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Mapping Halkomelem voice

Donna B. Gerdts

1. Introduction[1]

Halkomelem, a Coast Salish language spoken in southwestern British Columbia, has rich derivational and inflectional morphology. One class of derivational morphemes registers the voice of the predicate. This class includes the applicative, antipassive, reflexive, passive, and transitive suffixes. Halkomelem, like other Salish languages, has two-place inflection: only two nominals can be cross-referenced in the predicate. This morphological profile is not unique to Salish, of course. Many other native American languages, including Algonkian, Eskimo, Iroquoian, and Mayan languages, as well as languages outside the Americas, e.g., Philippine languages, have a similar array of voice and inflectional morphology.

Providing a formal treatment of derivational morphology and showing its relation to inflected positions is a major goal of current linguistic theories. Two approaches have been taken to rules of voice: they are treated either as lexical or as syntactic.[2] Lexical accounts are largely based on thematic relations (see, for example, Carrier-Duncan (1985) and Williams (1981)). Linking thematic relations to argument positions is the core task of lexical theories. A problem for this approach, however, is that it relies crucially on a cross-linguistically valid θ-hierarchy, the exact form of which is open to debate. See for example, the different hierarchies used by Bresnan—Moshi (1990), Kiparsky (1987), and Jackendoff (1972, 1987). Furthermore, most discussions of θ-roles fail to consider more esoteric roles such as experiencer, stimulus, and causee, and thus are limited in their usefulness.

Syntactic accounts manipulate tree structures (Baker 1988) or levels of grammatical relations. Under these treatments, voice phenomena are essentially movement rules or changes in grammatical relations. These are on a par with other such rules in the grammar, e.g., raising, and are expected to operate in a similarly cyclic fashion. A problem for this view, however, is that many more rules and rule combinations are predicted to occur in natural languages than are actually attested.

As a response to these issues, Gerdts (1992, 1993a) proposes a hybrid approach to morphosyntactic structure — Mapping Theory. Like syntactic theories, it has a level of structure not defined by lexical semantics, i.e., a level of grammatical relations, which serves as the "input" to voice-mapping rules. However, like lexical theories, it is very limited in the type of rule interactions that it allows. As far as the phenomena discussed here are concerned, the Mapping Theory analysis is confined to two levels: a level of grammatical

relations is mapped into a level of morphosyntactic argument structure. Given that a limited number of argument positions are available for mapping nominals, many of the voice combinations expected under syntactic treatments are ruled out by Mapping Theory.

This paper is a case study in Mapping Theory. It gives a unified account of Halkomelem voice phenomena. Drawing upon a set of universal voice rules, I first present a basic grammar of Halkomelem. Next I show how the principles of Mapping Theory predict the array of possible voice combinations. Then I analyze three transitive voice phenomena characteristic of Salish languages — transitive marking, limited-control marking, and causatives. This account goes farther than previous treatments of Halkomelem in not only providing an account of basic voice mechanisms but also predicting the correct range of cooccurrences. I conclude by summarizing the picture of Halkomelem that results from this approach.

2. Mapping Theory

Mapping Theory consists of several modules and rules for relating one module to another.[3] Four perspectives on a nominal are encoded. First is its thematic relation. Second is its grammatical relation (corresponding to its initial grammatical relation in Relational Grammar). The grammatical relations are ordered according to the standard GR hierarchy of 1 > 2 > 3 > oblique. Third is its morphosyntactically-licensed argument position (MAP). Nominals associated with a MAP are direct arguments. They get core morphosyntactic marking: that is, they determine agreement, license structural case, or appear in a configurationally-determined word order. MAPs are hierarchically arranged according to a case/agreement hierarchy. Fourth is its morphosyntactic presentation.

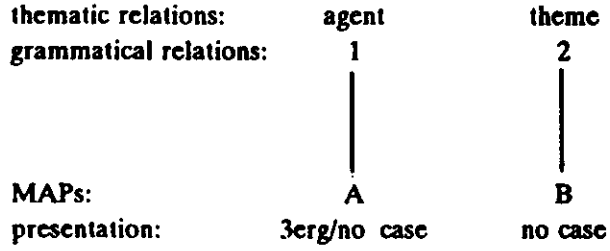
The Halkomelem clause in (1) is given the representation in (2).[4]

(1)

ni	*q'^w aq^w-ət-əs*	*t^θə*	*swəy?qe?*	*t^θə*	*spe?əθ*
AUX	club-TR-3ERG	DET	man	DET	bear

'The man clubbed the bear.'

(2)



There are two lexically subcategorized nominals in (1) — the agent and the theme. Each bears a term grammatical relation and is linked to a MAP. MAPs are ordered positions (represented here as A, B) linked to morphological presentational statements. For example, some of the presentation rules for Halkomelem are given in (3).[5]

(3)

agreement:	A = subject pronominals, e.g.,		
		cən	1ST PERSON CLITIC
		č	2ND PERSON CLITIC
		-əs	3RD PERSON ERGATIVE SUFFIX
	B = object pronominals, e.g.,		
		-am?š	1ST PERSON SUFFIX
		-amə	2ND PERSON SUFFIX
nominals:	A and B = no marking; others = preposition *?ə*		

Some additional examples of transitive clauses are given in (4) and (5):

(4)

ni	*cən*	*q'^w aq^w-ət*	*t^θə*	*spe?əθ*
AUX	1SUB	club-TR	DET	bear

'I clubbed the bear.'

(5)

ni	*q'^w aq^w-əθám?š-əs*	*t^θə*	*swəy?qe?*
AUX	club-TR+1OBJ-3ERG	DET	man

'The man clubbed me.'

In any given clause, we assign the number of MAPs based on three things: first, the lexical semantic valence of the predicate; second, MAP-reducing or MAP-building morphology; and third, the MAP thresholds set for the language (that is, the minimum and maximum number of MAPs allowed). Halkomelem, as claimed in Gerdts (1992, 1993a), is a 2-MAP language, and thus only A and B are available for linking.

The universal principles for linking GRs to MAPs are as follows:[6,7]

(6) Saturation Principle: every MAP must be linked to a GR or cancelled.
Biuniqueness Principle: (except in cases of coreference) a MAP is linked to at most one GR and every GR is linked to at most one MAP.
No Delinking Principle: there are no "delinkings".

Two types of association are recognized in the theory. Unmarked association proceeds in a vertical, non-crossing, left-to-right fashion. Marked associations, however, may involve nonvertical linkings, the linking of an "extra" nominal not lexically subcategorized by the verb, the nonlinking of a nominal, or a special

stipulation concerning a linked nominal. Marked associations are generally triggered by specific morphological forms. A statement of the conditions on these forms and their effect on argument structure is the biggest task of a mapping grammar. Some aspects of marked association will be specified in universal grammar, but other aspects will be subject to parameter setting in individual languages.

2.1. Applicatives

Gerdts (1993a) suggests the following universal linking rule for applicatives:

(7) Applicative: add a MAP (up to threshold) and link the 3 or oblique to the lowest MAP.

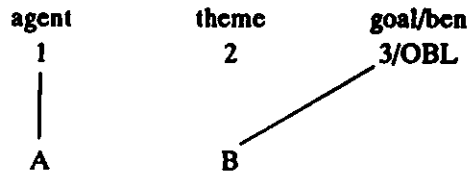
For example, Halkomelem has dative applicatives (8) and benefactive applicatives (9).

(8)	*ni?*	*ʔaːm-əs-θám?š̌-əs*	*ʔə*	*kʷθə*	*pukʷ*
	AUX	give-ADV-TR+1OBJ-3ERG	OBL	DET	book
	'He gave me the book.'				

(9)	*ni?*	*qʷəl-əlc-θám?š̌-əs*	*ʔə*	*kʷθə*	*sceːltən*
	AUX	bake-BEN-TR+1OBJ-3ERG	OBL	DET	salmon
	'He baked me the salmon.'				

Since (8) and (9) are lexically transitive and Halkomelem is a two-MAP language, MAPs A and B are available for linking. The applicative cannot add a MAP, since the threshold is two in Halkomelem. Nonetheless, the 3 or oblique is linked to the lowest MAP, i.e., B:

(10)



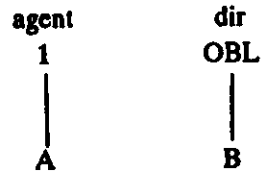
The 1 links by unmarked association. The 2 is unlinked and therefore gets licensed as a nonargument by a peripheral means, such as the preposition *ʔə* in (8) and (9).

Applicatives in Halkomelem can also be formed on initially intransitive clauses, such as the directional in (11).[8]

(11)	*ʔi*	*yə-ʔéʔwəʔ-nəs-əs*	*tə*	*steniʔ*
	AUX	SER-come-DIR+TR-3ERG	DET	woman
	'He's coming toward the woman.'			

As (12) shows, the lexical valence of the motion verb in (11) is one, so MAP A is assigned. The applicative adds MAP B (added MAPs are represented in boldface), and the oblique links to it.

(12)



We see that the applicatives in (8) and (9) versus (11) differ in whether or not they add a MAP, but they are alike in that the 3 or oblique nominal links to the lowest MAP.

2.2. Antipassives

Halkomelem has a rule of antipassive (Hukari 1976a, 1979; Gerdts 1988a), the effects of which can be seen by comparing the transitive clause in (13a) with the antipassive in (13b):

(13)	a.	*ni*	*qʷəl-ət-əs*	*θə*	*steniʔ*	*tʰə*	*sceːltən*
		AUX	cook-TR-3ERG	DET	woman	DET	salmon
		'The woman cooked the salmon.'					

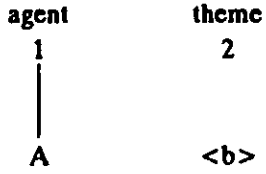
	b.	*ni*	*qʷəl-əm*	*θə*	*steniʔ*	*ʔə*	*tʰə*	*sceːltən*
		AUX	cook-INTR	DET	woman	OBL	DET	salmon
		'The woman cooked the salmon.'						

The transitive clause in (13a) has a transitive suffix on the verb, ergative agreement, and two plain nominals. The antipassive in (13b) has an intransitive suffix, no ergative agreement, and the patient nominal is presented with a preposition.

The Mapping Theory rule for antipassive is given in (14), and (13) is represented as in (15).

(14) Antipassive: cancel the lowest MAP and do not link the GR above it.

(15)



The antipassive involves cancelling the lowest MAP (represented with lower case and angled brackets) and not linking the 2.

2.3. Reflexives

Reflexives show similar properties. In many languages, including Halkomelem (Gerdts 1989b), reflexives show detransitivization effects. For example, there is no ergative agreement in a reflexive clause like (16).

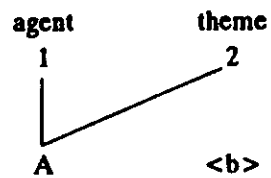
(16) *ni* *kʷəlǝš-θǝt* *tǝ* *Mary*
AUX shoot-TR+REF DET Mary
'Mary shot herself.'

To account for the semantic transitivity of (16), we posit two GRs — 1 and 2. To account for its intransitive final structure, we posit multiattachment: the 1 and 2 both link to the A slot, and the B-slot is cancelled.[9]

(17) Reflexive: link both a 1 and the GR above the lowest MAP to the same MAP and, in some languages (including Halkomelem), cancel the lowest MAP.

Thus, (16) would be represented as in (18).

(18)



2.4. Passives

Gerdts (1993a) suggests the following universal linking rule for passives:

(19) Passive: do not link the first GR; cancel one or more MAPs.[10]

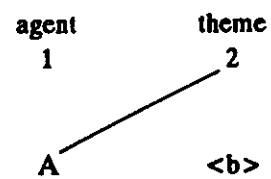
The essential schema for passives is that the first GR will be unlinked. Furthermore, at least one MAP will be cancelled. However, which MAP will be cancelled is subject to parameterization. The run-of-the-mill passive seen in many languages (especially nominative/accusative ones) involves cancelling the B MAP and linking the 2 to the A MAP. We see this, for example, in Lushootseed (Dxʷləšúcid, a Coast Salish language closely related to Halkomelem). Data adapted from Hess (1973a) illustrate transitive (20a) and passive (20b) clauses.

(20) a. *ʔu* *čʼaxʷat-sid* *ti* *čʼačʼas*
ASP club+TR-2OBJ DET boy
'The boy clubbed you.'

b. *ʔu* *čʼaxʷat-b* *čaxʷ* *ʔə* *ti* *čʼačʼas*
ASP club+TR-INTR 2SUB OBL DET boy
'You were clubbed by the boy.'

In the transitive clause in (20a), the second person theme shows up as objective agreement. In the passive in (20b), intransitive morphology is added to the predicate, and the theme appears as a subjective clitic. This kind of passive is represented in (21): the 2 links to A and hence appears in subjective form, the B is cancelled, and the unlinked 1 is a nonargument, presented as a prepositional phrase.

(21)



The Halkomelem passive demonstrates an alternative pattern, one that is typical of ergative languages.

(22) *ni* *cən* *ləm-əθámə*
AUX 1-SUB look-TR+2OBJ
'I looked at you.'

(23) *ni* *ləm-əθáːm* *ʔə* *tǝ* *steniʔ*
AUX look-TR+2OBJ+INTR OBL DET woman
'You were looked at by the woman.'

Sentence (22) shows a transitive clause with the second person theme as an objective suffix. In the passive in (23), the second person theme, which tests

to be the sole direct argument of the clause, likewise appears as an objective suffix.[11] The structure in (24) accommodates this.

(24)

agent	theme
1	2
|	|
<a>	B

In Halkomelem, the 2 links to B and the A is cancelled. Lushootseed and Halkomelem passives are minimally distinct. They both have the same verbal morphology and the same way of presenting passive agents. But because A cancels in Lushootseed while B cancels in Halkomelem, the themes are linked differently.

2.5. Voice interactions

The above discussion treated four marked associations — applicatives, antipassives, reflexives, and passives. This section considers possible voice combinations. For example, it is possible in Halkomelem for applicatives and passives to combine. The applicative passive in (25) is given the structure in (26).

(25)

ni?	*ʔaːm-əs-t-əm*	*ʔə*	*tə*	*sɬeni?*	*ʔə*	*kʷθə*	*pukʷ*
AUX	give-ADV-TR-INTR	OBL	DET	woman	OBL	DET	book

'He was given the book by the woman.'

(26)

1	2	BEN
|	\	
<a>	B	

The marked association for applicatives involves the linking of the benefactive to the lowest available MAP. Passives involve the cancelling of the A MAP and the nonlinking of the 1. Thus the cooccurrence of applicatives and passives is possible.

However, (27) shows that applicatives and antipassives are mutually exclusive, while (28) shows that reflexives based on applicatives are ungrammatical.

(27)

**ni*	*cən*	*qʷəl-əɬc-əm*	*ʔə*	*tə*	*sɬeni?*	*ʔə*
AUX	1SUB	bake-BEN-INTR	OBL	DET	woman	OBL
	kʷθə	*səplil*				
	DET	bread				

'I baked bread for the woman.'

(28)

**ni*	*cən*	*θəy-əɬc-θət*	*ʔə*	*kʷθə*	*snaxʷəɬ*
AUX	1SUB	make-BEN-TR+REF	OBL	DET	canoe

'I made myself a canoe.'

Mapping Theory predicts the ungrammaticality of such constructions. First, in the case of applicatives and antipassives, we predict, given the No Delinking Principle in (6), that a conflict will arise if the same MAP is required to be both linked and cancelled. Thus, (27) is out because, as (29) shows, the benefactive is linked to the lowest MAP, B, which is also cancelled by the antipassive rule (as represented in angled brackets).[12]

(29) *

1	2	BEN
|	\	
A	<b>	

Sentence (28) is ruled out for a similar reason. The marked association rule for applicatives requires the mapping of the benefactive (to a MAP that is not cancelled). It is the benefactive, not the 2, that is coreferential with the 1, so we expect the structure in (30):

(30) *

1	2	BEN
|		\
A	<b>	

However, the marked association for reflexives requires the cancellation of the B MAP and the multiattachment of the GR above the lowest MAP, which is the 2, not the benefactive. Thus, (30) is ruled out, and data like (28) are predicted to be ungrammatical.

Thus, we see that applicative voice constructions do not combine with all other voices. Monotransitive clauses, i.e., those without applicatives, combine with more voices, as (31) summarizes.

(31)

	monotransitives	applicatives
passive	yes	yes
antipassive	yes	no
reflexive	yes	no

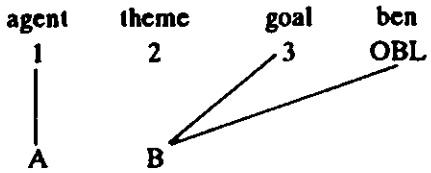
Furthermore, although Halkomelem has more than one type of applicative, it is notable that they are mutually exclusive. See, for example, (32) and (33).

(32) **ni ʔam-əs-ɬc-t-əs ɬə steni? kʷθə sqʷəméy?*
AUX give-ADV-BEN-TR-3ERG DET woman DET dog
ʔə kʷθə sθ'amʔ
OBL DET bone
'He gave the dog the bone for the woman.'

(33) **ʔi yə-ʔéʔwəʔ-ɬc-n-əs-əs ɬə steniʔ tə Mary*
AUX SER-come-BEN-DIR-TR-3ERG DET woman DET Mary
'He's coming toward the woman for Mary.'

Mapping Theory predicts clauses like (32) and (33) to be ungrammatical. As seen in the structure in (34) for (32), each applicative morpheme requires its corresponding nominal to be linked to the lowest MAP, thus creating a structure that violates the Biuniqueness Principle (see (6)).

(34) *



In summary, Mapping Theory correctly predicts that passive, but not antipassive or reflexive, may combine with applicatives, and, furthermore, that multiple applicatives are impossible.

3. Transitive marking

We find in Halkomelem three different suffixes correlated with transitivity: the general transitive (35a), the limited control transitive (35b) used when an action is performed accidentally or with difficulty, and the causative (35c).[13]

(35) a. *kʷən-əɬ* 'take', *kʷłe-t* 'pour', *lem-əɬ* 'look at', *ləkʷ-dɬ* 'break', *təyxʷ-t* 'eat', *q'ʷaqʷ-əɬ* 'club', *q'ʷəl-əɬ* 'bake, cook', *pən-əɬ* 'plant'

b. *kʷən-naxʷ* 'manage to take', *kʷəɬ-naxʷ* 'spill', *ləkʷ-naxʷ* 'accidentally break', *ləm-naxʷ* 'see', *q'ʷəqʷ-naxʷ* 'accidentally club'

c. *ʔiməš-staxʷ* 'make (s.o.) walk', *nəʔém-əstaxʷ* 'make (s.o.) go; take', *ʔəməɬ-staxʷ* 'have (s.o.) sit down', *ʔəmʔi-staxʷ* 'make (s.o.) come; bring', *qaʔqaʔ-staxʷ* 'have (s.o.) drink'

These two types of transitives contrast with basic intransitives, which lack a transitive suffix, such as the unergatives in (36a) and the unaccusatives in (36b).

(36) a. *ʔəšəl* 'paddle', *heyʔ* 'build a canoe', *ʔiməš* 'walk', *kʷiʔ* 'climb', *ɬakʷ* 'fly', *ləwʔ* 'flee', *p'əkʷ* 'come to the surface of the water', *q'əp* 'assemble, gather', *šaqʷəl* 'go across to the other side', *yəys* 'work'

b. *ʔikʷ* 'get lost', *ʔiɬ* 'get scratched on the surface', *kʷən* 'be born', *kʷes* 'get burnt', *ɬic* 'get cut', *pas* 'get hit (by a thrown object)', *pən* 'get buried', *qʷəp* 'be wrinkled', *q'ʷaqʷ* 'get clubbed', *q'ʷəl* 'cook, bake; be ripe'

3.1. The general transitive suffix

The general transitive suffix *-t* (and its allomorphs *-θ* and *-s*) can be seen in the Halkomelem data above. For example, in the transitive clause in (1), *-t* (glossed TR) appears immediately after the verb root. Transitive marking not only appears on the monotransitive in (1), but also on the applicatives in (8), (9), and (11), the reflexive in (16), and the passive in (23). Unergatives (37) and unaccusatives (38), as well as antipassives (see (13b) above), do not have transitive suffixes.

(37) *ni ʔiməš ɬə steniʔ*
AUX walk DET woman
'The woman walked.'

(38) *ni q'ʷəl tθə sceːɬtən*
AUX bake DET salmon
'The salmon baked.'

Given this range of data, how do we state a rule for transitive marking? The chart in (39) summarizes the transitive properties of each construction in terms of semantics and syntax: semantically transitive constructions are those with both a 1 and a 2 — typically an agent and a theme; syntactically transitive constructions are those that allow agreement with two nominals.

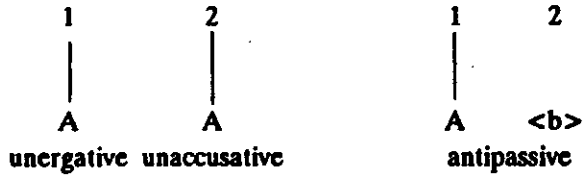
(39)

		semantically transitive	syntactically transitive
with *-t*:	monotransitive	yes	yes
	applicatives (e.g., (8-9))	yes	yes
	applicatives (e.g., (11))	no	yes
	passives	yes	no
	reflexives	yes	no
without *-t*:	unergatives	no	no
	unaccusatives	no	no
	antipassives	yes	no

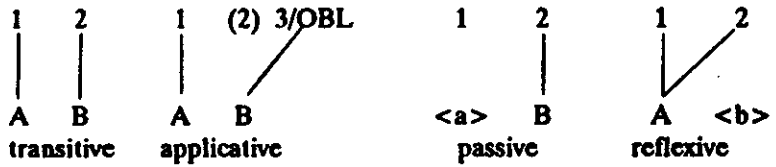
What (39) shows is that a rule based solely on semantic transitivity or solely on syntactic transitivity would be inadequate. There are constructions that are semantically intransitive, e.g., applicatives like (11), or syntactically intransitive, e.g., passives and reflexives, but nevertheless have transitive marking. In addition, the antipassive is semantically transitive but lacks transitive marking. We are led to conclude that the notion of transitivity that is marked in Halkomelem does not correspond neatly to either semantic or syntactic transitivity, nor to a simple combination of these notions.

However, seen from the Mapping Theory viewpoint, transitive marking is a simple rule. The Mapping Theory analysis for constructions without transitive marking is given in (40) and for those with transitive marking in (41).

(40)



(41)



The crucial difference between the constructions in (40) versus (41) is captured by the following rule:

(42) Transitive: a GR other than the first one is mapped.

Under the Mapping analysis, transitive marking in Halkomelem can be taken to be another type of marked association: one that stipulates some feature of a mapped nominal, i.e., that it is not the first nominal on the GR tier.

3.2. Limited-control marking

A second Halkomelem transitive suffix, limited control, is used in the context of an action that is performed accidentally or with difficulty. However, this suffix appears only in a subset of the constructions in (41). Active transitives, passives, and reflexives can take limited-control marking, as (43)-(45) show:

(43) *ni cən k'^{w}ət-nax^{w} ni ʔə t^{θ}ə lətém*
AUX 1SUB pour-L.C.+3OBJ be OBL DET table
'I spilled it on to the table.'

(44) *ni q'^{w}əq^{w}-n-əm ʔə-k' John t^{θ}ə Bob*
AUX club-L.C.-INTR OBL-DET John DET Bob
'Bob was accidentally clubbed by John.'

(45) *ni k^{w}ələš̓-námət k^{w}θə swəyʔqeʔ*
AUX shoot-L.C.+REF DET man
'The man managed to shoot himself/The man shot himself accidentally.'

However, applicative constructions cannot take limited-control marking:[14]

(46) a. *ni yəθ-əs-t-əs*
AUX tell-ADV-TR-3ERG
'He told her about it.'

b. **ni yəθ-əs-nax^{w}-əs*
AUX tell-ADV-L.C.+3OBJ-3ERG
'He happened to tell her about it.'

(47) a. *ni ʔiləq-əɬc-t-əs*
AUX buy-BEN-TR-3ERG
'He bought it for him.'

b. **ni ʔiləq-əɬc-nax^{w}-əs*
AUX buy-BEN-L.C.+3OBJ-3ERG
'He managed to buy it for him.'

This fact is easy to capture in Mapping Theory, given the analyses in (41): applicatives involve the mapping of a 3 or an oblique, rather than a 2. Therefore, a rule of limited-control marking can be given as in (48).

(48) Limited control: a GR other than the first one, specifically a 2, is mapped.

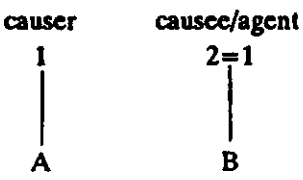
We see then that transitive marking and limited-control marking differ in a crucial way: transitive marking is blind to which GR is mapped, as long as it is not the first GR, while 2-hood is crucial for limited-control marking.

3.3. Causatives

Mapping Theory has only one level of relational structure at its disposal. Thus, causatives present a special challenge, since most theories analyse them as multi-level structures in order to accommodate the arguments of both the causative and the base predicate. I will assume, following Alsina (1992) and others, that a lexical rule is responsible for morphological causatives of the type found in Halkomelem, where there is no evidence that the causative morpheme is a higher verb. This rule will provide for the concatenation of the arguments of the causative and the base predicate. The core claim of this rule is that one of the nominals has a double function. For Halkomelem, a single nominal is both the causee of the causative predicate and the agent of the base predicate.[15] Within Mapping Theory, this can be captured by assigning this nominal a dual grammatical relation even though it is linked to only one MAP. Thus, a causative based on an intransitive stem, as in (49), is represented as in (50).

(49) *ʔi* *cən* *ʔəmʔi-stax^{w}* *t$^{\theta}$ə* *swiwʔləs*
AUX 1SUB come-CS+3OBJ DET boy
'I made the boy come/I brought the boy.'

(50)



Causative marking requires the mapping of this double-function nominal, which is necessarily not the first GR:

(51) Causative: a 2=1 is mapped.

As with limited-control marking above, causatives where the causee is not linked, either due to cancellation (e.g., in an antipassive) or the linking of another GR (e.g., in an applicative) are predicted to be impossible. To my knowledge, the relevant constructions are unattested. However, constructions involving reflexive or passive and causative are possible, as predicted by Mapping Theory. An example of the latter is given in (52).

(52) *ʔi* *ʔəmʔi-st-əm* *t$^{\theta}$ə* *swiwʔləs*
AUX come-CS-INTR DET boy
'The boy was made to come.'

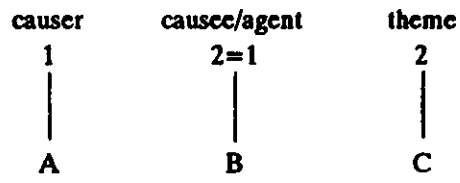
The structure for (52), given in (53), shows that conditions for both passive and causative are satisfied.

(53)

We see, then, that causative marking correlates with the mapping of a causee.

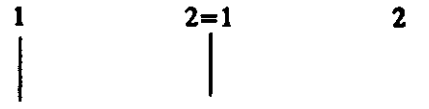
Although it is beyond the scope of this paper to give a thorough treatment of causatives, it can be quickly shown that (51), together with the claim that Halkomelem constructions have a maximum of 2 MAPs, makes a number of predictions concerning the interaction of causative and other marked associations. First, since a causative based on a transitive stem would involve three lexical arguments (the causer, the causee/agent, and the theme of the basic predicate), we would expect a structure such as (54).

(54) *

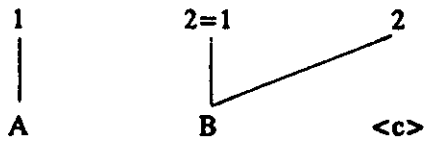


However, since Halkomelem is a 2 MAP language, (54) is ruled out. In fact, causatives built on plain transitive stems are unattested in Halkomelem. But if some marked association cancels the C MAP, e.g., antipassive (55) or reflexive (56), then the structure meets the threshold requirement.

(55)



(56)



As predicted, causatives based on antipassives (cf. (57)) and reflexives (cf. (58)) are possible:

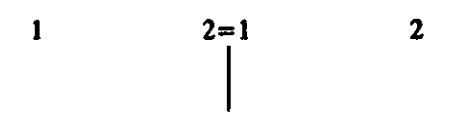
(57) *ni* *cən* *q^{w}əl-əm-stax^{w}* *θə* *steni?* *?ə*
AUX 1SUB bake-INTR-CS+3OBJ DET woman OBL
t^{θ}ə *səplil*
DET bread
'I made the woman bake the bread.'

(58) *ni* *cən* *k^{w}ələ$\check{s}$-θət-stax^{w}* *tə* *Mary*
AUX 1SUB shoot-TR+REF-CS+3OBJ DET Mary
' I made Mary shoot herself.'

Of course, other rule combinations that satisfy the requirements of more than one marked association without violating the linking principles of (6) will also be possible. These are too numerous to detail here, but, to give one example, (59) involves antipassive, causative, and passive, as represented in (60).

(59) *ni* *q^{w}əl-əm-st-əm* *θə* *steni?* *?ə* *t^{θ}ə* *səplil*
AUX bake-INTR-CS-INTR DET woman OBL DET bread
'The woman was made to bake the bread.'

(60)



In sum, the Mapping Theory account of Halkomelem causatives not only accommodates the basic data but also correctly predicts the range of cooccurrence of the causative and other marked associations of the language.

4. The anatomy of a 2-MAP language

In summary, this paper has provided an account of voice phenomena in Halkomelem. Four voices — applicative, antipassive, reflexive, and passive — and their interactions have been treated. In addition, three transitive-marking rules and their interactions with the four voice rules have been analyzed.

The rules of marked association discussed here fall into two types. First, applicative, antipassive, and reflexive all target the lowest MAP.

(61) Applicative: add a MAP (up to threshold) and link the 3 or oblique to the lowest MAP.
Antipassive: cancel the lowest MAP and do not link the GR above it.
Reflexive: link both a 1 and the GR above the lowest MAP to the same MAP and, in some languages (including Halkomelem), cancel the lowest MAP.

Given the crucial assumption that Halkomelem is a 2-MAP language, it is the B MAP that is targeted by the above rules. That Halkomelem is a 2-MAP, as opposed to a 3-MAP, language, can be seen in its case and agreement inflection. At most, two nominals can be cross-referenced on the predicate or appear without a preposition. Since the three rules in (61) target the B MAP, they are mutually exclusive.

The other marked associations of Halkomelem — passive, transitive marking, limited-control marking, and causatives — show a different pattern. These rules are concerned as much with grammatical relations as they are with MAPs.

(62) Passive: do not link the first GR; cancel one or more MAPs (in Halkomelem, the A MAP).
Transitive: a GR other than the first one is mapped.
Limited control: a GR other than the first one, specifically a 2, is mapped.
Causative: a GR other than the first one, specifically a 2 that is also the 1 of the base predicate, is mapped.

Although the passive in Halkomelem must stipulate that the A MAP is cancelled, its definitive characteristic is that the first GR is not mapped. Transitive, limited-control marking, and causative involve the linking of some GR other than the first one to some undefined MAP.

The interaction of the transitive voice rules with other marked associations, e.g., applicative, reflexive, and passive, follows from the general principles for linking GRs to MAPs. In this fashion, Mapping Theory accounts for a significant array of Halkomelem data.

Notes

1. Thanks to Katarzyna Dziwirek, Charles Ulrich, and the participants in the Salish syntax workshop (Victoria, British Columbia, November, 1992) for their comments on this paper. This research was supported by a grant from the Social Science and Humanities Research Council of Canada.
2. Of course, it is also possible to posit a mixed system, one that combines lexical and syntactic rules. For example, Aissen (1984), in her treatment of Tzotzil, and Farrell (1992), in his treatment of Halkomelem, posit that antipassive is a lexical rule while passive is a syntactic rule.
3. This paper gives only a brief look at Mapping Theory and does not compare it with other similar theories. The approach taken by Woolford (1986) is perhaps the closest in its notation and intention.
4. The Halkomelem data are from the late Arnold Guerin, a speaker of the Island dialect. My fieldwork on Halkomelem was supported by the Canadian Consulate, the Jacobs Research Fund, the Phillips Fund, and the National Museum of Man. The data are presented in standard Northwest orthography. I do not mark stress when it falls on the first syllable of a word. The following abbreviations are used in glossing the data: ADV advancement marker, ASP aspect, AUX auxiliary, BEN benefactive, CS causative, DET determiner, DIR directional, ERG ergative, INTR intransitive, L.C. limited control, OBJ object, OBL oblique, REF reflexive, SER serial, SUB subject, TR transitive, 1 first person, 2 second person, 3 third person.
5. See Gerdts (1988a) for details of the presentation structure of Halkomelem. The presentation level will also involve cooccurrence restrictions referring to the semantic and grammatical properties of the mapped elements. For example, Halkomelem has the following constraint:

   *A = 3rd person, B = 2nd person.
6. Such principles are fairly typical in linking theories. See, for example, Ostler (1980), Woolford (1986), and Yip—Maling—Jackendoff (1987).
7. Individual languages may place further stipulations on their mapping grammars. For example, in Halkomelem it is possible to exclude all crossing lines. On the other hand, some languages may use crossing lines in their grammars. Linking the 1 to the B MAP and the 2 to the A MAP may be the appropriate analysis of inverse person-marking effects, for example those in Ojibwa discussed by Perlmutter—Rhodes (1989).
8. Unlike datives and benefactives, directionals (especially if they are inanimate) can also appear as oblique phrases. See Gerdts (1988a) for discussion.
9. This rule is essentially borrowed from the Relational Grammar analysis of reflexives (see Rosen 1988 and Gerdts 1989b).

10. Languages will be parameterized as to how many and which MAPs are cancelled and how the GRs link.
11. Although the phonological forms of the agreement suffixes in the active and passive are not always transparently related, it is clear that they are always objective — and not subjective — in nature. See Gerdts (1988a, 1989a) for discussion.
12. Mapping to the A MAP (i.e., the lowest noncancelled MAP) could be a possible analysis. However, in this case, we predict that the 1 would fail to link and would therefore be presented as a nonargument. One might predict that such an analysis should be correlated with passive morphology (19). Languages with applicatives and passives involving the cancellation of the B MAP would have this structure.
13. A mapping account of Halkomelem transitive marking is also given in Gerdts (1993b).
14. See Gerdts (1988a) for additional examples.
15. Since "agent" is specifically mentioned here, causatives on unaccusatives, which do not have an agent nominal, will be ruled out. This is basically correct for Halkomelem, as Gerdts (1991) discusses.