special here, so we will think of these forms as not being totally predictable. We will assume there is a special *-t* transitive rule which applies to this subset of motion verbs.

6.2. *-stəxʷ* Transitives and 'Associative' Objects.

Causative *-stəxʷ* normally combines with unergative bases to form morphosyntactic transitives (i.e. verbs that license direct case objects). Motion lexemes of the actor-undergoer type above qualify for the causative suffix in that their single argument is linked (inter alia) to actor. Again, we will not formalize a rule, but the derived 'causative' verbs will have salient properties along the lines of those in Diagram 5.

Diagram 5. *-stəxʷ* Transitives and Associative Objects

PHONOLOGY	X + *stəxʷ*
SUBJ	a
OBJ	b
ARG – ST	<a, b>
ACTOR	a
UNDERGOER	a
ASSOCIATIVE	b

Notice that Diagrams 4 and 5 provide accounts incorporating the 'dual' properties of such motion verbs. Since their single argument is undergoer, they qualify for *-t* transitivization (albeit in a special way). And since their single argument is actor, they qualify for *-stəxʷ*, again in a special sense.

6.3. *-els* Antipassives.

It is remarkable that antipassive *-els* combines with motion verbs to form words

which preserve the meaning relations of the transitive forms. In particular, we do not see the alternation between causative *-stəx*^{w} and *-els* in any other verb classes. We argue elsewhere that *-els* combines with bases that are transitive at some level in argument structure (Gerdts and Hukari 2005). Since we are not saying that the motion-actor-undergoer lexemes actually have transitive argument structures, it is less than obvious why they combine with *-els*.

Let us assume that a lexeme type with feature structures like the following serves as the input for associative strutures:

Diagram 6. Input Lexeme for Associative *-els* (based on Diagram 5)

associative – act – und	
ARG – ST	<a, b>
ACTOR	a
UNDERGOER	a
ASSOCIATIVE	b

This qualifies for combination with *-els* if we assume that it requires a base with a transitive argument structure (Gerdts and Hukari 1998, 2000). A simplified version of the antipassive rule is as follows. Notice that 'MORPH' refers to the morphological structure of the word and 'SYNSEM' involves the syntactic and semantic features.

Diagram 7. The *-els* Antipassive

MORPH	[STEM [1]]	
SYNSEN	[ARG – ST	< [2]NP, [3]NP>]

⇨

els – antipas – vb		
MORPH	[AFF	[*intr – suf* FORM -els]
	STEM	[1]
SYNSEM	[ARG – ST	< [2]$_i$, <pro$_i$, [3] >>]

This is roughly along the lines of antipassivization as proposed by Manning and Sag (1999), in which the first argument (call it the 'a-subject') is promoted to first argument of a complex argument structure. The resulting associative *-els* verbs then are roughly along the following lines (ignoring the higher-level features such as 'SYNSEM' above).

Diagram 8. Associative *-els*.

MORPH	X + *els*
SUBJ	a
OBJ	Ø
OBL	b
ARG – ST	<a_i, <pro_i, b>>
ACTOR	a
UNDERGOER	a
ASSOCIATIVE	b

We assume that direct NP 'matrix' arguments map to subject and object in Halkomelem, while arguments that are embedded (and are not pro) map to obliques.

An obvious question arises concerning associative causatives. Are they based on Diagram 6 as well? As causatives generally are derived from unergative verbs, we prefer to think that their bases are, in fact, the unergative verb form. Thus Diagram 6 is, in effect, a back formation from the causative. The fact that associative 'causatives' do not have normal causative semantics suggests they are special.

What then do we make of the more regular relationship between *-t* transitives and antipassives? We propose elsewhere (Gerdts and Hukari 2000) that the transitive and antipassive forms are both derived from an abstract lexeme that is 'transitive' in its argument structure. The notion of transitive argument structure needs further examination, but we assume at present that a transitive argument structure is one that as at least two NP arguments within it.[10] We leave a more detailed discussion of antipassive to future research.

7. Conclusion.

We have discussed various classes of Halkomelem motion verbs in this paper, first reviewing the morphological test frames developed in Gerdts (1991) and Gerdts (2006) for classifying unergatives and process unaccusatives. We then turned to various types of motion verbs with a view towards the means by which they introduce objects. Motion unaccusatives generally permit the transitivizer *–t*, whereas motion unergatives take the causative *-stəx*^{w}, following the general patterns for unaccusatives and unergatives. We found however that some motion unergatives permit transitive *-t*, whereby the trajectory becomes the direct object. Also, we found a class of motion unergatives that take *-stəx*^{w} with a special reading: the object, rather than being a normal causee that would be capable of initiating action, is taken along with the agent, hence we termed these 'associative causatives'. Furthermore, a significant number of these also form antipassives

[10] We only note that, if we follow Manning (1994), it may be possible to have multi-argument argument structures that count as intransitive, as Manning distinguishes between direct and oblique arguments. We leave this as an open issue.

preserving the associative reading. The following table summarizes the verb classes discussed above:

	CAUSATIVE -stəx^{w}	TRANSITIVE -t	ANTIPASSIVE -els
UNERGATIVE	adds causer	*	*
UNACCUSATIVE	*	adds agent	action on notional object
MOTION UNERGATIVE	adds causer	*/trajectory	*
MOTION UNACCUSATIVE	*	adds agent	action on notional object
ASSOCIATIVE MOTION UNERGATIVE	adds associative object	*/trajectory	associative

Table 11. Summary

Our study, cast in terms of combinatorial diagnostics, may at first seem to lead to a confusing array of verb clases. This is not unexpected, since cross-linguistically verbs of motion tend to present mixed properties. Our work on Halkomelem contributes to the catalog of facts about the properties of motion verbs in the world's languages.

Our hypothesis is that some motion verb bases map both actor and undergoer to a single argument structure position. Thus they qualify for Halkomelem causative formation, as their argument structure is 'intransitive' and the single argument is linked (inter alia) to the actor role. Our account of the surprising fact that these bases also form antipassives (as unergatives otherwise never do), involves backformation. We suggest that the associative causative forms a template for a lexeme type whose argument structure is 'transitive' and this forms the base for the antipassive.

Our analysis makes use of the insight that, in terms of its semantics, the theme of the motion is both an actor and an undergoer. This analysis, easily implemented in a framework that posits a separate action tier, like the modified HPSG account utilized here, may be useful for the study of mixed properties found in motion verbs in other languages of the world.

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