

# On binding and precedence in Gitksan\*

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## 1. The question

This paper considers a claim in the literature on Gitksan (Tsimshianic, northern interior BC), first forwarded by Hunt (1993), regarding conditions on binding. Specifically, Hunt (1993:107) claims that binding in Gitksan is not assessed with respect to c-command relations, but rather by *precedence* (as also proposed in Mohanan's 1983 work on Malayalam). More recently, Davis and Brown (2010) revisited the issue and confirmed her conclusion.

The generalization that binding in Gitksan is subject to a *prece-*

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*dence condition* has had a lasting impact on syntactic work on Gitksan, as binding is typically one of the primary phenomena used to diagnose structural relations. The precedence condition additionally has a number of consequences for our crosslinguistic understanding of binding.

In this paper, I offer a critical review of the evidence leading Hunt (1993) and Davis and Brown (2010) to their conclusions. My aim in doing so is not to challenge the claim directly, or to suggest instead that conditions on binding in Gitksan are in fact strictly structural. Rather, after examining the evidence mustered in prior work on the topic and reviewing other data found elsewhere, I raise some issues with the validity of the conclusion. The primary question this paper attempts to address is: *What sorts of data must we investigate before we may concretely say that there is a precedence condition on binding in Gitksan, or understand its nature?* It is my hope that the issue so formulated provides a clear and interesting path forward into this topic, with specific avenues for possible data collection.

In section 2, I summarize the argumentation of Hunt's (1993) and Davis and Brown's (2010) and critically examine the data presented in each.. I turn in section 3 to additional data on backwards pronominalization which seemingly detracts from the strength of the precedence condition, and potential areas to explore with regard to conditions on intraclausal coreference. Section 4 concludes.

## 2. Reviewing prior evidence

In this section I review Hunt's (1993) and Davis and Brown's (2010) arguments in support of a precedence condition on binding in Gitksan, and present some critique of the evidence utilized by each.

In her work examining configurationality in the Gitksan clause, Hunt (1993) investigated Condition C effects in pronominal binding. She ultimately argued that data from binding could not be used as evidence of c-command, specifically claiming that:

“Such data [binding judgements] strongly support positing a precedence condition to govern the distribution of R-expressions in Gitksan. Since a precedence condition makes no reference to structural conditions, the data... fail to provide evidence about the structure of a Gitksan clause.” (Hunt 1993:107)

Later, Davis and Brown (2010) returned to the issue and attempted to address the question of whether precedence was a *necessary* or *sufficient* condition on binding. To do this, they performed a pilot test examining scope effects in quantificational binding, and came to the preliminary conclusion that precedence was indeed a sufficient condition for binding.

In the sections to follow, I first discuss Hunt’s (1993) original evidence, and then move to Davis and Brown’s (2010) additional data.

### 2.1. Data from Hunt (1993)

Hunt (1993) presents evidence for the necessity of a precedence condition in pronominal binding. She references two types of structures where precedence holds but c-command does not. In the first type of structure, a DP embedded in a complex subject (a possessor, as in (1), or a DP in a relative clause) is coindexed with the object in a transitive clause.<sup>1</sup>

- (1) a. Hlimoo-yi[ =s      nox=s                      Mary] ’nit.  
       help-TR-3.II[ =DN mother = 3.II =DN Mary] 3.III  
       ‘Mary’s<sub>i</sub> mother helped her<sub>i</sub>.’

<sup>1</sup> Example sources are cited. The glosses for Gitksan sentences have been adapted for consistency and to reflect the underlying agreement markers that I assume to be present, though this is not of immediate relevance (Davis 2016; Davis and Forbes 2015). Examples I collected are attributed with speaker initial.

- b. \*Hlimoo-yi = [s      nox-t]                      t    Mary.  
    help-TR-3.II [= DN mother = 3.II] DN Mary  
    ‘Her<sub>i</sub> mother helped Mary<sub>i</sub>.’                      (Hunt 1993:106-7)

C-command does not hold between the subject’s possessor and the object, but precedence does. While Condition C predicts that an R-expression should be acceptable in either position, given that both positions are free, the only grammatical version in Gitksan is the one where the R-expression acts as the possessor, preceding the pronoun.

While the standard Condition C judgements allow either position for the R-expression in English, I note that the version from (1b) is highly dispreferred. For the majority of the native English speakers I have polled, sentences ignoring precedence like *Her mother helped Mary* are rejected outright; this matches my own judgement.<sup>2</sup> The fact that the Gitksan judgements match the particular variety of English that my peers and I speak, despite English not being described with a comparable precedence condition, lessens the impact of Hunt’s claim in my eyes. Whatever property it is that affects the acceptability of (1b), whether it be syntactic, pragmatic, or processing-related, does not clearly differ between Gitksan and English, and therefore need not be parametric in nature.

The second type of structure Hunt (1993) investigates provides a more striking difference. This is a sentence which involves focus-fronting of a complex object, within which a DP possessor is embedded. This embedded DP is coreferent with the subject of the clause, over which the object has raised.

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<sup>2</sup> The addition of focal stress (e.g. *Her MOTHER helped Mary*) may go some way toward making the sentence more acceptable; it is therefore at least possible under certain pragmatic conditions. It may therefore be worth putting some information-structural controls in place when attempting to replicate the Gitksan data to see if similar facts hold.

- (2) a. Oo, hlimoo-yi=s      Mary t    no $\underline{x}$ -t  
       oh help-TR-3.II=DN Mary DN mother-3.II  
       ky'oots = aa?  
       yesterday = YNQ  
       'Oh, did Mary<sub>i</sub> help her<sub>i</sub> mother yesterday?'
- b. Nee, [negwoot=s      Mary]=hl dii hlimoo-yi-t.  
       no [father-3.II=DN Mary]=CN FOC help-TR-3.II  
       '?'No, it was Mary<sub>i</sub>'s father that she<sub>i</sub> helped.'
- c. \*Nee, [negwoot-t]=hl dii hlimoo-yi=s      Mary.  
       no [father-3.II]=CN FOC help-TR-3.II=DN Mary  
       'No, it was her<sub>i</sub> father that Mary<sub>i</sub> helped.'  
       (Hunt 1993:107)

C-command does not hold between the DP contained in the fronted object and the coreferent subject. In this case, clearly diverging from English, the only acceptable version of the sentence is one where the R-expression precedes the coreferent pronoun which it does not c-command, as in (2b). The alternative where the R-expression c-commands the object's base position, as in (2c), is unacceptable.

It is this last fact which is most convincing to me regarding a parametric difference between Gitksan and languages with conventional command-based binding. Some kind of difference in how binding is resolved in reconstruction could account for a preference for (2b), but there are few things other than precedence which could otherwise explain the *ungrammaticality* of the sentence with the R-expression in subject position, as with (2c). There is no clear alternative structure which would allow c-command to hold between the coreferential DPs.

However, I suggest that further investigation into these examples is need to concretely establish the necessity of a precedence condition of the likes that Hunt (1993) proposes. In my own attempt to replicate (2), I found that both placements of the R-expression were

judged as acceptable.<sup>3</sup>

## 2.2. Data from Davis and Brown (2010)

In their work on the topic, Davis and Brown (2010) conducted a pilot experiment on the availability of bound variable readings with quantificational anaphora.<sup>4</sup> This was a truth judgement task, where speakers were asked to provide judgements about the felicity of four sentences each with respect to two contexts, which allowed bound variable readings and cumulative plural readings to be distinguished. In summary, the results of the test were that a bound variable reading was equally available for quantificational sentences regardless of whether a c-command relationship was present between the variable and antecedent, but was unavailable for non-quantificational variants. Precedence could then be taken as a sufficient condition for binding.

Here, I review the test sentences and point out some problems which make the conclusion less clear. The four sentences are provided below. The (a) cases are control conditions without a quantifier, while the (b) cases are the experimental conditions introducing the scopally active quantificational element, *mahla k'iy* 'each'.

The main conditions involved whether or not there was a c-command relationship between the antecedent NP and the coreferential agreement marker/pronoun. The antecedent precedes the pronoun in all cases, due to VSO ordering. Below in (3), the coreferent pronoun/agreement marker *-diit* is both c-commanded and preceded by its antecedent.

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<sup>3</sup> Author's fieldnotes: March 20, 2017 with VG.

<sup>4</sup> The work done by Davis and Brown (2010) was preliminary in nature; I still choose to review it here because of its extraordinary relevance, and because to my knowledge no more advanced investigation into the question of binding has yet been presented.

- (3) a. 'Nii-wan = hl t'ihlxw-m ii'wxt lax gilbil = hl gyoodan  
 on-sit = CN child-ATTR men on two = CN horse  
 an = t hlo'oxs-diit.  
 AX = 3.I kick-3PL.II  
 '[The boys]<sub>i</sub> rode on two horses that kicked them<sub>i</sub>.'
- b. 'Nii-wan = hl mahla-k'i'y = hl t'ihlxw-m ii'wxt lax  
 on-sit = CN each-one = CN child-ATTR men on  
 gilbil = hl gyoodan an = t hlo'oxs-diit.  
 two = CN horse AX = 3.I kick-3PL.II  
 '[Each of the boys]<sub>i</sub> rode on two horses that kicked them<sub>i</sub>.'

These contrast with (4), which were held to involve only a precedence relation between the antecedent, contained within a complex subject, and the following pronoun. However, I note that the structure of the Gitksan sentences is in fact quite different from what was likely intended—there is no complex subject modified by an object-centered relative clause, but instead a complex object modified by a subject-centered relative clause. I provide a literal translation below each.

- (4) a. Hlo'oxs = hl gilbil = hl gyoodan = hl t'ihlxw-m  
 kick-TR-3.II = CN two = CN horse = CN child-ATTR  
 ii'wxt an = t 'nii-wan-txw-diit.  
 men AX = 3.I on-sit-VAL-3PL.II  
 '[Two horses which [the boys]<sub>i</sub> rode] kicked them<sub>i</sub>.' (Davis  
 and Brown 2010)  
*Lit:* '[Two horses]<sub>i</sub> kicked the boys who rode them<sub>i</sub>.'

- b. Hlo'oxs = hl      gilbil = hl    gyoodan = hl    mahla-k'i'y = hl  
kick-TR-3.II = CN   two = CN   horse = CN   each-one = CN  
t'ihlxw-m   ii'wxt   an = t   'nii-wan-txw-diiit.  
child-ATTR   men   AX = 3.I   on-sit-VAL-3PL.II  
'[Two horses which [each of the boys]<sub>i</sub> rode] kicked  
them<sub>i</sub>.'      (Davis and Brown 2010)  
*Lit*: '[Two horses]<sub>i</sub> kicked each of the boys who rode  
them<sub>i</sub>.'

That is, in both of the quantificational test conditions, the quantifier *mahla k'i'y* 'each' always precedes *and* c-commands the variable *-diiit* '3PL'. Both examples involve binding of the subject (the horses) into a relative clause on the object. This is evident from the subject-centered relative clause, introduced with the ergative extraction marker *an*. This relative clause modifies the matrix object *t'ihlxwm ii'wxt* 'the boys'; the pronoun *-diiit* '3PL' within it indexes the object of *'niiwantxw* 'ride': the horses.

Given that there is no set of stimuli where precedence exists without c-command, Davis and Brown's (2010) conclusion does not hold. It remains unclear whether precedence is a sufficient condition for binding in Gitksan; we must return to Hunt's (1993) somewhat weaker claim that it is merely a necessary one.

There is also something interesting to note about Davis and Brown's (2010) results regarding the felicity of the sentences in context, given the actual structure of the Gitksan sentences. What differs between the two conditions is the nature of the pronoun's antecedent: the pronouns in (3) refer to the boys, while the pronouns in (4) refer to the horses. Both pairs were tested in the following two contexts:<sup>5</sup>

- (5) Three boys each rode the same three horses.  
a. *Context 1*: Each of the three horses kicks two boys. Each boy is kicked by two horses. (bound variable reading)

<sup>5</sup> Davis and Brown's (2010) actual task involved contexts presented via pictures.



- b. *Context 2*: Two of the three horses each kick two boys. Each of the boys is kicked at least once. (cumulative plural reading)

The non-quantificational stimuli—the (a) examples from above—were both found to be felicitous only under the cumulative plural reading in (5b), where a total of two horses did any kicking. The quantificational stimuli—the (b) examples from above—were both found to be felicitous only under the bound variable reading, where the three horses each kicked some of the boys.

This last fact is curious under the expected interpretation of (4b), repeated below:

- (6) Hlo'oxs = hl      gilbil = hl    gyoodan = hl    mahla-k'i'y = hl  
 kick-TR-3.II = CN    two = CN    horse = CN    each-one = CN  
 t'ihlxw-m    ii'wxt    an = t    'nii-wan-txw-diiit.  
 child-ATTR    men    AX = 3.I    on-sit-VAL-3PL.II  
*Lit*: '[Two horses]<sub>i</sub> kicked each of the boys who rode them<sub>i</sub>.'  
 (Davis and Brown 2010)

In no presented context did any horse kick *each* of the three boys that rode it; each horse kicked a maximum of two boys. The fact that (6) was judged as felicitous in the bound variable context where three horses each kick two of the three boys merits further investigation.

Ultimately, however, the original design of Davis and Brown's (2010) test is sound, and I suggest that the experiment be revisited with stimuli that diverge in the intended way between precedence-and-command versus strict precedence. Should the original claim of this work be supported by a revised test, the sufficiency of the precedence condition will be clearly substantiated, and its extension to quantificational binding confirmed.

### 3. Further areas of investigation

I have claimed that in both sets of argumentation in favor of the precedence condition on binding in Gitksan, some aspect of the data has cast doubt on the strength of the argument. For Hunt's (1993) data, though the trend favoring sentences where coreferent pronouns are preceded by their non-c-commanding antecedents is clear, I have suggested that similarities between Gitksan and English judgements in such cases merit a more robust look at the issue. For Davis and Brown's (2010) data, I have pointed out a confound in the original test sentences used to demonstrate the sufficiency of a precedence condition in binding.

Assuming that these issues can be investigated more robustly, this section presents some further questions and pieces of data which should be considered in an analysis of precedence in Gitksan binding. One interesting fact in light of the suggested precedence condition on binding in Gitksan is the availability of backwards discourse anaphora, as demonstrated in (7):

- (7) Gya'a=hl                    sim'oogit wilaa-yi-t,    ii  
see[-TR-3.II]=CN chief      know-TR-3.II and  
t'oyaxs-i=s            Mary=hl sim'oogit.  
greet-T-3.II=CN Mary=CN chief  
'Mary saw a chief she knew and greeted him.'  
*Lit:* '?She saw a chief she knew and Mary greeted the chief.'  
(Brown 2014:12)

Further documentation is needed to determine whether backwards pronominalization of this kind is possible only in contexts where the reference has some prior discourse salience, or also in entirely discourse-new contexts, as documented in Nuuchahnulth (Davis et al. 2007). However, it has been argued that Gitksan pronouns lack familiarity effects Brown (2014); Davis et al. (2007) suggest that it is this property which allows for discourse-initial backwards

reference in Nuuchah-nulth, in contrast to English.

Either way, the existence of backwards pronominalization in a single utterance raises some questions for the claim that precedence bears an increased role in Gitksan anaphoric binding, given that here the precedence condition is straightforwardly violated. This particular example does not bear strictly on binding, per se—rather, it merely demonstrates that obviation, or constraints on nominal coreference, cannot be linked to precedence in the same way suggested for binding. But a line of potential investigation is clear: given the existence of backwards pronominalization across clauses, and given that the evidence already presented regarding binding has been restricted to single clauses, we may ask about the status of binding across clause boundaries. Is backwards pronominalization possible only across conjoined clauses, or is it also possible in cases of embedding, where a c-command relation also holds, as in the following Nuuchanulth example?

- (8)     $\dot{\text{t}}$ aaqyičiči $\dot{\text{t}}$ ?iš                    hayumhīči?a $\dot{\text{t}}$   
           stand.up-PFV-PST-3.IND    forget-PFV-TEMP-3.ABS  
           waawī $\dot{\text{t}}$ asitii                    Mary.  
           say-ASP-PST-3.IREL    Mary  
       ‘\*She<sub>i</sub> stood up but she<sub>i</sub> had already forgotten what Mary<sub>i</sub> was  
       gonna say.’

(Davis et al. 2007:200)

We might also wonder what happens in Gitksan with respect to binding and coreference between other kinds of nominals outside of co-argument configurations, for example with binding relations across adjunct structures. Bruening (2014), based on Reinhart (1976), discusses the possibility of backwards reference structures in TP/IP adjuncts like the following. He additionally discusses an apparent asymmetry which seems to hold, leading to acceptability when an R-expression in the adjunct corefers with a preceding object pronominal, as in (9a,10a), but unacceptability with a preceding

subject pronominal, as in (9b,10b) (Reinhart 1976 as in Bruening 2014:350-1).

- (9) a. People worship him<sub>i</sub> in Kissinger<sub>i</sub>'s native country.  
b. \*He<sub>i</sub> was killed in Hoffa<sub>i</sub>'s hometown.
- (10) a. So many people wrote to him<sub>i</sub> that Brando<sub>i</sub> couldn't answer them all.  
b. \*She<sub>i</sub> was approached by so many people in Rome that Rosa<sub>i</sub> couldn't do any work.

The following example modeled after (10a) demonstrates that backwards reference of an R-expression to a pronominal object, or even to the same R-expression, is indeed possible, confirming that precedence cannot strictly control Condition C effects across clauses.<sup>6</sup>

- (11) Gal helt=hl gyat an=t di-dalk-t ii ap  
too many=CN people AX=3.I COM-talk-3.II and VER  
hlguxws ji=t lax'ni=s Henli he-diit.  
unable IRR=3.I hear-3.II=DN Henry word-3PL.II  
'So many people talked to him<sub>i</sub> that Henry<sub>i</sub> couldn't hear them all.' (BS)  
*Lit:* 'There were too many people who talked to him<sub>i</sub> and Henry<sub>i</sub> couldn't hear them.'

<sup>6</sup> The same example is also possible with two R-expressions:

- (i) Gal helt=hl gyat an=t di-dalk=s Henli ii ap hlguxws  
too many=CN people AX=3.I COM-talk-3.II=DN Henry and VER unable  
ji=t lax'ni=s Henli he-diit.  
IRR=3.I hear-3.II=DN Henry word-3PL.II  
'So many people talked to Henry<sub>i</sub> that Henry<sub>i</sub> couldn't hear them all.'  
*Lit:* 'There were too many people who talked to Henry<sub>i</sub> and Henry<sub>i</sub> couldn't hear them.'

However, the Gitksan structure utilizes conjoined clauses to convey this meaning, rather than an adjunct clause as in English; (11) is therefore not directly comparable to the cases above. Gitksan does have adjunct clauses, introduced by morphemes such as *wil/win*; exploration of both conjoined and adjoined clauses may prove insightful. If Gitksan truly does exhibit precedence-conditioned binding between co-arguments, but has a much weaker restriction with respect to backwards reference elsewhere, it would be interesting to determine which condition holds in the adjunct context. It would also be of interest to determine whether any asymmetry arises between subject versus object ‘antecedents’.

#### 4. Final thoughts

This paper has discussed the issue of binding and precedence in Gitksan, reviewing evidence previously forwarded regarding anaphoric and quantificational binding. In sum, I have suggested that Hunt’s (1993) original evidence merits additional replication and confirmation in clear pragmatically controlled conditions, to confirm whether it significantly differs from English judgements disfavoring precedence-backwards binding. I have also shown that Davis and Brown’s (2010) pilot experiment on the interpretation of quantificational binding structures fails to shed light on whether a precedence condition is sufficient to control binding. However, should the experiment be revisited with adjusted stimuli, it has the clear potential to confirm the issue one way or another.

I have raised additional questions about cross-clausal binding and coreference, based on the availability of backwards pronominalization in Gitksan, and pointed out some other areas of potential interest to the relation of precedence to binding and coreference in cross-clausal environments. While I have hoped to demonstrate in this paper that the sufficiency of the precedence condition on intra-clausal binding in Gitksan has not yet been clearly demonstrated in

the literature, the data is still suggestive, and places the language in a unique position to shed light on discussions about crosslinguistic variation in patterns of binding and coreference. Bruening (2014) presents a model of binding incorporating precedence, but which utilizes command between elements across phases, and precedence only between elements between them. Gitksan would seem to demonstrate nearly the opposite pattern.<sup>7</sup> Under this model, backwards pronominalization is not clearly accounted for. In their discussion of Nuu-chah-nulth, Davis et al. (2007) follow Schlenker (2005) in adopting a model which allows different conditions for binding/coreference in different domains: command is used within a sentence, and precedence is used across sentences. This can account for backward pronominalization, but conversely leaves sentence-internal precedence restrictions unexplained. Clearly, there is much work left to do so that we might: a) understand the precise restrictions on binding, precedence, and coreference in Gitksan, and b) incorporate these patterns into a crosslinguistically flexible theory of binding.

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<sup>7</sup> Though of course the precise location of phase boundaries in Gitksan is yet to be determined. On a speculative note, Bruening's (2014) claim that binding is conditioned by precedence in a single phase could potentially account for intraclausal precedence effects in Gitksan if the subject and object were members of the same phase, with the object appearing in a raised position – but only if complex DPs were not viewed as separate domains. This might be an interesting option to explore if we wish to prevent the parameterization of basic binding theory principles, but would require substantial supporting evidence from other areas.

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