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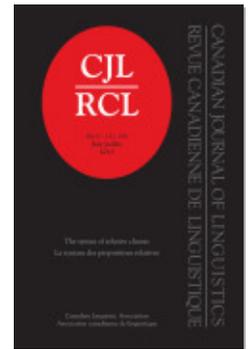
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# *Wh-agreement in Ojibwe relative clauses: Evidence for CP Structure*

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## 1. INTRODUCTION

This article investigates relative clauses in Ojibwe,<sup>1</sup> providing evidence that they are full CP constructions (not simple nominalizations) and involve A'-movement of a relative pronoun. We show that relative clauses in Ojibwe spell out *wh*-agreement also found in interrogative constructions and that in both cases a *wh*-operator (null in the case of relative clauses) raises to Spec, CP. This movement triggers *wh*-agreement in each clause through which the *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 (2005, 2008) and further developed by M. Richards (2007) for the satisfaction of

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<sup>1</sup>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 (2001), i.e., dialects spoken in southern Ontario between the shores of Lake Huron to the east, roughly as far as the Ottawa River.

uninterpretable  $\varphi$ -features (phi-features) on the phase head C. We propose that while main clauses (called *independent*; see (1a)) are canonical in that C introduces  $\varphi$ -features in Ojibwe, the role of C in embedded contexts (marked by *conjunct* agreement; see (1b)) is to introduce  $\delta$ -features (discourse features), such as [uwh], rather than  $\varphi$ -features (see Aboh 2010 on the formal status of discourse features in other contexts). These  $\delta$ -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  $\varphi$ -features, and they are absent in the conjunct because C instead introduces  $\delta$ -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 we give counter-evidence showing that the verb cannot move to C in Ojibwe.

Much of the following discussion refers to the different inflectional systems a verbal complex can appear in, known as *verbal orders*. First, there is the *independent order* found in declarative matrix clauses, which uses a *person proclitic* and a particular set of agreement suffixes, illustrated in (1a). Second, there is the *conjunct order*, usually found in subordinate clauses,<sup>2</sup> which does not have person proclitics and uses a different set of agreement suffixes, illustrated in (1b).<sup>3</sup>

(1) a. *Independent order*:<sup>4</sup>

ggii-waabmin.  
g-gii-waabm-in  
2-PAST-see-1>2  
'I see you (SG).'

<sup>2</sup>As will be discussed below, the conjunct is not limited to subordinate contexts in Ojibwe. For example, matrix interrogatives occur in the *changed conjunct*, and other conjunct matrix clauses can occur within a discourse context.

<sup>3</sup>All examples are from Ojibwe unless specified otherwise. Abbreviations are as follows:

AGR	agreement	NOM	nominative	SG	singular
ASP	aspect	OBJ	object	SUBJ	subject
CONJ	conjunct order	OBV	obviative	VAI	animate intransitive verb
DUB	dubitative	PART	participle	VTA	transitive animate verb
EMPH	emphatic	PAST	past	VTI	transitive inanimate verb
FUT	(volitional) future	PL	plural	wh.X	wh-agreement
INAN	inanimate	POSS	possessive	1	first person
INCHO	inchoative	PRES	present	2	second person
INDEP	independent order	PROG	progressive	3'	obviative
LOC	locative	REL	relative	3	third person

Our examples present both the surface phonological form in the first line, and the morphological breakdown in the second line.

<sup>4</sup>Ojibwe verbal theme-sign suffixes (Bloomfield 1957, Valentine 2001) are glossed according to the person features of the arguments they correspond to as "subject>object", for example "1>2" for a 1st person subject and 2nd person object (full discussion of Ojibwe theme-signs in Lochbihler 2012).

- b. *Conjunct order*:  
 gii-waabminaanh.  
 gii-waabm-in-aanh  
 PAST-see-2OBJ-1  
 ‘I see you (SG).’

We focus in particular on the *changed conjunct*, illustrated in (2), which uses the same set of agreement suffixes as the plain conjunct in (1b) but exhibits a shift in vowel quality, called *initial change*, at the left edge of the verbal complex. The changed conjunct can be found in certain matrix or subordinate clauses, and in fact we will argue it appears in clauses in which a *wh*-element has moved.

- (2) *Changed conjunct order*:  
 gaa-waabmaat?  
 gaa-waabm-aa-t  
 wh.PAST-see-3>3’-3  
 ‘Who did s/he see?’

The article is organized as follows. Section 2 introduces the form of relative clauses in Ojibwe, looking at the particular morphology used. Section 3 discusses *wh*-agreement, arguing that the phenomenon of *initial change* is the realization of *wh*-agreement in Ojibwe. This agreement is obligatory in *wh*-questions as well as in Ojibwe relative clauses since they involve the *wh*-movement of a relative pronoun or operator. 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 article.

## 2. OJIBWE RELATIVE CLAUSES

This section discusses the morphosyntactic structure of relative clauses in Ojibwe, which show some unique morphological marking. Relative clauses in this language have been traditionally labelled *participles* (Bloomfield 1957), and described as verbal forms that fill a nominal role. These verbal complexes are always in the conjunct bearing *initial change* (i.e., change of the first vowel in the verb), they have a participle *i* marker, and they show third-person suffixal agreement that is not associated with other conjunct forms (Rhodes 1998). It is important to note at this point that the traditional label *participle* in Ojibwe does not denote “participles” in the more widely used sense; namely, the constructions under discussion are not non-finite verb forms replacing nouns. Henceforth, *participle* is used in the Algonquianist sense denoting the verbal forms that, descriptively, modify nouns, and that we claim are in fact relative clauses (i.e., CPs). Section 3.3 further discusses relative clause structure as showing *wh*-agreement and involving operator movement.

Consider the relative clauses in brackets in (3) and (4), which modify nominals in the matrix clause; for example, *eendnizyaan* ‘where I live’ modifies *iw mnjikan* ‘that fence’ in (3). Relative clauses are in the changed conjunct order (introduced in (2)), using the conjunct system of inflection, lacking person proclitics, and exhibiting *initial change* on the initial vowel of the verb stem (initial change is glossed as

‘wh.X’, discussed further in Section 3). Relative clauses further mark the verb as a participle by the *i* suffix,<sup>5</sup> seen in the embedded clauses of (3) and (4).<sup>6</sup>

- (3) Miinwaa dash ngii-nnaahtoon iw mnjikan [**eendnizyaan**].  
 miinwaa dash n-gii-nnaaht-oo-n iw mnjikan eendniz-yaan-i  
 again then 1-PAST-fix-VTI-INAN that fence wh.live-1-PART  
 ‘I fixed up the fence where I live again.’ (Kathol and Rhodes 1999:76)
- (4) Kina dash gii-goojgaazwag giw [**gaa-nsaa**jig niw dkonwewninwan].  
 kina dash gii-goojgaazw-ag giw gaa-nsaa-d-i-ag niw dkonwewninw-an  
 all then PAST-hang.VAI-3PL those wh.PAST-kill-3-PART-3PL policeman-PL  
 (Valentine 2001:580)

The participle *i* appears at the right edge of the conjunct verb stem, outside all suffixes found in the plain conjunct, such as person and number agreement. The data in (5) show suffixal agreement (underlined) for first- and second-person and plural markers, posited to be inside the *i* ‘participle’ marker (see Valentine 2001; see also fn. 5).

- (5) a. deebeminaang  
 deebemmin-i-aan-g-i  
 wh.possess-1OBJ-1PL-2PART  
 ‘you who own us’
- b. beezndaageeyeeeg  
 beezndaagee-y-eeeg-i  
 wh.listen-2-2PL-PART  
 ‘you (PL) who are listening’ (Valentine 2001:579, 530)

Interestingly, relative clauses with participle verb forms exhibit certain third-person agreement to the right of the *i* suffix that is not found in other conjunct clauses, instead using forms associated with independent and nominal constructions. These suffixes outside the core conjunct stem (**bold** in (6)–(7)) agree with the relative pronoun — that is, the argument in the relative clause with the same referent as the head of the relative clause. The relative pronoun is translated as ‘who’, ‘what’, or ‘which’, although it is not overtly realized as an independent noun phrase, and it is always third person. For example, *ag* ‘3 plural’ in (6b) agrees with the relative pronoun translated as ‘they who’, and is not the plain conjunct 3 plural agreement *waa*, seen in (8) agreeing with the subordinate subject ‘they (prox)’. Similarly in (7) the suffix

<sup>5</sup>When it appears word-finally, the suffix *i* ‘participle’ can be phonologically deleted, as in (3), by a process of Apocope, or Final Lax Vowel Deletion (Kaye and Piggott 1973). It is clear that this morpheme is in this position when a suffix is added after *i*, such as a plural *ag* ‘3 plural’ seen in (4), which blocks Final Lax Vowel Deletion since the vowel is no longer word-final.

<sup>6</sup>Valentine (2001:589–591) claims some speakers show variation in the use of participle forms for relative clauses. However, his examples actually show missing *i* ‘participle’ due to Final Lax Vowel Deletion (fn. 5), and the appearance of agreement suffixes consistently corresponding to the form of the relative pronoun (discussed for (6)–(8)). The forms are correctly predicted by our view of relative clause morphology.

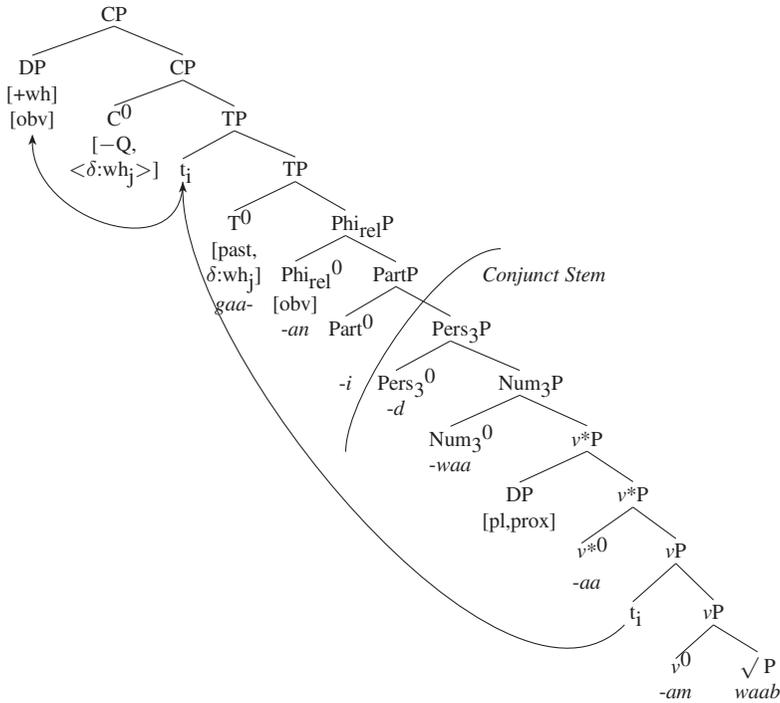
*an* denotes an obviative (7a) or inanimate (7b) relative pronoun (see also discussion in Rogers 1978).

- (6) a. geetzid  
geetzi-d-i  
wh.old-3-PART  
's/he who is old'
- b. geetzijig  
geetzi-d-i-**ag**  
wh.old-3-PART-3PL  
'they who are old' (Valentine 2001:784, 676)
- (7) a. gaa-nbon'jin  
gaa-nibo-ni-d-i-**an**  
wh.PAST-die-3-PART-OBV  
'they (obv) who died'
- b. gaa-bkojbidoojin  
gaa-bkojbid-oo-d-i-**an**  
wh.PAST-pull.out-VAI-3-PART-INAN.PL  
'those (INAN) which he pulled out' (Valentine 2001:142, 555)
- (8) gaa-waabamaawaajin  
gaa-waab-am-aa-waa-d-i-an  
wh.PAST-see-TRANS-3>3'-3PL-3-PART-OBV  
'the other(s) (obv) whom they (prox) saw' (Rogers 1978:173)

Rhodes (1998) argues that the use of non-conjunct agreement in relative clauses, like *ag* '3 plural' and *an* 'obviative/inanimate', signals a nominal property of the participle forms. Although these agreement suffixes are found in the nominal domain (e.g., *mkwa-ag* 'bears'), they are also robustly used on verbs in the independent order (plain matrix clauses, e.g., n-waabmaa-**ag** 'I see **them**.'). The insertion of the suffix *i* 'participle' appears to institute a morphological boundary between the conjunct stem and further suffixation, resulting in the "nominal"/independent type of agreement for third-person relative pronouns. Relative clauses in Ojibwe show a full verbal structure, with a complete conjunct stem and tense marking, and do not exhibit other nominal qualities.

A sketch of the morphosyntactic structure of (8) is given in (9), assuming that the order of morphemes generally mirrors the order of projections (Mirror Principle, Baker 1985) and suffixes are gathered by movement up through the projections.

(9) Structure of (8):



The participle verb form found in Ojibwe relative clauses involves a conjunct stem using normal conjunct agreement, a participle morpheme *i* that marks the edge of the normal conjunct stem, and agreement with the relative pronoun (DP[+wh,obv] in (9)) to the right of this stem. Movement of the relative pronoun, or operator, is discussed in Section 3.3.<sup>7</sup>

This section has laid out the morphosyntactic behaviour of relative clauses in Ojibwe. Relative clauses use the changed conjunct order, are marked by a participle suffix *i*, and use special third-person agreement with the relative pronoun. The following section introduces the claim that initial change in Ojibwe is actually agreement with a moved *wh*-element, showing that initial change is found in *wh*-interrogatives as well as relative clauses, which both involve the fronting of an operator.

<sup>7</sup>The sketch in (9) is simplified and does not include all projections that may be present but are not overtly realized in this example, such as first- and second-person agreement slots. As per Distributed Morphology (Halle and Marantz 1993), a syntactic head is assumed to spell out as a morphological slot, as is the case for Phi, Pers, and Num (unless otherwise analyzed, e.g., Fission). *v* represents a categorizing head on the  $\sqrt{\text{root}}$  and introduces the internal argument (e.g., Marantz 1997). PartP houses the participle marker *-i*, which seems to mark the conjunct stem edge. The relative operator is claimed to Agree with T, spelling out the changed form of the past prefix as *gaa-*. The relative pronoun moves to spec, TP to check the *wh*-features inherited from C to T, and is assumed to A'-move to spec, CP to satisfy some EPP or movement feature remaining on C (see section 4).

### 3. LOCI OF *WH*-AGREEMENT

This section discusses the phenomenon of *wh*-agreement, first looking at previously studied languages, and then investigating the realization of *wh*-agreement in Ojibwe. We show that initial change in this language always occurs in clauses in or through which a *wh*-element has moved, namely in *wh*-questions as well as relative clauses and certain focus constructions. Our view unifies the distribution of initial changes in Ojibwe as appearing only in *wh*-constructions.

#### 3.1 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 (10a), whereas the *wh*-complementizer *qui* is used in (10b) when movement of the subject *wh*-phrase has taken place (traces  $t_i$  show cyclic *wh*-movement of the *wh*-element).

(10) *French*:

- a. Tu as dit *que* le livre était tombé.  
 you have said that the book was fallen  
 'You said that the book had fallen.'
- b. Qu'est-ce que<sub>i</sub> tu as dit  $t_i$  **qui**  $t_i$  était tombé  $t_i$ ?  
 what-is-this that you have said that.AGR was fallen  
 'What did you say had fallen?'

Similarly in Scottish Gaelic, the regular complementizer *gu* in (11a) alternates with the *wh*-complementizer *a* in (11b), which signals 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.<sup>8</sup>

<sup>8</sup>A related phenomenon of *wh*-scope marking is found in another Algonquian language, Passamaquoddy (see discussion in Bruening 2001, 2004, 2006). As illustrated in (i), the questioning of an embedded argument can be realized in several ways: the full fronting of a *wh*-element *tayuwe* 'when' (ia); partial movement and a *wh*-scope marker *keq* 'what' (ib); or partial copy, where a copy of the *wh*-phrase appears in both positions.

(i) *Passamaquoddy*:

- a. [<sub>CP</sub> *Tayuwe*<sub>i</sub> kt-itom-ups [<sub>CP</sub>  $t_i$  apc k-tol-i malsanikuwam-ok] ]?  
 when 2-say-DUB again 2-there-go store-LOC
- b. [<sub>CP</sub> *Keq* kt-itom-ups [<sub>CP</sub> *tayuwe* apc k-tol-i malsanikuwam-ok] ]?  
 what 2-say-DUB when again 2-there-go store-LOC
- c. [<sub>CP</sub> *Tayuwe* kt-itom-ups [<sub>CP</sub> *tayuwe* apc k-tol-i malsanikuwam-ok] ]?  
 when 2-say-DUB when again 2-there-go store-LOC  
 'When did you say you're going to the store?' (Bruening 2006:25–26)

(11) *Scottish Gaelic*

- a. Tha mi a' smaoin eachadh gu bheil Iain air a mhisg.  
 am I ASP thinking that is Iain in his drink  
 'I think that Iain is drunk.'
- b. Cò<sub>i</sub> tha thu a' smaoin eachadh t<sub>i</sub> a t<sub>i</sub> tha air a mhisg?  
 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, (12) is a simple declarative construction in Chamorro with the verb *fa'gasi* 'wash' while *wh*-agreement is shown in (13). Example (13a) involves a nominative *wh*-word *hayi* 'who' changing the verb form to *fuma'gasi*. In (13b), *wh*-agreement is with the non-nominative *wh*-object *hafa* 'what'. *Wh*-agreement with obliques is also possible, although not shown here.

(12) *Chamorro*

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

(13) *Chamorro*

- a. Hayi<sub>i</sub> fuma'gasi t<sub>i</sub> i kareta?  
 who wh.NOM.wash the car  
 'Who washed the car?'
- b. Hafa<sub>i</sub> fina'gasése-nña si Henry t<sub>i</sub> pära 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 labelled *wh*-agreement rather than  $\varphi$ -agreement since the agreement is not direct agreement with the  $\varphi$ -features of the subject or object *wh*-phrase, but only with its Case specification. Similarly for French and Scottish Gaelic, no direct agreement with  $\varphi$ -features is involved but instead agreement with the presence of a *wh*-element. In contrast, languages like Dutch (Haegeman 1992) and Lokaa (Baker 2008) have agreement on complementizers that involve  $\varphi$ -features.<sup>9</sup>

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,

*Wh*-scope marking is not found in the Ojibwe dialects under discussion, and the *wh*-agreement that we argue appears in Ojibwe is not this kind of scope marking but an obligatory morphological reflex to *wh*-movement through a clause.

<sup>9</sup>This is a different phenomenon that will not be discussed here. Suffice it to say that for some (Chomsky 2005), cases like Dutch are evidence that  $\varphi$ -features are introduced by C (rather than T), but see Haegeman and Van Koppen (2012) for a different view.

where French and Scottish Gaelic show *wh*-agreement in the highest clause and all intermediate positions.

Next we introduce the *wh*-agreement data in Ojibwe questions, showing that a moved *wh*-element also triggers agreement; but the agreement is realized on T, unlike French, Scottish Gaelic, and Chamorro.

### 3.2 *Wh*-agreement in Ojibwe interrogatives

This section investigates the distribution of *initial change* in Ojibwe, and we argue that initial change in this language is in fact *wh*-agreement, signalling the movement of *wh*-elements through a clause. Initial change is often realized on the tense prefix, hence Ojibwe provides another possible locus for *wh*-agreement on T, in addition to C and *v* in other languages.

Initial change has been discussed for Algonquian languages by Rogers (1978), Lees (1979), Pagotto (1980), Johns (1980), Campana (1996), Brittain (1997), and N. Richards (2004). The distribution of initial change and its characterization vary between different Algonquian languages, but we argue that for Ojibwe initial change is obligatory in *wh*-clauses and does not appear in other types of constructions. The direct connection between initial change and *wh*-movement has not been explicitly made for Ojibwe or explored previously.<sup>10</sup> Now we investigate the realization of initial change in Ojibwe interrogatives.

Consider the tense marking in Ojibwe, which is the default target of initial change.<sup>11</sup> Tense is marked by a prefix (sometimes labelled *preverb*) on the verbal complex taking the forms in (14) in clauses of the *independent* or *plain conjunct* order, found in normal declarative matrix or subordinate clauses respectively.

(14) *Declarative tense prefixes (independent/plain conjunct order):*

present	∅
past	<i>gii-</i>
volitional future	<i>wii-</i>
future	<i>ga-</i>

<sup>10</sup>Blain (1999:2) proposes that both *wh*-questions and relative clauses in Plains Cree 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.

<sup>11</sup>See discussion for (45) showing initial change on other elements at the left edge of the verb complex in the absence of an overt tense morpheme. We account for this within our analysis of feature inheritance in (46).

The quality of the initial vowel in a verb complex is altered in the *changed conjunct*, which is the conjunct order affected by initial change (see Bloomfield 1957). Initial change usually targets the tense prefix, changing the forms in (14) to those in (15).

(15) *Wh-tense prefixes (changed conjunct order):*

<i>wh</i> -present	<i>e</i> -
<i>wh</i> -past	<i>gaa</i> -
<i>wh</i> -volitional future	<i>waa</i> -
<i>wh</i> -future	<i>ge</i> -

To show that initial change constitutes *wh*-agreement in Ojibwe, we focus on two pairs of prefixes: *gii-/gaa-* ‘past’ and *wii-/waa-* ‘volitional future’. First, Ojibwe is an obligatory *wh*-fronting (rather than *wh*-in situ) language, illustrated in (16) and (17) where the *wh*-element, *wenesh* ‘who’ or *wegonesh* ‘what’, must be fronted and cannot be postverbal.

- (16) a. *wenesh gaa-waabmat?*  
*wenesh gaa-waabm-at*  
 who wh.PAST-see-2CONJ  
 ‘Who did you see?’  
 b. \**gaa-waabmat wenesh*
- (17) a. *wegonesh gaa-miinig?*  
*wegonesh gaa-miin-ig*  
 what wh.PAST-give-2CONJ  
 ‘What did he/she give you?’  
 b. \**gaa-miin-ig wegonesh*

Consider the alternations of the past tense prefix in (18). Example (18a) is a matrix declarative clause using unchanged *gii-* (from (14)), but (18b) is a matrix *wh*-question and instead uses the changed prefix *gaa-* (from (15)). The same alternation is found for the volitional future prefix, with the unchanged *wii-* in declarative (19a) but changed *waa-* in (19b) when the object is questioned.

- (18) a. Mani **gii**-shishimik kwezhigaansan.  
 Mani **gii**-shishimik kwezhigaans-an  
 Mary PAST-steal cookie-PL  
 ‘Mary stole the cookies.’  
 b. *wegenesh<sub>i</sub> t<sub>i</sub> gaa*-shishimiknen kwezhigaansan?  
*wegenesh<sub>i</sub> t<sub>i</sub> gaa*-shishimiknen kwezhigaans-an?  
 who wh.PAST-steal cookie-PL  
 ‘Who stole the cookies?’
- (19) a. *gekik bemzhejik wii*-miigaaja wentigoozhiin.  
 gekik bemzhej-ik **wii**-miigaaj-a wentigoozhii-n  
 those person-PL FUT-fight-OBV Frenchmen-OBV  
 ‘Those people are going to fight those French people.’

- b. aaniish<sub>i</sub> na gekik **waa**-miigaajik t<sub>i</sub>?  
 aaniish<sub>i</sub> na gekik **waa**-miigaaj-ik t<sub>i</sub>?  
 who EMPH those wh.FUT-fight-3>3'  
 'Who are they (those people) going to fight?'

The alternation from unchanged to changed tense prefixes in (18) and (19) signals a moved *wh*-element, such as *wegenesh* 'who' in (18b). Unlike French and Scottish Gaelic it is not a complementizer that alternates, or the verb stem as in Chamorro, but instead it is the left edge of the inflected verb complex, targeting any overt tense prefix (see discussion in section 4.3). This *wh*-agreement, realized as vowel quality change, is obligatory in *wh*-questions as shown in (20) where the use of an unchanged prefix is ungrammatical.

- (20) a. wenes<sub>h</sub> gaa/\*gii-waabmaat John-an?  
 wenes<sub>h</sub> gaa/\*gii-waabm-aa-t John-an?  
 who wh.PAST/\*PAST-see-DIR-OBV John-OBV  
 'Who saw John?'
- b. anish pi gaa/\*gii-maajdit nimosh?  
 anish pi gaa/\*gii-maajdit nimosh?  
 when wh.PAST/\*PAST-start dog  
 'When did the dog start out?'

Conversely, if *wh*-agreement is added in a non-*wh*, declarative environment, the sentence becomes ungrammatical. In (21), only *gii-* is acceptable for marking past tense and *gaa-* is ungrammatical.

- (21) maaba kwe gii/\*gaa-waabm nen nine-n gii/\*gaa-shishigo-ang  
 maaba kwe gii/\*gaa-waabm nen ninen gii/\*gaa-shishigoang  
 that woman PAST/\*wh.PAST-see that man-OBV PAST/\*wh.PAST-steal-3  
 nen kwezhigaansan.  
 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, clearly seen in long-distance questions as in (22) and (23). Example (22b) 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 this to the answer in (22a), which only uses unchanged *gii* 'past'. In the same way, *aniish* 'what' in (23) moves from the lowest clause to the matrix clause, triggering initial change on the past prefix, *gaa-*, of each verb. The cyclic agreement pattern is similarly 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 Haik 1990).

- (22) a. Mani gii-waabmn John giionad Peteran.  
 Mani gii-waabm-n [John giionona-d Peter-an]  
 Mary PAST-see-VTI John talk-OBV Peter-OBV  
 'Mary saw John talking to Peter.'

- b. *wegenesh<sub>i</sub> Mani gaa-waabmat John gaa-giionad?*  
*wegenesh<sub>i</sub> Mani gaa-waabm-at [t<sub>i</sub> John gaa-giionad t<sub>i</sub>]*  
 who Mary wh.PAST-see-3 John wh.PAST-talk  
 ‘Who did Mary see John talking to?’
- (23) *aniish<sub>i</sub> Bill gaa-eneendang John gaa-kedat Mary gaa-giishnedot?*  
*aniish<sub>i</sub> Bill gaa-eneendang [t<sub>i</sub>John gaa-keda-t [t<sub>i</sub> Mary gaa-giishnedot t<sub>i</sub>]]*  
 what Bill wh.PAST-think John wh.PAST-say-3 Mary wh.PAST-buy  
 ‘What does Bill think John said Mary bought?’

As we have shown, initial change obligatorily appears in clauses with *wh*-movement, and cannot appear in clauses without *wh*-movement, such as declarative contexts. This *wh*-agreement marks successive-cyclic *wh*-movement, as it is found in all clauses through which a *wh*-element has moved (not just its final landing site) and is spelled out on T, rather than on a complementizer or little *v* like in previously studied languages.

Before returning to the discussion of relative clauses, it should be noted that although initial change can be shown to be the realization of *wh*-agreement across many Ojibwe dialects — including Southwestern Ojibwe, Northern Ojibwe, and Nipissing — the phenomenon does not have the same form in all dialects of Ojibwe or the same distribution across Algonquian languages. In the Ottawa dialect of Ojibwe, Costa (1996:42) reports a shift in use: older speakers productively use initial change, but younger speakers instead prefix *e-* to the unchanged conjunct form. For example, *miinaad* ‘he gives him’ becomes *maanaad* ‘what he gives him’ for older speakers, but *e-miinaad* for younger speakers. We consider the *e-* prefix to be another productive realization of *wh*-agreement for these speakers.

Rainy River Ojibwe can exhibit either initial change or a *wh*-morpheme *kaa* at the left edge of the verbal complex, seen in (24), blocking initial change on a following tense prefix. Johns (1982) investigates the distribution of initial change and the *wh*-complementizer in Rainy River, and these forms of *wh*-agreement are found in questions as well as relative clauses.

(24) *Rainy River:*

- a. *inini kaa-nagamut kinoozi.*  
*inini kaa-nagam-ut kinoo-zi*  
 man wh-sing-3 tall-VAI  
 ‘The man who is singing is tall.’
- b. *n-gikenimaa inini kaa-gii-hnagamut.*  
*n-gikenim-aa inini kaa-gii-hnagam-ut*  
 I-know-1>3 man wh-PAST-sing-3  
 ‘I know the man who sang.’

(Johns 1982:161)

Looking at other Algonquian languages, Plains Cree (Blain 1997, 1999) uses the complementizers *ê-* and *kâ-* instead of initial change in all tenses: present, past, and future. In Moose Cree, *ê-* or initial change is used in the present, past, and future. Passamaquoddy (Bruening 2001) exhibits initial change in certain types of adjuncts as well as in the participle forms of relative clauses. However, initial change is not

obligatory in questions in this language, but can be found with indirect questions (Bruening 2001:163; see also fn. 7 on Passamaquoddy scope marking).

In Blackfoot, initial change behaves quite differently and is no longer productive (Costa 1996; see also Proulx 2005). Costa (1996) discusses the restricted nature of initial change in this language: (i) only a closed class of verb stems can take initial change; (ii) for most verbs that are 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, and even in dialects showing slightly different behaviour (i.e., Ottawa, Rainy River) there is a clear realization of *wh*-agreement (e.g., as a *wh*-complementizer in complementary distribution with initial change). In other Algonquian languages, however, the correlation between initial change and *wh*-constructions is not consistent, which suggests that initial change in those related languages has a modified underlying function.

### 3.3 Ojibwe relative clauses as *wh*-constructions

We now return to the discussion of relative clauses in Ojibwe. Relative clauses in this language involve operator movement and exhibit *wh*-agreement with the moved element in the form of initial change. Chomsky (1977) discusses the movement of *wh*-elements and operators in different constructions, including interrogatives, relative clauses, and focus constructions; we claim this type of movement is also found in Ojibwe. Relative clauses in Ojibwe involve A'-movement of an operator, and this movement is signalled by initial change on a verb stem.

As is well known for languages like English, relative clauses, like *wh*-questions, involve the movement of an operator, such as a *wh*-phrase, relative pronoun, or null element. As illustrated in (25), the operator or *wh*-pronoun found in an English relative clause raises to Spec, CP and the head of the relative clause is co-indexed with the *wh*-operator.

- (25) a. [<sub>DP</sub> the [<sub>NP</sub> book<sub>i</sub>] [<sub>Spec-CP</sub> Op<sub>i</sub> C that [<sub>TP</sub> I read t<sub>i</sub>]]].  
 b. [<sub>DP</sub> the [<sub>NP</sub>book<sub>i</sub>] [<sub>Spec-CP</sub> which<sub>i</sub> C ∅ [<sub>TP</sub> I read t<sub>i</sub>]]].

Ojibwe relative clauses can be analyzed as involving the same kind of pronoun-head co-reference. As illustrated in (26) and (27), the respective head nouns *wa nini* 'that man' and *iw mshkik-waaboo* 'that liquid medicine' co-refer with an null operator or relative pronoun *Op* in the relative clause. The presence of this operator is indicated by the *wh*-forms of the tense prefixes *gaa-* 'wh-past' and *waa-* 'wh-future' in (26) and (27) respectively.

- (26) Mii wa nini            dakweman            **gaa**-bkinaagen'jin            mbingoo.  
 Mii wa nini<sub>i</sub> [*Op*<sub>i</sub> da-kwem-an            **gaa**-bkinaagen' -j-i-n            mbingoo]  
 and that man            POSS-wife-OBV wh.PAST-win-3-PART-OBV bingo  
 'That's the man<sub>i</sub> [whose<sub>i</sub> wife won at bingo].'  
 (Valentine 2001:585)

- (27) Mii dash gii-zhitoowaad iw mshkik-waaboo **waa**-abjitoowaad(i).  
 Mii dash gii-zhitoo-waa-d iw mshkik-waaboo<sub>i</sub> [*Op<sub>i</sub>* **waa**-abjitoo-waa-d(-i)]  
 and then PAST-make-3PL-3 that medicine-liquid wh.FUT-use-3PL-3-PART  
 ‘They made the liquid medicine<sub>i</sub> [which<sub>i</sub> they were going to use].’

(Valentine 2001:582)

Relative clauses in Ojibwe do not usually show overt relative pronouns, but the movement of a covert operator (i.e., relative pronoun) can be identified both by sensitivity to island constraints on movement and the occurrence of initial change on relative verbs, which we argue is in fact *wh*-agreement in Ojibwe.

Johns (1980) looks at Rainy River Ojibwe, which appears to have some sensitivity to movement islands, shown in (28) for a *wh*-island and (29) for the Complex Noun Phrase Constraint. Johns concludes that these relative clauses involve the movement of a *wh*-operator, shown within our account in (9) as the movement of DP[+wh].

- (28) \*ogonen kekendaman wenen ka'wabandang?  
 ogonen kekendam-an wenen ka-waband-ang  
 what wh.know-2 who wh.COMP-see-3  
 ‘What do you know who saw?’

(Johns 1980:37)

- (29) \*John ogiwabandan wakka'igan kakikenimimak iniiniwan  
 John o-gi-wabandan wakka'igan [ka-kikenimim-ak [ iniiniw-an  
 John 3-PAST-see.VTI house wh.COMP-know.VTI-OBV man-OBV  
 kaayaanit.  
 [ka-ayaanit-t]]  
 wh.COMP-have-3

‘John saw the house that I know the man that has.’

(Johns 1980:37)

As in *wh*-interrogatives, the movement of an operator in a relative clause triggers initial change, seen in all the relatives given. The verbal complex of a relative clause is marked by initial change on the tense prefix, seen in (30b) and (31b), or on the initial vowel of the verb complex if there is no tense prefix, as in (32b).

- (30) a. **gii**-nsaawaad  
 ‘they killed them(OBV)’  
 b. **gaa**-nsaajig  
 ‘they who killed them(OBV)’

(Valentine 2001:203, 580)

- (31) a. **wii**-aabjihaawaad  
 ‘they will use them(OBV)’  
 b. **waa**-abjitoowaad  
 ‘it which they will use’

(Valentine 2001:820, 582)

- (32) a. **bimaadzi**  
 ‘he lives’  
 b. **beemaadzijig**  
 ‘they who live’

(Valentine 2001:579)

Initial change, as *wh*-agreement in Ojibwe, is expected in relative clauses, given that they are *wh*-constructions involving the movement of a relative pronoun or covert operator. The realization of *wh*-agreement in a relative clause is also found in French, where *wh*-agreement appears not only in interrogatives (10) but also in the context of relative clauses, as seen in (33).

- (33) a. le livre **que** j'ai lu.  
 the book that I-have read  
 'the book that I have read'
- b. le livre **qui** est tombé par terre.  
 the book that-AGR is fallen on floor  
 'the book that fell on the floor'

One final environment for initial change in Ojibwe is in certain types of focus constructions that also involve a *wh*-operator (see Chomsky 1977). In English, cleft focus constructions involve a *wh*-operator, but differ from relatives by the presence of a (contrastively) focused head noun, like 'book' in (34).

- (34) a. It is [<sub>DP</sub> the [<sub>NP</sub> book<sub>i</sub>] [<sub>Spec-CP</sub> Spec Op<sub>i</sub> C that [<sub>TP</sub> I read t<sub>i</sub>]]].  
 (not the magazine ...)
- b. It is [<sub>DP</sub> the [<sub>NP</sub> book<sub>i</sub>] [<sub>Spec-CP</sub> which<sub>i</sub> C ∅ [<sub>TP</sub> I read t<sub>i</sub>]]].  
 (not the magazine ...)

Similarly, some Ojibwe focus constructions exhibit initial change, indicating operator movement as in relative clauses and interrogatives. Many examples are provided by Rogers (1978); a few are given in (35). We assume along standard lines that a null operator is present in Spec, CP.

- (35) a. niizhwaak dso-bboon **gaa**-ko-zhiweebak maanda.  
 niizhwaak dso-bboon **gaa**-ko-zhiweebak maanda  
 two hundred years wh.PAST-formerly-happen this  
 'It was two hundred years ago that this happened.' (Rogers 1978:170)
- b. mii dash **gaa**-nji-wijjeeyaawaad.  
 mii dash **gaa**-nji-wijjeeyaa-waa-d  
 and then wh.PAST-reason-stay.with-3PL-3  
 'And that's the reason he stayed with her.' (Rogers 1978:171)
- c. Mii dash maa **gaa**-nji-googiid gii-nakzhiwed widi yaanid.  
 Mii dash maa **gaa**-nji-googii-d gii-nakzhiwe-d widi yaani-d  
 and then there wh.PAST-dive-3 PAST-swim-3 over.there be-3  
 'It is from there that he dived and swam over to where they were.'  
 (Valentine 2001:945)

French similarly uses *wh*-complementizers, like *qui*, in focus clefts, seen in (36), as well as in interrogatives and relative clauses (see (10b) and (33)).

- (36) 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.'

Across the board, Ojibwe maintains a correspondence between *wh*-constructions (i.e., those involving operator movement) and the distribution of initial change, which signals *wh*-agreement in this language. Relative clauses involve the fronting of a relative pronoun or covert operator that results in *wh*-agreement as well as the specific morphology associated with relatives discussed in section 2.

The phenomenon of *wh*-agreement has been studied in many different languages and is commonly realized on complementizers. However, we see that *wh*-agreement within C, as in French, is not the only possibility, as it appears on little *v* in Chamorro and now on T in Ojibwe—a previously unobserved possibility. 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.

#### 4. WH-AGREEMENT AS FEATURE INHERITANCE

For Ojibwe *wh*-agreement, we draw on the operation of Feature Inheritance (Chomsky 2005, 2008) proposed for  $\varphi$ -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 the clause. Assuming, as the standard theory maintains, that *wh*-features are merged on C, 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

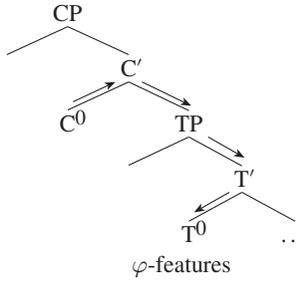
Feature inheritance of  $\varphi$ -features has been independently argued for by Chomsky (2005, 2008), who posits that T does not have its own Agree ( $[u\varphi]$ ) features and cannot act as a probe for the subject goal on its own. According to Chomsky, T inherits its  $[u\varphi]$  features from C, as in (37a), so that it is C that ultimately initiates the Agree relation that values the subject's interpretable  $\varphi$ -features and triggers subject movement. However, subjects (e.g., in English) trigger agreement with T, and not C, since C's Agree/ $\varphi$ -features have been passed on to T (e.g., 'He walks.'). Feature inheritance further gives an elegant account of raising and ECM infinitives, which are considered defective in lacking  $\varphi$ -agreement, since these infinitival TPs are not dominated by a CP and therefore do not inherit any  $\varphi$ -features, as shown in (37b).<sup>12,13</sup>

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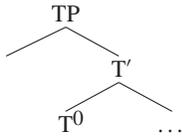
<sup>12</sup>Chomsky (2005:23) disregards control structures in the discussion of infinitival clauses since the subjects are null and arguably lack any  $\varphi$ -features that could undergo Agree. The structure and behaviour of control infinitives is complex, but does not bear directly on *wh*-construction in Ojibwe, so we leave it aside.

<sup>13</sup>There are no infinitives in Ojibwe (Rogers 1978), so there is no defective/non-defective T contrast to be accounted for.

(37) a. *Finite clause:*



b. *Infinitive clause:*



A question that arises is why these features must be inherited by T instead of remaining on C. Chomsky mentions that the presence of  $[u\varphi]$  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 remains visible. Richards (2007) proposes that C must transfer its  $\varphi$ -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.

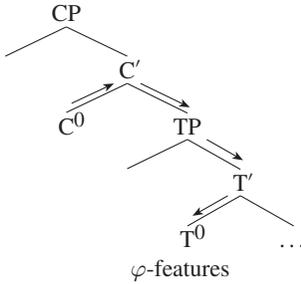
Next we propose that  $\varphi$ -features are not the only type of feature able to undergo inheritance from C, but other kinds of *discourse* features can mark the phase edge of certain types of clauses.

#### 4.2 $\delta$ -features

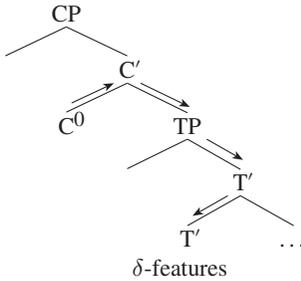
Feature inheritance as per Chomsky (2008) is the basis of our account of *wh*-agreement on T in Ojibwe. Feature inheritance is considered to involve  $\varphi$ -features, but we propose that a language may allow discourse or  $\delta$ -features on C to play the same role (e.g., to mark a phase edge).  $\delta$ -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 (38a) (related to main clauses and non-*wh*-sentences); and one that introduces  $\delta$ -features, found in the conjunct order (38b) (embedded clauses and *wh*- or focus/topic clauses).

(38) a. *Independent order:*



b. *Conjunct order:*



The different types of features on C, whether  $\varphi$ - or  $\delta$ -features, are reflected in the morphology of the verb complex. For instance, the independent order uses person proclitics agreeing with a clausal argument (39a), which are never found in the conjunct (plain or changed) (39b). We attribute this difference between orders to the presence or absence of  $\varphi$ -features on C.

(39) a. *Independent:*

**n**-waabmaa

**n**-waabm-aa

1-see-1>3

'I see her/him.'

b. *Conjunct:*

waabmag

waabm-ag

see-1

'(if) I see her/him'

(Valentine 2001:279)

Since conjunct clauses lack  $\varphi$ -features on C, we suggest that  $\varphi$  is introduced on  $v$  in the conjunct (see Boeckx 2000 and Alexiadou 2000 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*- 'first person' in (39a)) are instead realized by the verbal suffixes in the conjunct order (i.e., *-ag* 'first person (conjunct)') in (39b).

We propose that a *wh*-element in Ojibwe raises to Spec, TP and Agrees with the  $\delta$ /*wh*-features that have been transferred to T,<sup>14</sup> before raising to Spec, CP to satisfy some EPP or movement feature.<sup>15</sup> The *wh*-features transferred to T (illustrated in (38b)) are spelled out as initial change (typically on the tense prefix) signalling *wh*-agreement (see section 4.3). It remains true that C is the locus of *wh*-movement since it is originally merged with the *wh*-features; however, T 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  $\varphi$ -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 its complement, the  $\delta$ -features can no longer be accessible to the syntactic derivation. 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  $\varphi$ -features can be present on C. As per Chomsky (2005, 2008) and Richards (2007) these uninterpretable features on C must be inherited by T because C is a phase head, and this inheritance allows those features to be spelled out on the phonological exponent of T.<sup>16</sup> *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, the phonological realization of *wh*-agreement in Ojibwe.

Conversely, 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 (39)), indicating that 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.<sup>17</sup>

However, certain data indicate 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

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<sup>14</sup>We assume Spec, TP to be an A'-position in Ojibwe, following Carstens (2005), and Lochbihler (2012), which argues that Ojibwe lacks A-movement.

<sup>15</sup>We posit that T inherits the  $\delta$ -features from C, but there must remain some other feature on C to move the *wh*-element to Spec, CP, since long distance questions are possible in Ojibwe and CP is a phase domain. We leave the exact mechanics of the feature triggering movement to Spec, CP aside for now.

<sup>16</sup>See discussion of phonological realization of Initial Change in section 4.3.

<sup>17</sup>Halle and Marantz (1993) make the opposite claim for Potawatomi: independent verbs move to C, and conjunct verbs do not. They cite the position of different negative morphemes in the verb complex, showing suffixal negation in the independent and prefixal negation in the conjunct (pp. 139–140). However, this data is misleading since the prefixal negation is actually a negative preverb (i.e., an adverb), and the suffixal negation can appear both in the independent and conjunct (see Lochbihler and Mathieu 2013).

(1996) and Brittain (1997) if the *wh*-phrase is in Spec, CP and the verb in C. Ojibwe shows the same situation: (40) (repeated from (22b)) allows the unmarked *Mani* ‘Mary’ between *wegenesh* ‘who’ and the verbal complex, and the adverb *gichi-wewiib* ‘very quickly’ in (41) intervenes between *wegonesh* ‘why’ and the verbal complex.<sup>18</sup>

- (40) *wegenesh*<sub>i</sub> *Mani gaa-waabmat* John *gaa-giinonad*?  
*wegenesh*<sub>i</sub> *Mani gaa-waabm-a-t* [t<sub>i</sub> John *gaa-giinon-a-d t<sub>i</sub>*]  
 who Mary *wh.PAST-see-3>3’-3CONJ* John *wh.PAST-talk-3>3’-3*  
 ‘Who did Mary see John talking to?’
- (41) *wegonesh naa gichi-wewiib gaa-anionji-maajaawaad*?  
*wegonesh*<sub>i</sub> *naa gichi-wewiib gaa-anionji-maajaa-waa-d t<sub>i</sub>*?  
 why EMPH very-quickly *wh.PAST-away.from-leave-3PL-3*  
 ‘Why have they all left in such a great hurry?’ (Bloomfield and Nichols 1991:78)

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, (26) and (27); (ii) focus constructions (35); and (iii) embedded *wh*-questions (42).

- (42) *gaa go gnagen wgii-gkendziinaawaa waa-kidwaad.*  
*gaa go gnagen w-gii-gkend-zii-naawaa* [Op<sub>i</sub> *waa-kid-waa-d t<sub>i</sub>*]  
 not EMPH at.all 3-PAST-know-NEG-3PL [ *wh.FUT-say-3PL-3*]  
 ‘They really didn’t know what to say.’ (Valentine 2001:62)

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 does not rely on verb movement to C to distinguish the independent and conjunct, and hence makes the correct predictions for word order, better fitting with the Ojibwe data.

### 4.3 Plain 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  $\varphi$ -features, realized in the person proclitic, we claim that the conjunct order instead involves  $\delta$ -features on C. We need, however, to account for the plain conjunct, which lacks *wh*-agreement but is grouped with the changed conjunct in (38), since they both lack a person proclitic agreement and use conjunct agreement. We propose that both types of conjunct involve a C head bearing  $\delta$ -features (rather than  $\varphi$ ). However, the plain conjunct bears a different  $\delta$ -feature from the *wh*-features associated with the changed conjunct.

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: they can be matrix clauses as well, as in (43). We propose that in this case we are dealing with a discourse-dependent clause.

<sup>18</sup>Although word order is relatively free, Ojibwe is, in a sense, 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.

(43) *Plain Conjunct*:

Gii-maajii-daabaan'goyaanh

Gii-maajii-daabaan'go-yaanh

PAST-start-drive-1

'So I took off.' (Chippewa-Ottawa texts, Francis X. Fox and Nora Soney with Richard Rhodes, in Nichols 1988:44)

The use of the conjunct here signals the embedding of a clause in the discourse, rather than strictly syntactically. When (43) is seen in the context of the larger discourse in (44), it becomes clear that there is a correlation between conjunct and discourse-dependency: the clause is not subordinated by a matrix clause but appears in the plain 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'-dependencies.) We propose that the plain conjunct also introduces  $\delta$ -features on C (that must be transferred to T), but these are not the same *wh*- or operator features, but instead indicate dependency or an anaphoric relation on the discourse context.

## (44) "Aanii-sh iidig ezhwebak?" ndinendam. Mii-sh ge go mkwendmaan'jiiibaatgoogiizh-gad. "Ndaangshenh nga-oo-mbwaachaa," ndinendam. Giimaajiiidaabaan'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 (plain) conjunct clauses involve a dependency on the discourse 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 (i.e., independent order); and anaphoric clauses, which are evaluated with respect to a contextually-given situation (i.e., conjunct order).<sup>19</sup>

#### 4.4 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 alters the quality of the first vowel of the verbal stem (45a), an adverbial preverb (45b), or the initial morpheme of a complex verb stem (45c).

- (45) a. Aaniish **ja**abaakweet?  
 Aaniish **ja**abaakwee-t  
 why cooking-3CONJ  
 'Why is he cooking?'

<sup>19</sup>However, there seems to be a difference between Plains Cree and Ojibwe in that 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 be in either the independent or the conjunct order, whether the latter is changed or plain.

- b. Aaniish **geechi**-jiibaakweet?  
 Aaniish **geechi**-jiibaakwee-t  
 why big-cooking-3CONJ  
 ‘Why is he cooking the big breakfast?’
- c. Aaniish **eeni** nji weebi gchi-jiiibaakweet odi?  
 Aaniish **eeni** nji weebi gichi-jiiibaakwee-t odi  
 why INCHO rel.root still big-cooking-3CONJ 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 (e.g., 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. The change feature in Ojibwe associates with the closest vowel on its right. The spell-out of initial change is schematized in (46), with change directly attaching to an overt tense prefix in (46a) or, failing that, the leftmost vowel in the verb complex in (46b).

(46) *Morpho-phonological feature association at spell-out:*

a. Feature inheritance	C	T	Spell-out/feature association (45a)	T	
		[past]		/gii-/	
	[δ-wh] →	[δ-wh]		⋮ → [gaa-]	
				[change]	
b. Feature inheritance	C	T	A	T	A
		[past]	[BIG]	/o-/	/gichi/
	[δ-wh] →	[δ-wh]		[change] ⋯	→ [geechi]

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] and then associate with the tense morpheme on its right, because phrasal elements intervening between T and C do not receive initial change, as seen in (47) and (48).

- (47) wegenesh<sub>i</sub> Mani/\*Meni **gaa**-waabmaat                      John **gaa**-giionnad?  
 wegenesh<sub>i</sub> Mani/\*Meni **gaa**-waabm-aa-t                      [t<sub>i</sub> John **gaa**-giionon-ad t<sub>i</sub>]?  
 who Mary wh.PAST-see-3>3'-3                      John wh.PAST-talk-3  
 ‘Who did Mary see John talking to?’

- (48) Wegonesh naa/\*nyaa gichi-wewiib gaa-anionji-maajaawaad?  
 Wegonesh<sub>i</sub> naa/\*nyaa gichi-wewiib gaa-anionji-maajaa-waa-d t<sub>i</sub>?  
 why EMPH big-quickly wh.PAST-away.from-leave-3PL-3  
 ‘Why have they all left in such a great hurry?’

(adapted from Bloomfield and Nichols 1991:78)

Initial change only appears on T or on an element to the right when T is not overt, and not merely elements to the right of C.

#### 4.5 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 by 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 posited that C can bear uninterpretable discourse features in the plain conjunct, which lacks *wh*-operators, since these clauses are 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

This article has discussed the morphosyntactic structure of relative clauses in Ojibwe, traditionally identified as *participles*. These constructions show particular morphology, full clausal structure, and properties associated with *wh*-constructions, namely operator movement and the resulting *wh*-agreement. We have argued that the phenomenon labelled *initial change* is in fact *wh*-agreement on T in Ojibwe, appearing in relative clauses, interrogatives, and focus constructions involving operator movement. We argue that the locus of the *wh*-agreement is C, but that it is spelled out on T due to feature inheritance (Chomsky 2008) of discourse features from C to T in conjunct clauses. Further research is necessary to determine how wide the usage of discourse features on C, in place of  $\varphi$ , might be in other languages and varying clause types. At this point we assume that there is a parametric difference between Ojibwe and languages that do not show *wh*-agreement, particularly on T. A more complete discussion is found in upcoming work (Lochbihler and Mathieu 2013), which tackles some of the finer mechanical and theoretical points of the proposal for feature inheritance in Ojibwe. In that work we discuss in detail how initial change and person proclitics are in complementary distribution (we claim initial change is also a proclitic), and the parameter setting that does not allow Ojibwe C to bear both  $\delta$ - and  $\varphi$ -features.

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