Wh-agreement in Ojibwe relative clauses: evidence for CP structure

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Abstract

This paper showcases the wh-agreement phenomenon on T exhibited in Ojibwe (Algonquian). This wh-agreement is shown to surface not only in interrogatives, but also in relative clauses. We argue that this provides evidence that relative clauses in Ojibwe involve A-bar movement and project full CPs: they cannot be said to be simple nominalizations. We account for the realization of wh-agreement on T in Ojibwe via the mechanism of feature inheritance. We propose that while main clauses (called independent) are canonical in that C introduces φ-features in Ojibwe, the role of C in embedded contexts (marked by conjunct agreement on the verb) is to introduce δ-features (discourse features), such as [uwh], rather than φ-features. These δ-features are introduced by C in the conjunct but are transferred down to T where they spell-out as wh-agreement.

feature inheritance, relativization, wh-agreement, Algonquian, Ojibwe, successive cyclic movement, discourse features

1 Introduction

This paper provides direct evidence that relative clauses in Ojibwe\(^1\) involve A-bar movement and project full CPs (and are not simple nominalizations). We show that relative clauses in Ojibwe share with interrogatives the property of spelling out wh-agreement. In both cases, a wh-operator (null in the case of relative clauses) raises to Spec-CP. This movement is encoded in wh-agreement in each clause through which a wh-element has moved. While wh-agreement is usually found on complementizers (i.e. in C) or on the verb (i.e. little v), Ojibwe shows a new locus: it surfaces on T.

We account for the realization of wh-agreement on T in Ojibwe via the mechanism of feature inheritance. Feature inheritance has been proposed by Chomsky

\(^1\) Ojibwe encompasses varieties of the language called by different names in English, including Odawa, Ottawa, Chippewa or Ojibway. While the language is spoken over a vast region of central Canada and in U.S. border states from Michigan to Montana, the varieties of the language used in this study are those found in Valentine (2001a), i.e. dialects spoken in southern Ontario between the shores of Lake Huron to the east, roughly as far as the Ottawa River. Much of the original data used in this article are taken from fieldwork undertaken with members of The Chippewas of Nawash Unceded First Nation at Cape Croker (Neyaashiinigmiing) on the Bruce Peninsula. We wish to thank Philomene Chegahno, Berdina Johnston, Donald Keeshig, Joanne Keeshig, Isabel Millette, Juanta Pheasant, Ernestine Proulx and Ella Waukey for teaching us Ojibwe. Special thanks to Joanne Keeshig for introducing us to the members of the community and to Sheila Keeshig for introducing us to the teachers of the community’s Elementary School. Many thanks also to Shirley Williams (SW) from Trent University. Miigwech! Funding by SSHRC is gratefully acknowledged: #230424-120699-2001 and #230611-120699-2001.
(2005, 2008) and further developed by Richards (2007) for the satisfaction of uninterpretable φ-features (phi-features) on the phase head C. We propose that while main clauses (called independent) are canonical in that C introduces φ-features in Ojibwe, the role of C in embedded contexts (marked by conjunct agreement) is to introduce δ-features (discourse features), such as [uwh], rather than φ-features (see Aboh 2008 on the formal status of discourse features in other contexts). These δ-features are introduced by C in the conjunct but are transferred down to T where they spell-out as wh-agreement. Our account derives a basic difference in the morphology of the independent and conjunct orders found in Ojibwe: person proclitics appear in the independent order because C introduces φ-features and they are absent in the conjunct because C instead introduces δ-features. We review the analyses of Campana (1996) and Brittain (1997) who claim the orders are differentiated by movement of the verb to C and give counter evidence that the verb cannot move to C in Ojibwe.

The paper is organized as follows. Section 2 discusses wh-agreement, showing that Initial Change (the term used in the traditional literature) is in fact the realization of wh-agreement. Section 3 focuses on Ojibwe relative clauses, which we claim are similar to English relatives clauses in spelling out a whole CP together with cyclic wh-movement. Section 4 presents our analysis of the wh-agreement on T, appealing to feature inheritance of discourse features from C to T. Section 5 concludes the paper.

2 Loci of Wh-agreement
We begin by introducing the notion of wh-agreement, looking first at previously studied languages and second introducing the Ojibwe data showing its own realization of the phenomenon.

2.1 The phenomenon of Wh-agreement
Wh-agreement is a phenomenon found in many different languages, including French (Rizzi 1990), Scottish Gaelic (Adger 2003), Irish (McCloskey 1979), Chamorro (Chung 1994, 1998), Hausa (Tuller 1986), Kikuyu (Clements 1984) and Palauan (Georgopoulos 1991). In French and Scottish Gaelic special complementizers surface in the context of wh-movement showing wh-agreement in C (traditionally via Spec-Head agreement). To illustrate, the French complementizer que is used when there is no wh-movement in (1)a, whereas the wh-complementizer qui is used in (1)b when movement of the wh-phrase has taken place (traces t; show cyclic wh-movement of the wh-element).²

(1) a. Tu as dit que le livre était tombé. (French)
   you have said that the book had fallen
   ‘You said that the book had fallen.’

   b. Qu’est-ce que, tu as dit t; qui t; était tombé t;?
   what-is-this that you have said that AGR was fallen
   ‘What did you say had fallen?’

² All examples from Ojibwe unless specified otherwise. Abbreviations are as follows: PST=past, PRES=present, FUT=(volitional) future, OBV=obviative, DIR=direct, INV=inverse, wh.X=wh-agreement, conj=conjunct order, Indep=independent order, pl=plural, sg=singular, poss=possessive, subj=subject, obj=object, INCHO=inchoative, EMPH=emphatic, rel=relative.
Similarly in Scottish Gaelic, the regular complementizer *gu* in (2)a alternates with the wh-complementizer *a* in (2)b, which agrees with the moved wh-phrase *cò ‘who’. These special complementizers (*qui, a*) only appear in wh-movement clauses and are the spell-out of wh-agreement on C.

(2)  
(2)a. Tha *mi a’ smaoineachadh* *gu* bheil Iain air a mhìsg  
  am I *ASP thinking* that is Iain in his drink  
  ‘I think that Iain is drunk.’ (Scottish Gaelic)  
(2)b. Cò *thu a’ smaoineachadh* *a* *t* i *tha air a mhìsg?  
  who are you *ASP thinking* that *AGR* is on his drink  
  ‘Who do you think is drunk?’ (Adger 2003:362)

Chung (1994, 1998) shows that wh-agreement in Chamorro is realized on v, where the presence of a wh-element changes the verb form. For comparison, (3) is a simple declarative construction in Chamorro with the verb *fa’gasi ‘wash’* while wh-agreement is shown in (4). (4)a involves a nominative wh-word *hayi ‘who’* changing the verb form to *fuma’gasi*. In (4)b, wh-agreement is with the non-nominative wh-object *hafa ‘what’*. Wh-agreement with obliques is also possible (not shown here).

(3) Ha-fa’gasi si Juan i kareta.  
  wh-wash Juan the car  
  ‘Juan washed the car.’ (Chung 1998:236)

(4)  
(4)a. Hayi *fuma’gasi* *ti* i kareta?  
  who wh.NOM.wash the car  
  ‘Who washed the car?’ (Chung 1998:236)  
(4)b. Hafa *fina’gasé-nña si Henry *t* pāra hagu?  
  what wh.OBJ].wash.PROG-AGR Henry for you  
  ‘What is Henry washing for you?’ (Chung 1998:236)

The agreement exhibited in the Chamorro data is labeled wh-agreement rather than φ-agreement since the agreement is not direct agreement with the φ-features of the subject or object, but only with their Case specification. Similarly for French and Scottish Gaelic, no direct agreement with φ-features is involved but instead with the presence of a wh-element. In contrast, languages like Dutch (Haegeman 1992) and Lokaa (Baker 2008) have agreement on complementizers that involve φ-features.

It must be noted that Chung (1994, 1998) specifically argues against treating the wh-agreement facts in Chamorro as identical to the wh-agreement facts in French and Scottish Gaelic. For example, in Chamorro the effects of wh-agreement must only be manifested on the predicate in the lowest clause of the wh-construction, where French and Scottish Gaelic show wh-agreement in the highest clause and all intermediate positions. The situation is very different in French and Irish, since in these two languages wh-agreement must surface in the highest clause and in all intermediate positions.

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3 This is a different phenomenon that will not be discussed in the present paper. Suffice it to say that for some (Chomsky 2005), cases like Dutch are evidence that φ-features are introduced by C (rather than T) – but see Haegeman & Van Koppen (2010) for a different view.
Next we introduce the Ojibwe wh-agreement data, showing that although it is also triggered by a moved wh-element, it differs from French, Scottish Gaelic and Chamorro, since the agreement is realized on T.

2.2 Wh-Agreement in Ojibwe
The familiar loci for wh-agreement are C and v, but we show in this section that T is also a possible locus for wh-agreement. We argue that the phenomenon of Initial Change (described below) discussed in the traditional literature is in fact wh-agreement in Ojibwe (but not necessarily in other Algonquian languages), signalling the movement of wh-words through a clause.

Initial Change has been discussed for Algonquian languages by Rogers (1978), Lees (1979), Pagotto (1980), Johns (1980), Campana (1996), Brittain (1997) and Richards (2004). The direct connection between Initial Change and wh-movement has not been explicitly made or explored previously (with the possible exception of Blain 1999).4

First, Ojibwe is a wh-movement (not wh-in-situ) language where the fronting of a wh-element in a question is obligatory. This is illustrated in (5) and (6) where postverbal wenesh ‘who’ or wegonesh ‘what’ is disallowed.

(5) a. wenesh gaa-waabm-at
    who wh.pst-see-2conj
    ‘Who did you see?’

b. *gaa-waabmat wenesh    (Ella Waukey 16/12/08)

(6) a. wegonesh gaa-miin-ig
    what wh.pst-give-2conj
    ‘What did he/she give you?’

b. *gaa-miin-ig wegonesh    (Ella Waukey 16/12/08)

Second consider the tense marking in Ojibwe, which is the default target of initial change. Tense is marked by a prefix (sometimes labelled preverb) on the verbal complex taking the forms in (7) in clauses of the independent or simple conjunct order. These orders generally appear with normal declarative matrix or subordinate clauses respectively.

(7) Declarative Tense Prefixes

<table>
<thead>
<tr>
<th>Tense</th>
<th>Prefix</th>
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<tbody>
<tr>
<td>Present</td>
<td>@-</td>
</tr>
<tr>
<td>Past</td>
<td>gii-</td>
</tr>
<tr>
<td>Volitional Future</td>
<td>wii-</td>
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<tr>
<td>Future</td>
<td>ga-</td>
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4 Blain (1999) proposes that both wh-questions and relative clauses in Algonquian languages involve operator movement and that Initial Change functions to focus an argument or a “condition” on the clause: “From another perspective, Initial Change subordinates a clause to a constituent or to some condition of its context in the discourse. The link between this focusing process (i.e. Initial Change) and the linguistic notions of operator movement and the use of complementizers is an obvious one. In other words, it is the Initial Change process – whether in its synchronic use or as an historical process on some underlying morpheme – which is the source of the operator movement.” Blain (1999:2).
Initial Change occurs in the *changed conjunct*, which occurs with relative clauses, questions, focus constructions and past participle constructions, realized descriptively as a change in the quality of the initial vowel of the verb stem (see Bloomfield 1957). This is usually a change in the tense prefix, i.e. change from (7) to (8).

(8) Wh-Tense Prefixes (changed conjunct order)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Wh-Present</td>
<td>gaa-</td>
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<tr>
<td>Wh-Past</td>
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<tr>
<td>Wh-Volitional Future</td>
<td>waa-</td>
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<tr>
<td>Wh-Future</td>
<td>ge-</td>
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To show how Initial Change constitutes wh-agreement, we will focus on two pairs of tense prefixes, *gii/-gaa-* ‘past’ and *wii-/waa-* ‘volitional future’. Consider the alternations in the tense prefixes in the following examples.

(9) a. Mani *gii*-shishimik kwezhigaans-an
Mary PST-steal cookie-pl
‘Mary stole the cookies.

b. *wegenesh,* tī *gaa*-shishimik nen kwezhigaans-an?
who wh.PST-steal those cookie-pl
‘Who stole the cookies?’

We see in (9)a that a normal, declarative construction uses the past prefix *gii*-from the set in (7). When this construction is transformed into a wh-question as in (9)b, *gii*- undergoes Initial Change and the alternant *gaa-* ‘wh past’ appears. This alternation signals agreement with the moved wh-element, *wegenesh* ‘who’. We see that unlike French and Scottish Gaelic it is not a complementizer that alternates, or the verb stem as in Chamorro, but it is the tense prefix that is altered.

Looking at another tense, (10)a is a declarative future construction using *wii-* ‘volitional future’, which becomes the changed *waa-* in (10)b when the object is questioned.

(10) a. gekik bemzhej-ik *wii*-miigaaj-a wemtigozhii-n
those person-pl FUT-fight-OBV Frenchmen-OBV
‘Those people are going to fight those French people.’

b. aaniish, na gekik *waa*-miigaaj-ik tī?
who EMPH those wh.FUT-fight-INV
‘Who are they (those people) going to fight?’

This wh-agreement, realized as vowel quality change, is obligatory in wh-questions as shown in (11) where the use of an unchanged prefix is ungrammatical.

(11) a. *wenesh gaa-/*gii-waabm-aa-t* John-an?
who wh.PST-/*PST-see-DIR-OBV John-OBV

b. *anish pi gaa-/*gii-maajdit nimosh?*
when wh.PST-/*PST-start dog
‘When did the dog start?’
Conversely, if wh-agreement is added in a non-wh declarative environment, the sentence becomes ungrammatical. As shown in (12), only gii- is acceptable for marking past tense and gaa- is ungrammatical.

(12) maaba kwe gii-/gaa-waabm nen nine-n gii-/gaa-shishi-goang
that woman PST-/PST-see that man-OBV PST-/PST-steal-CONJ
nen kwezhigaans-an
those cookie-pl
‘That woman saw the man steal the cookies.’

This agreement marks every clause a wh-element has moved through. This is shown in long distance questions as in (13) and (14). (13)b questions the embedded object, moving wegenesh from the lower clause to Spec CP of the higher clause and marking wh-agreement on both verbs. Compare to the answer in (13)a that only has unchanged gii- ‘past’. In the same way, aniish ‘what’ in (14) moves from the lowest clause to the matrix clause triggering Initial Change on the past prefix, gaa-, of each verb. This pattern is found in French and Scottish Gaelic (but not Chamorro) and is well-known in many languages exhibiting wh-agreement, corresponding to successive cyclic wh-movement (see Haïk 1990).

(13) a. Mani gii-waabm-n [John giinona-d Peter-an]
Mary PST-see-TI John talk-OBV Peter-OBV
‘Mary saw John talking to Peter.’
b. wegeneshi Mani gaa-waabm-at [t_i John gaa-giinonad t_j]?
who Mary wh.PST-see-3CONJ John wh.PST-talk
‘Who did Mary see John talking to?’

(14) aniish,Bill gaa-eneendang [t_i John gaa-keda-t
what Bill wh.PST-think John wh.PST-say-3conj
[t_i Mary gaa-giishnedot t_j]]?
Mary wh.PST-buy
‘What does Bill think John said Mary bought?’ (Ella Waukey, May 6, 2008)

We have shown that Initial Change appears in the context of wh-movement in Ojibwe and is ungrammatical in simple declarative contexts. This agreement is obligatory in all clauses in or through which a wh-element has moved, marking the successive cyclic movement, which is also the case for some other languages (e.g. French). However, wh-agreement is spelled-out on T in Ojibwe rather than on a complementizer or little v, differentiating it from other wh-agreement languages.

The generalization that Initial Change is the realization of wh-agreement can be shown consistently among many Ojibwe dialects, including Southwestern Ojibwe, Northern Ojibwe and Nipissing. However, Initial Change does not have the same distribution or correlation in all dialects of Ojibwe or across Algonquian languages.

First, there appears to be a shift in the use of Initial Change in the Ottawa dialect as Costa (1996:42) reports: older speakers productively produce Initial Change but younger speakers have replaced the process with the prefixation of e- to the unchanged conjunct from. Thus, miinaad ‘he gives him’ becomes maanaad ‘what he gives him’ for
older speakers, but e-miinaad for younger speakers. Our analysis would consider the e-prefix to be another productive and systematic realization of the wh-agreement varying with more traditional Initial Change for other speakers.

Second, Rainy River Ojibwe does not rely only on Initial Change to mark wh-clauses but exhibits a wh-complementizer. Johns (1982) investigates the variation between Initial Change and a relative pronoun or complementizer prefix, kaa-, in Rainy River Ojibwe. This complementizer can be found in both questions and relative clauses, as in (15)a. Kaa- is not present in the Ojibwe discussed in previous sections, and is not the same as gaa- ‘wh-past’ since kaa- can cooccur with the plain past prefix gii- in Rainy River as in (15)b.

(15) a. inini kaa-nagam-ut kinoo-zí (Rainy River)
    man wh-sing-3 tall-VAI
    ‘The man who is singing is tall.’

b. n-gikenim-aa inini kaa-gii-hnagam-ut
   1-know-DIR man wh-PST-sing-3
   ‘I know the man who sang.’ (Johns 1982:161)

Third, looking to other Algonquian languages, Plains Cree (Blain 1997, 1999) uses the complementizers è- and kâ- instead of Initial Change in all tenses: present, past, and future. In Moose Cree, è- or Initial Change is used in the present, past and future, functioning like Ojibwe Initial Change.

In Blackfoot, the specifics of Initial Change are quite unlike Initial Change in any other Algonquian language (Costa 1996, Proulx 1995). As pointed out by Costa (1996:56), “This is not surprising, however, given the isolated and divergent nature of Blackfoot within Algonquian.” He argues that Initial Change is no longer a productive process in Blackfoot because: i) only a closed class of verb stems can take change; ii) for most verbs able to undergo Initial Change, it is usually optional); and iii) unlike all other Algonquian languages, Initial Change can occur on verbs in the independent order, not just the conjunct (however, see Blain 1999:8 for Plains Cree and for unexpected data where Initial Change is used with the independent mode).

The correlation between Initial Change and wh-agreement is robust in the Ojibwe dialects we have been discussing, but certain dialects and other Algonquian languages lend themselves to modified generalizations.

2.3 Section Summary
The phenomenon of wh-agreement has been studied in many different languages and is commonly realized on complementizers. But we see that wh-agreement within C is not the only possibility, as it appears on little v in Chamorro and now on T in Ojibwe, a previously unobserved possibility. The process of Initial Change in the traditional literature is actually the surface realization of wh-agreement in Ojibwe. The following section introduces relative clauses in Ojibwe, showing that these also exhibit Initial Change, which we claim is due to the movement of an operator in these constructions.

3 Relative clauses
As shown by Chomsky (1977), wh-questions, relative clauses and focus constructions form a natural syntactic class. Our proposal that Initial Change is in fact wh-agreement
in Ojibwe predicts that relative clauses and related constructions will exhibit wh-agreement on T. We show that this prediction is indeed borne out in the data.

As is well-known, relative clauses are similar to wh-questions because both involve the movement of an operator, whether it is a wh-phrase, relative pronoun or null operator. Illustrated in (16), the operator or wh-pronoun found in an English relative clause raises to Spec CP and the head noun is co-indexed with the wh-operator.

(16) a. [DP The [NP book] [Spec-CP Op i C that [TP I read t]]].
   b. [DP The [NP book] [Spec-CP which i C Ø [TP I read t]]].

Focus constructions, such as clefts in English, also involve a wh-pronoun or null operator movement like relative clauses. The focus constructions in (17) have operator and wh-pronoun movement like the relatives in (16), but differ because of the presence of the (contrastively) focused head noun ‘book’.

(17) a. It is [DP the [NP book] [Spec-CP Spec Op i C that [TP I read t]]].
   (not the magazine…)
   b. It is [DP the [NP book] [Spec-CP which i C Ø [TP I read t]]].
   (not the magazine…)

Turning now to Ojibwe relative clauses, we show that they consistently display wh-agreement on T, illustrated in (18) and (19). The relative clause is marked by the changed tense prefix (from the set in (8)) even though these constructions do not involve an overt wh-word or an embedded question.

(18) Miiwa nini [da-kweman gaa-bkinaagen’jin mbingoo.]
   ‘That’s the man whose wife won at bingo.’ (Valentine 2001:585)

(19) Miidash gii-zhitoowaad iw mshkik-waabo [waa-abjitoowaad.]
   ‘They made the liquid medicine which they were going to use.’
   (Valentine 2001:582)

As in English, an Ojibwe relative clause contains a (covert) wh-relative pronoun that moves to Spec CP of the subordinate clause and triggers Initial Change realized on the tense prefix. The situation is the same in French where wh-agreement appears not only in wh-environments (1), but also in the context of relative clauses, as seen in (20).

(20) a. Le livre que j’ai lu.
   ‘The books that I have read.’

b. Le livre qui est tombé par terre.
   ‘The book that fell on the floor.’

In Ojibwe, participles or reduced relatives, also show wh-agreement, seen in (21). Traditionally these participles are considered to have nominal properties since they
can replace nouns in the discourse, like *peemaatisit* ‘he who lives’ commonly translated as ‘person’. However, they are derived in the verbal domain with verbal morphology and argument structure, seen in tense and person agreement (see Valentine 2001:138).

(21) a. **gaa-miinaas-wangd-waa-nin**  
wh.PST-give-neglect-3pl-1/2pl  
‘What we evidently neglected to give to them’  
b. **gaa-waabam-ag-ig**  
wh.PST-see-1conj-3pl  
‘those whom I saw’ (Rogers 1978:173)

Rhodes (1998) argues that while Ojibwe wh-questions are found with Initial Change and conjunct morphology, relative clauses generally use a participle form of the verb alongside Initial Change as in (22). Rhodes (1998) cites the appearance of the sequence –*jig*, the combination of –*j* ‘3 animate’ and –*ig* ‘3 plural’, as evidence of nominal morphology in participles, seen in (23).

(22) *Wenesh gaa-daapn-an-g n-mookmaan-ens*  
who wh.pst-pick.up-1conj-3conj 1-knife-dim  
‘Who picked up my pen knife?’

(23) *w-gii-nokaazn-aa-waa bem-bahgo-jig*  
3-pst-use-DIR-3pl wh.along-ride-pl.PART  
‘Riders used them.’ [those-who-ride-(horseback)]

However, Valentine (2001) points out that wh-questions can also be found with participle morphology (24), and relative clauses can be found with only conjunct endings (25).

(24) a. **wenen ge-wawiidgemaa-jin**  
who-OBV wh.FUT-marry.TA-pl.PART  
‘Who is he going to marry?’ (Valentine 2001: 980)  
b. **wanesh niw ge-nwaabndan-gin**  
what those wh.look.at.TI-pl.PART  
‘What things is he looking at?’ (Valentine 2001:981)

(25) a. **gaa-bi-waabm-aa-d**  
wh.PST-along-see-3>3’-3conj  
["I only spoke to him for a short while” said the other officer,) who had come to see him.’ Valentine (2001: 589)  
b. **Niin aw gaa-waabm-aa-d waawaashkeshw-an**  
I that wh.PST-see-3>3’-3conj deer-OBV  
‘I am the one who saw the deer.’ Valentine (2001: 590)

There is little evidence that this –*jig* ending is exclusive to nominal forms or that participles are somehow functionally nominal since they take the full structure of the verb and the template for verbal morphology. It might be less controversial to assume –*jig* relates to a kind of “participle” marking rather than directly to a nominal
form. The variation between conjunct or participle forms does not signal a structural difference in the clausehood of wh-questions and relative clauses, nor does it indicate that either is underlyingly nominal. This means that relative clauses in Ojibwe do not lack clausal structure or take a nominal form. Rather, they project a full CP and contain a wh-pronoun or null operator that moves to Spec CP – wh-agreement on T is an overt reflex of that movement.

Finally, it is predicted that Ojibwe focus constructions in their shared structure with relative clauses and use of operators should also show wh-agreement on T. This is exactly what we find. Rogers (1978) provides many examples with focused elements that trigger wh-agreement, and a few are given in (26). We assume along standard lines that a null operator is present in Spec CP.

(26) a. niizhwaak dso-b boon gaa-ko-zhiweebak maanda
two hundred years wh.pst-formerly-happen this
‘It was two hundred years ago that this happened.’ (Rogers 1978:170)
b. mii dash gaa-nji-wijeeyaaawad.
and then wh.pst-reason-stay.with
‘And that’s the reason he stayed with her.’ (Rogers 1978:171)
c. Mii dash maa gaa-nji-goo-gii-d gii-nakzhiwe-d widi yaani-d.
and then there wh.pst-dive-3conj pst-swim-3conj over.there be-3
‘It is from there that he dived and swam over to where they were.’
(Valentine 2001:945)

French shows the same connection between interrogatives and focus as Ojibwe. Subject cleft constructions trigger the use of the wh-complementizer qui in (27)b, unlike object clefts which show the plain que complementizer in (27)a.

(27) a. C’est le livre que j’ai acheté.
it-is the book that I-have bought
‘It is the book that I bought.’
b. C’est le livre qui est tombé par terre.
it-is the book that AGR is fallen on floor
‘It is the book that fell on the floor.’

To summarize, we have argued that Initial Change is actually wh-agreement, appearing in clauses where wh-movement has occurred. All clauses through and in which wh-movement has occurred are obligatorily marked by wh-agreement, and any clause without wh-movement may not have wh-agreement. Wh-agreement appears not only in wh-interrogatives, but also in other constructions associated with wh-movement, such as relative clauses, participles and focus constructions. Relatives and participles are not reduced structures (e.g. nominals), as has been suggested, but are derived from a clause with a verbal domain and they include a CP level.

The next section presents our analysis of wh-agreement in Ojibwe, specifically accounting for why this agreement appears on the category T, a property not shared with other wh-agreement languages.

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5 Valentine reports that variation between participle and conjunct occurs in relative clauses within individual speakers, therefore as pointed out by Johns (2008) we can assume it is not dialectal.
4 Wh-agreement as feature inheritance

In this section, we draw on the operation of Feature Inheritance (Chomsky 2005, 2008) proposed for φ-features on C, checked by the subject, and extend it to discourse-type features, such as wh-features. As established in the previous sections, wh-agreement as Initial Change in Ojibwe only surfaces when wh-movement has occurred in a clause. Assuming, as the standard theory maintains, that the landing site for wh-movement is the specifier of CP (i.e. not Spec TP), then the agreement features that surface on T in Ojibwe must depend on C, the locus of wh-movement. It is our proposal that the wh-agreement features reach T via inheritance from C.

4.1 Feature inheritance

Feature inheritance of φ-features has been independently argued for by Chomsky (2005, 2008) who posits that T does not have its own Agree ([uφ]) features and cannot act as a probe for the subject goal on its own. According to Chomsky, T inherits its [uφ] features from C, as in (28)a, so that it is C that ultimately initiates the Agree relation that values the subject’s interpretable φ-features and triggers subject movement. Subjects land in Spec TP, and not Spec CP, since C’s Agree/φ-features have been passed on to T, and φ-agreement with the subject can also spell-out via T (e.g. ‘He walks.’)

Feature inheritance gives an elegant account of infinitives, which are considered defective in lacking φ-agreement, since infinitive TPs are not dominated by a CP and therefore do no inherit any φ-features, as shown in (28)b. Agreement with a subject is impossible in an infinitive even though T is still present because C is the introducer of these φ-features. The feature inheritance view of infinitives improves on the previous stipulation that non-tensed clauses have defective T while tense clauses have non-defective T (Chomsky 2000, 2001).

(28) a. Finite clause

```
      CP
       ↓
      C'
       ↓
      C''
       ↓
      TP
      ↓
      T'
       ↓
      T''
       ↓
      φ-features
```

b. Infinitive clause

```
       TP
      ↓
      T'
       ↓
      T''
       ↓
      ...
```

A question that arises is why these features must be inherited down to T instead of remaining on C. Chomsky mentions that the presence of [uφ] features might be what marks the end of phase, a notion formalized by Richards (2007). The Phase Impenetrability Condition (Chomsky 2001) indicates that a phase head, like C, spells-out its complement making it inaccessible to further syntactic operations, but the head is still visible. Richards (2007) proposes that C must transfer its φ-features to T so that these uninterpretable features can be valued and deleted at the same instant, that is, the instant of spell-out for the complement of C. This renders the uninterpretable features originating on C invisible to further derivation.

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6 There are no infinitives in Ojibwe (Rogers 1978), so there is no defective/non-defective T contrast to be accounted for.
Next we propose that $\varphi$-features are not the only type of feature able to undergo inheritance from C, but other kinds of discourse features can mark the phase edge of certain types of clauses.

4.2 $\delta$-features

Feature inheritance as per Chomsky (2008) is the basis of our account of wh-agreement on T in Ojibwe. Feature inheritance is considered to involve $\varphi$-features, but we propose that a language may allow discourse or $\delta$-features on C to play the same role (e.g. to mark a phase edge). $\delta$-features are those pertaining to discourse, such as wh-, focus and topic, all related to A-bar movement.

We argue that there are two types of C in Ojibwe: one which introduces $\varphi$-features, found in the independent order (29)a (related to main clauses and non-wh-sentences) and one that introduces $\delta$-features, found in the conjunct order (29)b (embedded clauses and wh- or focus/topic clauses).

(29)  

\begin{itemize}
  \item[a.] Independent order
  \begin{itemize}
    \item CP
    \item C
    \item TP
    \item T
    \item $\varphi$-features
  \end{itemize}

\begin{itemize}
  \item Conjunct order
  \begin{itemize}
    \item CP
    \item C
    \item TP
    \item T
    \item $\delta$-features
  \end{itemize}
\end{itemize}

The different types of features on C, whether $\varphi$- or $\delta$-features, can be seen in the morphology of the verb complex. For instance, the independent order uses person proclitics agreeing with a clausal argument (30)a, which are never found in the conjunct (simple or changed) (30)b. We attribute this difference between orders to the presence or absence of $\varphi$-features on C.

(30)  

\begin{itemize}
  \item[a.] n-waabm-aa  
    1-see-dir
    ‘I see her/him.’

  \item[b.] waabm-ag  
    see-1conj
    ‘(if) I see her/him.’ (Valentine 2001:279)
\end{itemize}

Since conjunct clauses lack $\varphi$-features on C, we suggest that $\varphi$ is introduced on $v$ in the conjunct (see Alexiadou 2001 and Boeckx 2001 for the idea that $v$ can in some cases be responsible for Nominative assignment). The $\varphi$-features encoded by the person proclitic in the independent order, i.e. n- ‘1st person’ in (30)a, are instead realized by the verbal suffixes in the conjunct order, i.e. –ag ‘1st person (conjunct)’ in (30)b.

We propose that wh-operators raise to the specifier of CP, as is standardly assumed for wh-movement, and the C triggering this movement bears $\delta$-features. These $\delta$-features are inherited down to T (illustrated in (29)b) where they are spelled-out as Initial Change on the tense prefix, signalling wh-agreement. It remains true that C is the centre of wh-movement and the original bearer of $\varphi$-features, however it is T that ends
up with these features when the derivation is sent to the PF interface, therefore showing overt agreement around T.

As discussed in the previous subsection, Richards (2007) argues that \(\phi\)-features are passed down to T from C so that they are valued and deleted at the same moment and become unavailable for further derivation. We propose that this is the same situation for the inheritance of \(\delta\)-features: once the CP phase spells-out, namely its complement, the \(\delta\)-features can no longer be accessible to the syntactic derivation. In Ojibwe, this mechanism ensures that a matrix tense marker is not inflected for wh-agreement in the context of an embedded question. For example, only (31)a is possible while (31)b is ungrammatical.

(31) a. Mii dash gii-zhitoowaad iw mshkik-waaboo [ waa-aabjitooaad.] and then PST-make that medicine-liquid wh.FUT-use
   ‘They made the liquid medicine which they were going to use.’ (Valentine 2001:582)

b. *Mii dash gaa-zhitoowaad iw mshkik-waaboo [waa-aabjitooaad.]

The core of our proposal is that the featural content of C differs in Ojibwe based on clause type (independent or conjunct), where \(\delta\)-features or \(\phi\)-features can be present on C. As per Chomsky (2005, 2008) and Richards (2007) these uninterpretable features on C must be inherited down to T because C is a phase head, and this inheritance allows those features to be spelled-out on the phonological exponent of T.\(^7\) Wh-movement correlates with changed conjunct clauses, where C bears wh-discourse features that are transferred down to T and spelled-out as Initial Change which is the phonological realization of wh-agreement in Ojibwe.

Our proposal is superior to previous accounts. Campana (1996) and Brittain (1997, 2001) propose that the difference between the independent and conjunct orders in various Algonquian languages is due to movement of the verb to C in the conjunct (but not in the independent). The purpose of this movement is to account for the fact that there are proclitics in the independent, but not the conjunct (see (30)), indicating person proclitics and the conjunct paradigm are in complementary distribution. Assuming proclitics appear in C, movement of a conjunct verb to C blocks their spell-out.\(^8\)

However, certain data indicates that the verb does not raise to C in conjunct clauses across many Algonquian languages. For example, Bruening (2001:48-49) shows that negation and unmarked (i.e. non-left-dislocated) NPs in Passamaquoddy can appear between wh-phrases and the verb, predicted to be impossible by Campana (1996) and Brittain (1997) if the wh-phrase is in Spec CP and the verb in C. Ojibwe shows the same situation: (32) (repeated from (13)b) allows the unmarked Mani ‘Mary’ between wegenesh ‘who’ and the verbal complex, and the adverb gichi-weiib ‘very quickly’ in (33) intervenes between wegenesh ‘why’ and the verbal complex.\(^9\)

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\(^7\) Embedded C in Ojibwe is a phase head for \(\delta\)-features, but not for \(\phi\)-features obviously, since these are never introduced by embedded C.

\(^8\) See also Halle and Marantz (1993), where it is argued that Initial Change and the proclitics both appear in C, in complementary distribution.

\(^9\) Although word order is relatively free, Ojibwe is a configurational language (see Bruening 2001 for Passamaquoddy) where different word orders can affect aspects such as definiteness and quantifier restriction, and wh-movement is obligatory.
(32) wegenesh, Mani gaa-waabm-a-t [t, John gaa-giinon-a-d t,]? who Mary wh.pst-see-3>3'-3conj John wh.pst-talk-3>3'-3conj ‘Who did Mary see John talking to?’

(33) wegenesh naa gichi-weetiib gaa-anionji-maajaa-waa-d? why EMPH very-quickly wh.pst-away.from-leave-3pl-3conj ‘Why have they all left in such a great hurry?’

Also, wh-agreement in Ojibwe, indicating the presence of a wh-operator in Spec CP, surfaces in environments where no T-to-C movement is attested cross-linguistically (see Richards 2004). These environments include: i) relative clauses, (18) and (19); ii) focus constructions (26); and iii) embedded wh-questions (34).

(34) gaa n-gikendam-sii [(wegenesh), t, gaa-shishimikowang nen kwezhigaans-an], no 1-know-NEG [(who) wh.pst-steal.conj those cookie-pl ‘I don’t know who stole the cookies.’

The only clear motivation for V-to-C movement in Ojibwe is to attempt to account for the absence of the person proclitic in the conjunct order. Our account is superior because we do not rely on verb movement to C to distinguish independent from conjunct clauses and to distinguish between the presence and the absence of proclitics.

4.2 Simple conjunct
We are proposing an important difference between the independent and conjunct order due to the featural content of C. While the independent order fits into the original view of C bearing φ-features, realized in the person proclitic, we claim that the conjunct order instead involves δ-features on C. We need, however, to account for the simple conjunct. The simple conjunct is the case where wh-agreement does not surface. The schematics in (29) nevertheless group the simple conjunct with the changed conjunct, since they both lack a person proclitic and since they share the same system of suffixal agreement. We propose that both types of the conjunct involve a C head bearing δ-features (rather than φ). However, the simple conjunct bears a different δ-feature than the wh-features associated with the changed conjunct.

We propose that simple conjunct clauses have a special discourse function of topic, unique from wh. The conjunct order is usually described as the paradigm used in subordinate clauses, always seen in relative or embedded clauses. However, not all conjunct clauses are syntactically embedded but seem to appear as matrix clauses like in (35). We propose that in this case we are dealing with a topic construction.


The use of the conjunct here signals the embedding of a clause in a more general way: through the discourse (rather than syntactically). When (35) is seen in the context
of the larger discourse in (36), it becomes clear that there is a correlation between conjunct and topichood: ‘So I took off’ is not subordinated by a matrix clause but appears in the simple conjunct because it depends on the context set up by the previous discourse. However, unlike wh- and focus, topic does not trigger wh-agreement (this appears to be universal; for example, topicalization in English or left dislocation in Romance do not surface with wh-agreement although they are, like interrogatives, cases of A'-movement or A'-dependencies). This is why no Initial Change surfaces in (36).

(36)  “Aanii-sh iidig ezhwebak?” ndinendam. Mii-sh ge go mkwendaamaan
      jiibaatgoogizhgad. “Ndaangshenh nga-oo- mbwaachaa,” ndinendam Gii-
      maajjiidaaabaa’n’goyaanh.
     ‘So I wonder what’s going on. But then I remember that it’s Friday. So I say to
     myself, “I’ll just go visit my cousin.” So I took off.’
     (Chippewa-Ottawa texts, Francis X. Fox and Nora Soney with Richard Rhodes,
     in Nichols 1988:43-44)

The idea that (simple) conjunct clauses involve topicalization is consistent with a recent proposal made by Cook (2008) who argues that there are two kinds of clauses in Plains Cree: indexical clauses, which are evaluated with respect to the speech situation (independent order); and anaphoric clauses, which are evaluated with respect to a contextually-given (anaphoric) situation (conjunct order). However, there seems to be a difference between Plains Cree and Ojibwe where only embedded clauses with the changed conjunct can appear as matrix clauses in Plains Cree, while in Ojibwe, no such restriction applies. Matrix sentences can either be in the independent or the conjunct order, whether the latter is changed or simple. There are many examples of matrix clauses in the simple conjunct in the text collected in Nichols (1988).

4.3 Phonological realization of Initial Change
A final complication of Initial Change is that it does not categorically appear on the tense prefix itself since clauses in the present tense can lack a prefix. Without a prefix, Initial Change can alter the quality of the first vowel of the verbal stem (37)a, an adverbial preverb (37)b, or on the initial morpheme of a complex verb stem (37)c.

(37)  a. Aaniish jaa baikweet  
      why cooking
     ‘Why is he cooking?’

b. Aaniish geechi-jibaakweet?  
   why big-cooking
     ‘Why is he cooking the big breakfast?’

c. Aaniish eeni + nji wee bi gichi jibaakweet odi?  
   why INCHO rel.root still big cooking there
     ‘Why is he still developing into a big cook-off over there?’ (Howell 2008)

These facts fit with our analysis of discourse feature inheritance from C to T, resulting in wh-agreement as Initial Change. When there is an overt tense prefix, Initial Change is realized on it and variation only appears when the phonological exponent of T is phonologically null, as in the present tense. We propose that the spell-out of wh-agreement is a phonological feature relating to vowel quality, call it [change], that is
unassociated to a phonological segment. This kind of feature is not unusual in autosegmental phonology, like with tone, which can be spelled-out without being lexically attached to a phonological segment. In the phonological component, the unassociated feature must associate with an appropriate host or segment that is closest to it in some sense. For the [change] feature in Ojibwe, it associates with the closest vowel on its right. The spell-out of Initial Change is schematized in (38), with change directly attaching to an overt tense prefix in a, or failing that, the leftmost vowel in the verb complex in b.

\[ \text{(38) Morpho-phonological feature association at spell-out} \]

\[ \text{a. Feature inheritance} \quad \text{Spell-out/feature association (cf. (37)a)} \]

\[
\begin{align*}
\text{C} & \quad \text{T} \\
[\delta\text{-wh}] & \quad [\text{past}] \\
\mathbin{\rightarrow} & \quad \mathbin{\rightarrow}
\end{align*}
\]

\[ /\text{gii-}/ \quad \rightarrow [\text{gaa-}] \]

\[ \text{[change]} \]

\[ \text{b. Feature inheritance} \quad \text{Spell-out/feature association (cf. (37)b)} \]

\[
\begin{align*}
\text{C} & \quad \text{T} \\
[\delta\text{-wh}] & \quad [\text{pres}] \quad [\text{BIG}] \\
\mathbin{\rightarrow} & \quad \mathbin{\rightarrow}
\end{align*}
\]

\[ /\text{gichi}/ \quad /\text{gichi}/ \quad \rightarrow[\text{geechi}] \]

\[ \text{[change]} \]

It must be noted that we need C to T feature inheritance to account for wh-agreement in Ojibwe and that this phenomenon cannot be fully accounted for by morpho-phonological feature association. It cannot be the case that the wh-features remain on C and spell-out on C as [change] to then associate with the tense morpheme on its right because phrasal elements intervening between T and C do not receive Initial Change, seen in (39) and (40). Therefore, Initial Change cannot simply be a phonological process but must involve the formal \( \delta \)-features moving from C to the dominated T head.

\[ \text{(39) wegeneshi Mani/*Meni gaa-waabm-aa-t} \quad [t_j \text{John gaa-giinon-ad t_j}]? \]

\[ \text{who Mary wh.pst-see-3>3'}-3\text{conj John wh.pst-talk-3conj} \]

‘Who did Mary see John talking to?’

\[ \text{(40) Wegonesh naa/*nyaa gichi-weiib gaa-anionji-maajaawaa-d?} \]

\[ \text{why EMPH big-quickly wh.pst-away.from-leave-3pl} \]

‘Why have they all left in such a great hurry?’

(Adapted from Bloomfield & Nichols 1991:78)

Initial Change only appears on T, or in its absence, elements to the right of T, not simply to the right of C.

4.4 Section summary

We have proposed that wh-agreement on T in Ojibwe is accounted for by the presence of discourse features on conjunct C that must be inherited down to T. This proposal accounts for why wh-agreement does not show up directly on C, even though it is the locus of wh-movement, without proposing modifications to the standard view of wh-constructions. We showed that C can bear uninterpretable discourse features in the simple conjunct, which lacks wh-operators, since these clauses are topic-like and dependent on the discourse. Finally, we showed that the feature inheritance account
includes the data where wh-agreement appears on the verb stem or attached preverbs in the absence of an overt tense prefix by appealing to the rightward association of unassociated phonological features.

5 Conclusion
In this paper we have argued that the phenomenon labelled Initial Change in Ojibwe is in fact the realization of wh-agreement on T. The locus of this agreement is actually C, but appears on T because of the process of feature inheritance, following Chomsky (2008) for φ-agreement. This wh-agreement shows up not only in wh-questions but also in other constructions involving operator movement, like in relative clauses for example. The presence of operator movement in relative clauses is made obvious by the obligatory wh-agreement in these constructions and reveals their full CP structure.

Further research is necessary to determine how wide the usage of discourse features on C, in place of φ, might be in other languages and varying clause types. At this point we assume that there is a parametric difference between Ojibwe and a language that does not show wh-agreement, particularly on T.

References