Requirements for a unified Binding Theory: Lessons from Halkomelem Salish

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1 Introduction

In characterizing the distribution of pronouns and reflexives in natural language, two schools of thought are generally cited. One, which I will refer to as the structural approach, is based in the binding conditions of Chomsky (1981), as modified through later permutations of his syntactic theory. Another approach, defined in Reinhart and Reuland (1993), makes reference to predicate-argument structure; this will be identified as the predicate approach.

In this paper, I present data on reflexivity and the distribution pronominals in Halkomelem Salish, demonstrating that neither the structural nor the predicate approach will accurately account for the phenomena observed. Once reached, this conclusion will feed further research into binding theory, outlining the phenomena a unified binding theory will need to capture.

This paper will be organized as follows. Section 2 consists of an introduction to the Halkomelem language, its clause structure, and a brief recapitulation of the binding principles in question. In Section 3, various forms of reflexivity are examined. The typology and distribution of pronouns is discussed in Section 4. Section 5 consists of a brief examination of R-expressions in Halkomelem, followed by a summary in Section 6.

2 The Basics

Halkomelem is a Central Salish language of Southwest British Columbia. It has three major dialects (Downriver, Upriver, and Island), all of which are critically endangered.¹

*I thank the audience at PLC30 for their insightful comments and questions, as well as my classmates at both SFU and the UBC. Conversations with Henry Davis, Donna Gerds, Chung-hye Han, Lisa Matthewson, and Martina Witschko have contributed greatly to this paper. All errors are my own.

¹Throughout this paper, data from Galloway and Witschko are Upriver; data from Gerds are Island.

2.1 Halkomelem Syntax

Verbal roots in Halkomelem are inherently unaccusative, projecting one theme argument. Agents are introduced as the specifier of a v-headed projection. The v head has overt phonological content, traditionally described as a transitive-suffix. Its suffixhood (right attachment to the verb stem) is derived by head-to-head movement of the verb. The canonical word order of Halkomelem is VSO, which Wiltschko (2004) claims to indicate that the V-v complex undergoes further head raising, crossing over the [Spec, vP] position. SVO and VOS word order are also attested.

Turning to nominals, the first thing to note is that the agent and theme arguments may or may not be overtly realized in the syntax. However, in addition to the overt arguments, verbs in Halkomelem also carry agreement markers of the agent and theme. Wiltschko refers to these as "pronominal", as does Kiyosawa (2004), following the analysis of Galloway (1993). While the generalization is not perfect, it does largely seem that these pronouns are in complementary distribution with overt DP arguments. One exception to note is that in the case of third-person subjects of transitive verbs, agreement marking is obligatory, even in the presence of an overt agent. This special status of the third person transitive subject is merely noted by Galloway (1993), is described as an effect of ergativity in Wiltschko (2001), and is simply called "ergative agreement" in Gerds and Hukari (2005). Setting aside the exception of the third person transitive, Gerds and Wiltschko (both p.c.) agree that at least the subject markers can be analyzed as clitics2.

Recalling the analysis of the VSO word order, as it is already implied that the verb undergoes at least one more head movement after v, there ought to be one more functional projection above vP in the clause structure. Presently, I have nothing on which to base a claim of what that functional head is, so I merely indicate it as X. Adopting a full application of a clitic analysis of the agreement pronouns, (1) is the schematic structure of a transitive clause in Halkomelem.

This analysis correctly derives the standard VSO order; where there are no full DP's at the argument positions, the agreement pronouns attach to the verbal complex via enclisis. I ascribe no overt phonological content to the X head in this structure. Two sample sentences are given below in (2), one with only agreement marking, and another with full arguments.

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2 Under Wiltschko's analysis, the object pronoun is hosted at v, along with the transitivizer.
2.2 Binding Conditions

As a refresher, I will re-state the binding conditions under examination. The Chomsky (1981) conditions are widely discussed and should require no further introduction:

**Condition A:** An anaphor must be bound in its governing category.

**Condition B:** A pronoun must be free in its governing category.

**Condition C:** An R-expression must be free.

The following principles are given in Reinhart and Reuland (1993):

**Principle A:** A reflexive-marked syntactic predicate is reflexive.

**Principle B:** A reflexive semantic predicate is reflexive-marked.

A number of definitions come alongside these principles, but the two concepts relevant to the present discussion are that a syntactic predicate crucially requires a subject, and that reflexive marking can be accomplished either at
the lexical level, or through the use of a SELF-type reflexive pronoun. The Reinhart and Reuland system has no direct equivalent to Condition C, though Reinhart's Coreference Rule is a close contender. In the interest of brevity, I will not be discussing the Coreference Rule in this paper.

3 Reflexivity in Halkomelem

This section will examine three types of reflexivity in Halkomelem: -thet suffixed reflexives, -en suffixed reflexives, and unmarked reflexives.

3.1 -thet Reflexives

The first type of reflexive to be examined is marked with a dedicated reflexive suffix attached to the verb, exemplified in (3):

(3) may-thet te Strang.
   help-REFL DET Strang
   'Strang helped himself.' (Wiltschko 2004, (27a))

Gerds (1989) argues that the reflexive suffix -thet is a complex morph, comprising the transitivizing suffix -t and what she calls a reflexive object suffix -sut. Wiltschko (2004) adopts the notion of decomposition, agreeing that this is partially constructed from the transitive, but is less specific on the origin of the second component, clear though that it is not to be construed as a pronoun. This analysis is extended to a second reflexive suffix -lomet, which contains the transitivizing -l suffix, and a presumed phonological variant of the second reflexivizing component. The difference between -t and -l is one of control: the former implies that the agent acts intentionally, the latter that the action is out of the agent's control. This carries into the realm of reflexives:

(4) a. q'óy-thet
    kill-REFL
    'deliberately kill oneself' (i.e. a suicide)

b. q'óy-lomet
    kill-REFL
    'accidentally kill oneself' (i.e. a tragic accident)

Here, I will concern myself solely with -thet reflexives, though the resulting conclusions are equally extendable to -lomet.
Wiltschko (2004) argues that these reflexive morphemes are attached at the lexical level, pre-syntax. Crucially, lexical affixation will prevent the transitive suffix from projecting in the overt syntax. This immediately derives the absence of agreement marking in reflexives: \( v \) is not projected, thus providing no host for the object agreement, and eliminating the agent from the syntax altogether. However, the agent is still present at a semantic level, and Wiltschko argues that it is the second part of the complex reflexive morpheme that stipulates co-reference between the overt theme and the covert agent. Syntactically, both Gerds and Wiltschko agree that reflexives of this sort remain unaccusative. The semantic function of \(-\text{thet}\) can be thought of as a two step process, in which a semantic agent is introduced, and subsequently removed from the syntax. This process can be illustrated as in the following \(\lambda\)-formula:

\[
\lambda f \in D_{<t,t>} \cdot \lambda x \in D_{e}. f(x)(x)
\]

where a one-place predicate becomes semantically two-place, yet still takes only one argument to fill both positions.

Turning to the competing approaches to binding, the structural approach does not have any ground on which to apply with this type of reflexive. Where there is only one argument in the syntax, there is no way to make reference to one argument c-commanding another. Assuming reflexivity to be the domain of Condition A, this presents a problem for the structural approach to binding. The predicate approach fares better though, as both Principles A and B are met. Following Wiltschko's analysis, this predicate is reflexive marked, but having no external argument, it is not a syntactic predicate, and thus immune to Principle A by default. Semantically, it is reflexive, and therefore subject to Principle B. Being reflexive-marked at the lexical level, Principle B is satisfied. The inapplicability of a Chomsky-based analysis is predicted by Gerds, who notes it (among other approaches to binding) to be "uninsightful for languages like Halkomelem" (Gerds 1989:259).

3.2 \(-\text{em}\) Reflexives

Another type of reflexivity in Halkomelem appears with the \(-\text{em}\) verbal suffix, usually considered to be an intransitivizer. The difference is that here, the theme is suppressed, and the only visible argument is the agent. Wiltschko's analysis of these reflexives focuses on their co-occurrence with lexical suffixes in Halkomelem. These lexical suffixes essentially derive new predicates.

\[\text{Davis (p.c.) remarks that \(-\text{thet}\) is a cognate of the reflexive suffix \(-\text{tsut}\) in Lillooet Salish, believed to function in the syntax, not the lexicon.}\]
through something akin to noun incorporation. For predicates containing lexical suffixes, reflexivity is derived using the -em suffix, not -thet:

    wash-foot-REFL DET Strang
    ‘Strang washed his feet.’
    (Lit. ‘Strang self-foot-washed.’ Wiltschko 2004, (42))

b. th’ex-xál-em te Strang.
    wash-foot-INTR DET Strang
    ‘Strang washed his feet.’ (Wiltschko 2004, (43))

According to Wiltschko, this reflexivity is a function of the lexical suffix -xal, deriving from the semantics of inalienable possession. She notes that -em does not always yield a reflexive:

(7) tsel qwel-em.
    lSG.SUBJ barbecue-INTR
    ‘I’m barbecuing.’ (Wiltschko 2004, (44))

The translation here is crucial: it is not the case that the speaker in (7) is barbecuing himself. This could be seen as contradicting Gerds (2000) where the reflexivity of the type in (6b) is ascribed to -em. According to the diachronic analysis given in Gerds and Hukari (2005), -em was historically a reflexive in Halkomelem, which has become a middle construction yielding semantic transitives with intransitive syntax. This original reflexivizing function has largely been overtaken by the more strongly reflexive -thet affix.

Getting back to the lexical suffix case, it is worth noting that when marked as transitive, this verb loses its reflexivity:

(8) th’exw-xál-t-es te Strang te Konrad.
    wash-foot-TR-3SG.SUBJ DET Strang DET Konrad
    ‘Strang washed Konrad’s feet.’ (Wiltschko 2004, (49))

Clearly, the lexical suffix does not necessarily lead to reflexivity. It could simply be then that th’exw is inherently reflexive when intransitive, just as English wash.

Apparent reflexives are also formed with applicatives and -em:

(9) ni tsen qwél-elhts-em.
    AUX 1SG.SUBJ bake-BEN-INTR
    ‘I cooked it for myself.’ (Gerds 2000, (44))
However, the behaviour of -em in applicative imperatives leads Gerdts to conclude that this is a speaker-oriented logophoric expression, and not a subject-oriented reflexive. When an imperative applicative has a second person subject, and the verb takes the -em suffix, the beneficiary is taken as reflexively first-person:

(10) nem' chexw ?ileq-elhts-em.
   go 2SG.SUBJ buy-BEN-INTR
   'Go buy it for me!' (Gerdts 2000, (46))

The structural approach is still lost in these cases, as there is again only one syntactic argument to work with. The success or failure of the predicate approach will hinge upon whether or not the predicate is reflexive-marked. Under Wiltschko’s analysis, this is not the case, and Principle B is violated, as there is semantic reflexivity without reflexive marking. Taking -em to be a reflexive marker, as suggested by Gerdts and Hukari, may obviate the Principle B violation, as would a claim of inherent reflexivity of the verb th’e’gw. The logophors of (9) and (10) are problematic. In the terms of Büring (2005), a logophor is oriented to a semantically or pragmatically-defined class of antecedents. Chomsky’s theory has no mechanism for this whatsoever, while Reinhart and Reuland simply exempt anything that is not a co-argument from their principles.

3.3 Unmarked Reflexives

A third type of reflexivity has been attested, which does not make use of any specialized reflexive morphology:

(11) li chexw kw’éts-l-ôme li te skw’e’chóstel.
   aux 2SG.SUBJ see-TR-2SG.OBJ in the mirror
   ‘Did you see yourself in the mirror?’ (Wiltschko 2004, (3b))

One immediate difference here is the fact that this sentence has an SVO word order. Determining the exact structural configuration underlying this sentence is a matter outside the scope of this paper. For the time being, I merely note that I do not assume this position to be reserved solely for pronouns, as the language also allows full DP agents to precede the verb. That the subject c-commands the object pronominal is implicit from Wiltschko’s discussion of such examples, where she notes that according to the structural binding theory, the object pronoun “should not be able to be coreferent with the subject of the clause in which the object pronoun itself appears” (Wiltschko...
This means that there is a violation of Chomsky’s Condition B, in that the pronoun is locally c-commanded by its antecedent.

Unlike the -thet and -em reflexives though, there is no way to avoid violating Reinhart and Reuland’s Principle B. This is a semantically reflexive predicate, and yet there is no reflexive marking. A crucial point in the analysis has been reached; a case has now been found which appears to violate a condition of both the structural and the predicate binding theories.

4 Halkomelem Pronouns

On the surface, it appears that Halkomelem has three distinct types of pronoun. The first, the so-called “agreement” markers, have already been discussed to some extent, and two more sets will be discussed here. The first appear to be true pronouns, while the second appear to be full DP’s, decomposable into determiner and pronoun parts.

4.1 Subject Pronouns

In (7), (9), (10), and (11), the overt subjects of the sentences were realized as pre-verbal pronouns. Galloway (1993) refers to these as subject pronouns, which are restricted to matrix clauses. However, this pre-verbal position is not restricted to pronouns, so there is an underlying syntactic phenomenon at work here, not a special characteristic of the pronoun itself which allows for this word order. Phonologically, these pronouns are identical to the verb-affixed subject agreement markers; that they appear to function in the same way as full DP agents supports the proposition that these pronouns are base-generated in [Spec, vP], but in this case have not attached to the verb via enclisis. Again, specifying the exact underlying syntactic structure is a matter beyond the scope of this paper; for the time being it is sufficient to note the c-command facts. Being restricted to the highest argument position of a matrix clause, these pronouns will never themselves be c-commanded by an antecedent, but it has already been shown in (11) that these pronouns can lead to structural binding theory violations by c-commanding other co-indexed arguments.

Finally, it is worth noting that these pronouns may appear as free forms in post-verbal position as well:

(12) iyóq-th-ôx tsel.
    change-TR-1SG.OBJ 1SG.SBJ
    ‘I changed myself.’ (Wiltschko 2004, (14b))
In this example, the subject pronoun is distinctly indicated to be a separate constituent from the verb. Again, the literature is unclear as to the underlying structure of this sentence. The most conservative assumption would be that the subject has remained at [Spec, vP], and the verb has crossed over it in the normal process of head raising. What is interesting to note is that this is indeed a reflexive predicate, with no reflexive marking, and no stated violation of Chomsky's binding conditions. That is, the verb-attached object pronominal must not c-command the subject, otherwise this should likewise be a violation of Condition B. However, this remains a violation of the Reinhart and Reuland Principle B, as there is no reflexive marking. This then represents a second type of unmarked reflexivity, which is permitted by the structural binding theory, but not by the predicate approach.

4.2 Independent Pronouns

There is a second set of pronouns in Halkomelem which can occupy any argument position. Galloway (1993) refers to these as “emphatic”, while Wiltschko (2002) dubs them “independent”. These pronouns are illustrated in (13):

(13) kw’etics-lexw-es tú-tl’ó thú-tl’ó.
    see-TR-3SG.SUBJ DET.MASC-INDEP DET.FEM-INDEP
    ‘He sees her.’ (Wiltschko 2002, (12b))

Noting that determiners are obligatory in Halkomelem for DP’s in the canonical argument positions, and that the forms in (13) appear to contain full determiners, Wiltschko reaches the conclusion that they are in fact full DP’s, and ought to be treated as R-expressions, along the lines of Wiltschko (1999) and Décheine and Wiltschko (2002). R-expression pronouns of this type are considered to be subject to Condition C of the structural binding theory, as opposed to Condition B.

The co-reference properties of these independent pronouns emerge when considering possessive constructions. In Halkomelem, a possessed nominal is obligatorily marked with a possessive agreement marker; the possessor may optionally follow the possessee:

(14) a. te sthóq’i-s
    DET fish-3.POSS
    ‘his/her fish’
Unlike the verb-affixed markers, the -s morpheme in the possessive is not considered to be a pronoun. When placed in object position, the possessor in a DP such as (14b) will be c-commanded by the subject position:

(15) *hêlpex-ex te Strang [te sthôq'i-s tû-tl' ô.]
   eat-3SG.SUBJ DET Strang DET fish-3.POSS DET-INDEP
   'Strangi is eating hisi fish.' (Wiltschko 2002, (51b))

Ungrammaticality results here, which is predicted according to the structural binding theory. If the binding domain of the possessor is limited to the containing DP, this should not be a Condition B violation. Following the R-expression analysis though, this is definitely a Condition C violation, as R-expressions may never be bound in any domain.

That c-command is the critical relation here is shown in (16):

(16) [te tál-s tû’ Strang] mamáy-t-em tû-tl’ô.
    DET mother-3POSS DET Strang help.REDUP-TR-INTR DET-INDEP
    'Strang’s mother is helping himi.' (Wiltschko 2002, (54))

Here, the possessive DP is in the pre-verbal subject position, c-commanding the object. However, the object pronoun here can be co-referential with Strang, as Strang does not c-command out of the subject DP. While these facts are predicted by the structural binding theory, the predicate binding theory remains silent in both (15) and (16). Crucially, the co-indexed DP’s in question are not co-arguments, so reflexivity is not an issue. If one were to attempt to apply the Reinhart and Reuland approach, there would be no principled reason why the pronoun in (16) should be grammatical while the one in (15) is not.

The independent pronouns may also participate in the second type of unmarked reflexive:

(17) kw’êts-lexw-es tû-tl’ô.
    see-TR-3SG.SUBJ DET-3INDEP
    'Hei saw himi/j.' (Wiltschko 2004, ex 3b)

The disjoint reference here is not problematic, but the reflexive reading, as already discussed, is unexpected. According to Gerdt (1988), whenever there is only one overt argument following a transitive verb such as the one
in (17), it is the theme, complement of the verb. In examining the case of (12), it was already established that verbally-attached pronouns are not in a position to c-command lower arguments, so no Condition C violation should be expected here under a co-indexed reading. Once again, there is no problem for the structural binding theory, but the reflexive reading without reflexive marking will be a Principle B violation for Reinhart and Reuland.

5 Turning to Condition C

A final observation with respect to binding comes from the behaviour of R-expressions. First, recall that being analysed at the level of R-expressions, the independent pronouns were considered to be subject to Condition C of the structural binding theory. As such, the following alternation is predicted:

(18) a. suq-t-es te swiyeqe te kopu-s.
look for-TR-3SG.SUBJ DET man DET coat-3POSS
'The man was looking for his coat.' (Wiltschko 2002, (49a))

b. suq-t-es te swiyeqe te kopu-s
look for-TR-3SG.SUBJ DET man DET coat-3POSS
tu-t'l'o.
DET-3INDEP
'The man *was looking for his coat.' (Wiltschko 2002, (49b))

Similar to the example in (15), the independent pronoun is an overt expression of the possessor of the coat in (18b). It can not however be co-indexed with the subject te swiyeqe, which would not be expected if this were a Condition B pronoun (note that the co-reference is fine for English). That the co-reference is fine in (18a) makes it clear that a condition upon the independent pronoun is at play. Given that the independent pronouns can be otherwise demonstrated to be parallel to R-expressions, this can serve as sufficient evidence that Condition C is indeed locally active in Halkomelem.

More interestingly, Condition C effects disappear across clauses:

(19) st'owel pro [CP kw'-es scechewot te Strang.]
think pro DET-NOM-3SG.SUBJ smart DET Strang
'He thinks Strang is smart.' (Wiltschko 2002, (45b))

In (19), the matrix agent is not overtly marked, though it is instantiated by pro. This pro can be co-referential with the embedded object Strang, a clear
Condition C violation. Reinhart and Reuland's theory does not apply, as the co-referential elements in (19) are arguments of different predicates.

Such Condition C effects are not limited to Halkomelem; St'át'ímcets (Lillooet) is another Salish language in which Condition C has been shown to apply only locally, and not across clause boundaries. The St'át'ímcets example below, from Davis (to appear), shows a similar effect with a relative clause:

\[
\text{áts'x-en-as ta-sqáycw-a [ta-taw-en-ás-a see-TR-3ERG DET-man-EXIST [DET-sell-TR-3ERG-EXIST s-Mary ta-pukw-a.] NOM-Mary DET-book-EXIST] 'Maryi saw the man shei sold the book to.' (Lit: 'proi saw the man Maryi sold the book to.' (Davis (to appear), (20))}
\]

Recalling that where there is only one overt argument, it must be the theme, the entire relative clause is modifying \text{ta-sqáycw-a}, the complement of the matrix verb. The matrix subject is again \text{pro}, co-indexed with Mary as indicated in the gloss for this sentence. Gerdts (p.c.) believes that parallel arguments can be made for Halkomelem, which would mean that this set of facts will definitely need to be incorporated into an overall account of binding in the language.

6 Conclusions

The final tabulation of the success of the two binding theories at predicting the various phenomena observed is given in Table 1. Based on this, the final conclusion is clear: neither the predicate approach nor the structural approach will correctly capture all of the data for Halkomelem. Instead, it appears that elements of both will be needed, formulated in such a way as to not only continue capturing the correct predictions, but extended to the cases like unmarked reflexives where neither model appears to apply.

What then should a unified binding theory include? For the reflexives marked by means of an overt suffix on the verb, it seems that a predicate-based approach is on the right track, as this is something which the structural binding theory has no means of capturing. Independent of reflexivity, pronouns and R-expressions look to be subject to some sort of structural binding constraints. One key aspect underlying the facts at hand appears to be locality. Gerdts notes that by virtue of their morphosyntactic formation, all marked reflexives in the language are going to be strictly local to a single predicate. This is in contrast
to a language such as Korean, which is widely cited to exhibit long-distance reflexives; capturing this contrast would be a challenge to the construction of a truly universal theory. Furthermore, the asymmetry in Condition C-type effects further demonstrates the importance of locality. Thus it seems that a unified binding theory will need to consider both predicate argument structure and syntactic structure, with reference to a constrained local domain. That being said, the existence of speaker oriented logophors in this language indicates that a theory which captures all the referential phenomena of Halkomelem, to say nothing of other languages, will likewise need to be able to make reference to a higher level of discourse reference beyond syntactic structure.

Looking specifically at Halkomelem, this paper has identified a number of questions for further research. First and foremost among these would be to reach a firm account of the underlying structure of sentences where the subject agreement has not cliticized to the end of the matrix verb. In discussion with various researchers on this topic, it becomes clear that this remains a matter of some debate in the field. This will be tied in with attempting to determine the conditions under which the subject agreement pronoun may or may not remain free in the clause, either in situ, or in a pre-posed position. Solving these issues will give greater certainty to the claims made based upon structural c-command facts. On the side of predicate marking, a deeper examination of the status of the -\textit{thet} suffix would appear to be in order, trying to determine whether it is indeed a lexical phenomenon or something syntactic. In this case, an examination of the behaviour of cognate morphemes in related languages may prove fruitful. Finally, a systematic examination of Condition C effects, paralleling previous research in St'át'imcets, will contribute to a more complete picture of the state of affairs in Halkomelem.

Table 1: Summary of Findings

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References


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