Movement in disguise: Morphology as a diagnostic for verb movement in Algonquian

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Abstract. This paper argues for a unification of two seemingly unrelated phenomena from unrelated language families: *Verb Second* in Germanic, and *Conjunct* vs. *Independent Order* in Algonquian. It is argued that both reflect the possibility of the verb moving to C. While in Germanic this results in word order differences, in Algonquian V-to-C movement is only detectable via morphological alternations in agreement morphology. Under this view, *Conjunct*/*Independent* agreement and V2 are merely distinct reflexes of the same underlying process. This opens up new avenues of research in relation to V-to-C movement, framing it as a parametric option with potentially very different surface results in different languages depending on the setting of other parameters.

1. Introduction

Typological work has become a major influence on syntactic theorizing in the generative tradition. In particular, typological studies are integral for exploring the nature of *Universal Grammar* (UG) (Chomsky 1965) and the limits of language variation within the *Principles and Parameters* model (Chomsky 1981) as well as its more current incarnations.[1] Research in this tradition seeks to eliminate language-specific and language family-specific constructions, deriving them

[1]See Baker & McCloskey (2007) and Baker (2010) for a comprehensive overview of such work, relevant references, and a mission statement of the *Generative Typology* program.

instead from the interaction of universally available language principles and parameters. In this study, we consider an apparent Algonquian-specific phenomenon—the *Independent/Conjunct Order* alternation—which seems to resist characterization in universalist terms. We show that the phenomenon can be analyzed as resulting from the polysynthetic character of Algonquian interacting with verb movement to the complementizer position—two attributes that are not in themselves language-specific. Furthermore, we suggest that the type of morpho-syntactic evidence we use to make our claim can be used more broadly as a diagnostic for verb movement in unrelated (polysynthetic) languages where identifying this kind of movement is generally a difficult task.

1.1 Verb Second and V-to-C movement

To illustrate why identifying verb movement to the complementizer position (V-to-C movement) is difficult in polysynthetic languages, we must first consider the prototypical instance of V-to-C movement, which occurs in *Verb Second* (V2) configurations, and how that is identified. A language is described as having V2 if in some subset of clauses the finite verb must follow the first constituent in the clause, whatever that may be. In German, for example, the V2 configuration is blocked in embedded clauses like (1a), but we see it in matrix declarative clauses like (1b).[2]

(1) a. Ich bezweifele [daß Hans *{**ist**} gestern zu Hause geblieben {**ist**}.]
I doubt that Hans {is} yesterday at home stayed {is}
'I doubt that Hans stayed at home yesterday.'

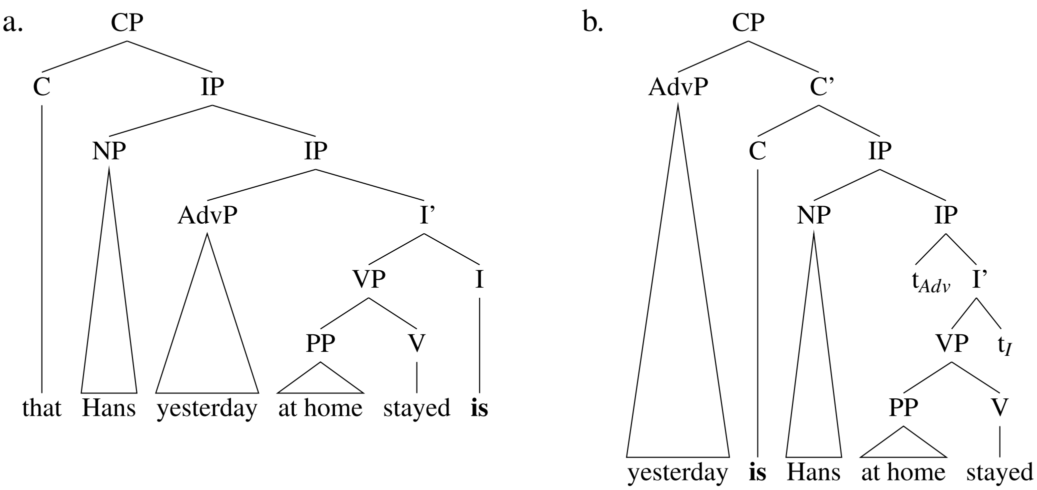
b. Gestern **ist** Hans zu Hause geblieben.
yesterday is Hans at home stayed
'Hans stayed at home yesterday.' German (Richards 2004:366)

The standard analysis of V2 attributes it to: (i) head movement of the finite verb to the C(omp) position, and (ii) phrasal movement of one syntactic constituent to the specifier of the corresponding

[2] All our examples are glossed using Leipzig glossing rules, with the addition of: 'AI' animate intransitive; 'CONJ' conjunct; 'DIR' direct; 'IC' initial change; 'INV' 'inverse'; 'NON1' non-1st person; 'OBV' obviative; 'PRET' preterite; 'TI' transitive inanimate; and 'TH' theme sign. We always use the orthographic conventions from the original source.

CP (den Besten 1977, 1989, i.a.; see Holmberg 2015 for an overview and more references). (1a) then has roughly the structure in (2a), with the verb no higher than the inflectional domain (IP), while (1b) roughly corresponds to (2b), with the verb in C and the fronted constituent in SpecCP.

(2)



The existence of V-to-C movement in German V2 configurations is thus uncontroversial, given that it is transparently reflected in the word order change compared to non-V2 configurations.

Although associated with Germanic languages, V2 is not areally or genetically restricted, as it has been found in a growing number of unrelated languages outside Germanic.[3] Thus, Holmberg (2015:377) asks, if V2 can in principle arise in any language, given the appropriate parametric setting, could V2 exist in a polysynthetic/head-marking language? What we tackle here is a natural follow up question: if a polysynthetic language were to also be a V2 language, how could we tell?

1.2 Polysynthesis

Polysynthesis is characterized by Baker (1996) as a cluster of properties—most prominently *head-marking* (Nichols 1986, 1992) and a “free” word order—that co-occur in a number of unrelated languages. Head-marking entails the extensive use of agreement to mark grammatical relations,

[3] E.g. Rhaetoromance, Old French, Old Spanish (Romance), Breton, Brythonic Celtic (Celtic), Estonian (Finno-Ugric), Sorbian (Slavic), Kashmiri, Himachali (Indo-Aryan), and Karitiana (Tupi) (see Holmberg 2015 for references).

accompanied by a propensity to either drop or incorporate all constituents other than the verb. This is illustrated for Plains Cree in (3) (Dahlstrom 1991; Blain 1997; Hirose 2000); more generally, all languages of the Algonquian family exhibit the defining traits of polysynthesis.

(3) a. kisîpêk-in-**am** (wiyâkan)
wash-by.hand-3>INAN (dish)
'S/He washes it (a/the dish).'

b. kisîpêk-in-**iyâkan**-ê-w
wash-by.hand-dish-INTR-3
'S/He washes a/the dish.'

Plains Cree (Hirose 2000:128–33)

As a result, a whole clause may correspond to a single verb form. Consider what this means for detecting V-to-C movement: if the verb is the only overt constituent in a clause, there is no way of telling how high the verb is. This is illustrated with (4a) vs. (4b) ('$\langle \ldots \rangle$' are null elements).

(4) a. $[_{\text{CP}}\ \langle \text{C} \rangle\ [_{\text{IP}}\ \langle \text{pro}_1 \rangle\ [_{\text{I}'}\ [_{\text{I}}\ \textbf{wash}_{\text{V}}\text{-he}_1\text{-it}_2\ ]\ [_{VP}\ \text{t}_{\text{V}}\ \langle \text{pro}_2 \rangle\ ]]]]$
b. $[_{\text{CP}}\ [_{\text{C}}\ \textbf{wash}_{\text{V}}\text{-he}_1\text{-it}_2\ ]\ [_{\text{IP}}\ \langle \text{pro}_1 \rangle\ [_{\text{I}'}\ \text{t}_{\text{I}}\ [_{VP}\ \text{t}_{\text{V}}\ \langle \text{pro}_2 \rangle\ ]]]]$

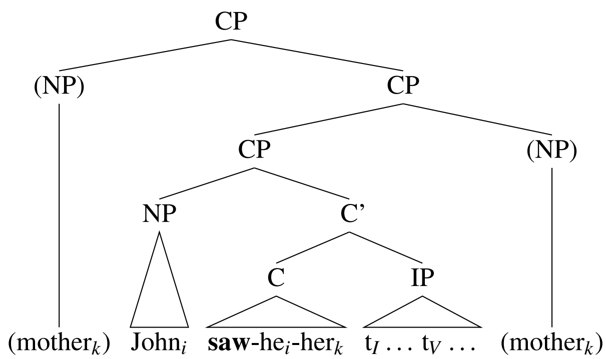
Constituents other than the verb can of course also occur in a clause, but since polysynthetic languages have a freer word order than non-polysynthetic languages like German, a simple transitive clause can be realized in any of the six logically possible orders; three are shown in (5).

(5) a. **John** ê-wâpam-â-t *o=mama-wa* [SVO]
John IC-see-3>3OBV 3=mother-OBV
b. ê-wâpam-â-t **John** *o=mama-wa* [VSO]
IC-see-3>3OBV John 3=mother-OBV
c. *o=mama-wa* ê-wâpam-â-t **John** [OVS]
3=mother-OBV IC-see-3>3OBV John
'**John** saw *his mother*.' Plains Cree (Blain 1997:14)

While the different word orders are not entirely equivalent (the choice of word order is subject to information-structure considerations), the surface order of lexical NPs crucially does not reflect their grammatical function. The free order and optionality of lexical NPs is often attributed to them actually being CP adjuncts co-indexed with the real arguments, which are either assumed to be the agreement markers themselves (Jelinek 1984) or null pronouns licensed by the agreement markers

(Baker 1996, cf. (4)). As Holmberg (2015) notes, such configurations should mask V2 effects: V-to-C movement and phrasal movement to SpecCP would not necessarily make the verb the second element in the clause, as shown in (6). In other words, identifying the presence of these types of syntactic displacements from word order should be impossible in a polysynthetic language.

(6)



It should be noted that this approach to word order alternations in polysynthetic languages has been challenged (Legate 2001; Bruening 2001), arguing that the different word orders arise via the same topic/focus movement operations used in non-polysynthetic languages. However, this does not resolve Holmberg's challenge, it merely shifts the issue: if the underlying syntax of polysynthetic languages is just like German or Italian, then it is mysterious why there seem to be no transparently V2 polysynthetic languages. If the parameter settings that yield V2 are universally available, then there is no reason why polysynthetic languages should be excluded.

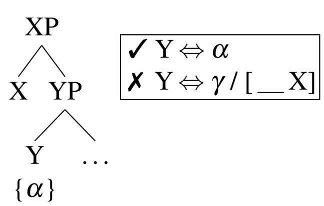
1.3 Morphological tests for verb movement

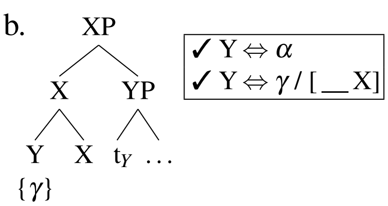
In spite of the challenge polysynthesis poses for identifying verb movement, we argue that V-to-C movement is detectable even in polysynthetic languages, specifically by looking at morphological alternations on the verb. Our case study is based on Algonquian languages, which alongside polysynthesis exhibit another interesting property—two distinct verbal agreement patterns:

(7) a. **verb stem** – $\boxed{\text{AGR}:\alpha}$ b. $\boxed{\text{AGR}:\beta}$ – **verb stem** – $\boxed{\text{AGR}:\gamma}$

The pattern in (7a) (traditionally, *Conjunct Order*) expresses agreement only post-verbally (AGR:α), whereas the pattern in (7b) (traditionally, *Independent Order*) expresses agreement both via pre- and postverbal agreement markers (AGR:β and AGR:γ). The morphological form of the postverbal markers may differ from (7a) to (7b). Throughout the paper we refer to the former pattern as SUFFIXAL and to the latter as COMPOSITE agreement.[4] Importantly, the two patterns occur with the same verbs and their alternation is conditioned solely by the type of clause the verb appears in. The two paradigms are in complementary distribution, where SUFFIXAL agreement is generally restricted to a smaller set of clausal environments, while COMPOSITE agreement is found in the larger set of clausal environments (Goddard 1974; Campana 1996; Brittain 2001b; Cook 2008).

We will argue that this agreement alternation provides at least two ways of identifying V-to-C movement. The first one concerns head movement: as the verb becomes part of a complex head in its landing site, this makes new morphological alternations on the verb possible. Consider, in relation to the structures in (8), Bobaljik's (2012) proposal that a head X cannot condition the morphological realization of a head Y if the two are in distinct maximal projections.

(8) a.


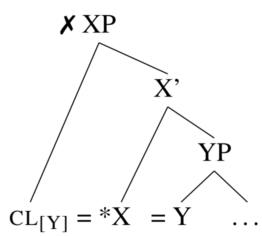
b.


[4]We are replacing the traditional Algonquianist terms because they are not used consistently across different languages. For instance, while the terms *Conjunct* and *Independent Order* are traditionally used for most Algonquian languages, the parallel agreement alternation in Arapaho (Plains Algonquian) is referred to with the terms *Affirmative* and *Non-affirmative Order*. The new terminology is meant to uniformly describe the alternation in question across the whole language family. Crucially, the SUFFIXAL/COMPOSITE distinction does not merely refer to the absence/presence of the agreement prefix (AGR:β), but also to the specific forms of the agreement suffixes that appear in each paradigm (AGR:α vs. AGR:γ). The dissociation between the number of markers and their form will be crucial in Section 3.3, where we consider cases where the presence of the prefix is independent from the changes in the suffix forms.

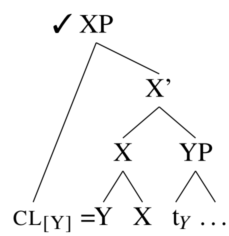
Without Y-to-X movement, Y and X are in separate maximal projections (cf. (8a)), and the locality condition for morphological rules is not met. In contrast, if Y moves to X, they are in the same head-complex (cf. (8b)), so the rule can apply. We will argue that the agreement suffix forms in (7b) are different from (7a) because V-to-C movement feeds morphological operations in this way.

Our second argument concerns the fact that verb movement is also predicted to interact with elements whose realization depends on a local host, such as affixes or clitics. If these elements require a local host of category Y, then an intervening category X will prevent attachment (cf. (9a)), whereas movement may void the intervention and thus feed attachment of such elements (cf. (9b)).

(9) a.



b.



We will argue that the preverbal agreement marker in (7b) stands in this kind of relation to the verb. The movement of the verb to C feeds its attachment onto the verb. When V-to-C movement does not occur, attachment cannot take place and the marker is not spelled-out.

Based on these two arguments and further evidence from cross-linguistic variation, we propose that the morphological alternation between agreement paradigms is in fact how V-to-C movement manifests itself in Algonquian. More than just a word order phenomenon, V-to-C movement may be viewed as a parametric option that can have radically different surface results in different languages depending on the setting of other parameters, such as the polysynthesis parameter. V2 may thus turn out to be more pervasive than one would expect from the traditional view on the phenomenon. Additionally, the proposed method for detecting V-to-C movement in Algonquian is applicable to other languages where such movement may not cause a change in word order.

The remainder of this paper is structured as follows. In section 2, we show that there is a striking parallelism between the distribution of the two agreement paradigms in Algonquian and the distribution of V2 across Germanic. In section 3, we present three distinct pieces of evidence for the V-to-C analysis of the COMPOSITE vs. SUFFIXAL agreement alternation. We conclude with some broader implications of our study for cross-linguistic variation and first language acquisition.

2. Clausal environment sensitivity in Algonquian and Germanic

In order to establish the existence of V-to-C movement in Algonquian we must first consider the syntactic environments in which V-to-C movement occurs cross-linguistically. Thus, we will compare the clausal environments where COMPOSITE agreement occurs in different Algonquian languages with those where V2 occurs in different Germanic languages, given that V2 involves the prototypical case of V-to-C movement. What will emerge from this is a close parallel between the two phenomena with respect to the two main parameters of variation: (i) sensitivity to the matrix/embedded contrast, and (ii) having a *general* distribution versus a *residual* one. Furthermore, we will show that the close parallelism extends also to several more fine-grained parameters.

With regards to the matrix/embedded contrast, V2 languages fall into two broad categories: those where V2 is limited to matrix clauses only and those where V2 occurs in *some* types of embedded clauses as well. In other words, V2 can occur in embedded clauses if and only if it also occurs in matrix clauses. This means that the distribution of V2 has a 3/4 pattern with regard to the matrix/embedded clause distinction, as summarized in Table 1.

The absence of pattern #4 also manifests itself in a different way in languages with both matrix and embedded V2 (pattern #2): with regards to the specific types of matrix and embedded clauses where V2 is observed in these languages, V2 never occurs in larger set of embedded than matrix

pattern	matrix clause	embedded clause	example
#1	V2	no V2	Dutch, ...
#2	V2	V2	Icelandic, German, ...
#3	no V2	no V2	Russian, Chinese, ... (non-V2)
#4	no V2	V2	**unattested**

Table 1: Matrix vs. embedded (a)symmetries in V2 distribution

environments. The reverse pattern, where there are more matrix than embedded V2 environments, is widely attested, although in those cases we find an additional parameter which concerns the distribution of embedded V2 specifically (*limited* vs. *general embedded V2*; to be elaborated below).

The second main parameter that governs the distribution of V2 concerns the difference between the so-called *general V2* and *residual V2* patterns. With the general pattern, V2 is the default configuration which is blocked in a restricted set of clausal environments (e.g. V2 in Dutch, German, Icelandic), whereas with the residual pattern, the absence of V2 is the default configuration and V2 only occurs in a restricted set of clausal environments (e.g. auxiliary inversion in English).

In the continuation of this section, we compare the distribution patterns of V2 in Germanic with the distribution patterns of COMPOSITE agreement in Algonquian with respect to the parameters outlined above. We show that the distribution of COMPOSITE agreement is parameterized along the same lines as V2 (both in broad and more fine-grained terms). Crucially, the distribution patterns unattested with V2 are also unattested with COMPOSITE agreement.

2.1 General V2/COMPOSITE agreement

We first consider the *general* patterns, where V2 or COMPOSITE agreement is the default option in matrix clauses. Our goal is not to present the full range of variation in V2/non-V2 and COMPOSITE/SUFFIXAL environments across the two language families. Rather, we want to show that the two phenomena vary along the same two parameters identified above. Crucially, even though some languages or dialects not discussed here might show slightly different patterns of distribution of V2 and COMPOSITE agreement, they too fall within the limits of the typological variation presented in this paper—most importantly, the 3/4 pattern illustrated in Table 1 holds across the board.

2.1.1 *No embedded V2/COMPOSITE agreement*

The first relevant pattern is one where V2/COMPOSITE agreement is restricted to matrix clauses (cf. #1 in Table 1). Dutch is a language with a V2 pattern of this kind: V2 is generally obligatory in matrix clauses,[5] but it is ungrammatical in embedded clauses. In (10a), the verb is in the second position of the matrix clause, in this case after a fronted PP. In embedded clauses, in contrast, it is not possible to have the verb in the second position after a fronted XP, as shown in (10b), and the only grammatical option is to express the verb in the sentence-final position, as in (10c).

(10) a. Met Pluk **redt** Aagje Leentje uit de olie
With Pluck saves Aggie Leentje from the oil
'Aggie saves Leentje from the oil together with Pluck.'

b. *De Stampertjes weten [*dat* Aagje **redt** met Pluk Leentje uit de olie].
The Stampers know that Aggie saves with Pluck Leentje from the oil
'The stampers know that Aggie saves Leentje from the oil together with Pluck.'

c. De Stampertjes weten [*dat* Aagje met Pluk Leentje uit de olie **redt**].
The Stampers know that Aggie with Pluck Leentje from the oil saves
'The stampers know that Aggie saves Leentje from the oil together with Pluck.'

A COMPOSITE/SUFFIXAL agreement counterpart to Dutch V2 is found in Plains Cree. Namely, COMPOSITE agreement in Plains Cree only occurs in matrix clauses like (11a),[6] while verbs in embedded clauses must have SUFFIXAL agreement, as shown in (11b) vs. (11c).

(11) a. **ni-** nêstosi **-n** COMPOSITE
1- tired.AI -1
'I'm tired.'

[5] The only exceptions are imperatives, polar questions, and topic-drop clauses, where a *Verb-First (V1)* pattern is observed. The V1 word order crucially still requires V-to-C movement to occur just like the V2 word order.

[6] The English translation is not entirely parallel to the Plains Cree form of 'tired' here. In Plains Cree 'tired' is a regular animate intransitive (AI) verb (as are most words which would be adjectival in English).

b. *ni-kî-wîhtamaw-â-w ni-sîmis [**ni-** nêstosi **-n**] COMPOSITE
1-PAST-tell.TA-DIR-3 1-sibling 1- tired.AI -1
'I told my little brother that I am tired.'

c. ni-wîhtamaw-â-w ni-sîmis [*ê-* nêstosi **-yân**] SUFFIXAL
1-tell.TA-DIR-3 1-sibling COMP- tired.AI -1
'I told my little brother that I was tired.' Plains Cree (Cook 2008, 31, 248)

As noted in the introduction, COMPOSITE and SUFFIXAL agreement differ in two ways: (i) the preverbal agreement marker (**ni-** in (11a)) is present with COMPOSITE but is absent with SUFFIXAL agreement, and (ii) even though agreement occurs with the same arguments (a 1st person singular subject in (11)), the postverbal morphemes realizing the agreement are different: (**-n**) in COMPOSITE and (**-yân**) in the SUFFIXAL agreement. These morphological differences extend beyond Plains Cree to all the Algonquian languages with the agreement alternation, but we postpone discussing them in detail until Section 3, where we show how they relate to the presence of V-to-C movement.

2.1.2 *Limited embedded V2/COMPOSITE agreement*

Unlike Dutch and Plains Cree, some languages do not restrict V2/COMPOSITE agreement to matrix clauses (cf. #2 in Table 1). For example, German generally disallows V2 in embedded clauses and requires it in matrix clauses,[7] as discussed in the introduction and illustrated again in (12).

(12) a. Ich bezweifele [daß Hans *{**ist**} gestern zu Hause geblieben {**ist**}.]
I doubt that Hans {is} yesterday at home stayed {is}
'I doubt that Hans stayed at home yesterday.'

b. Gestern **ist** Hans zu Hause geblieben.
yesterday is Hans at home stayed
'Hans stayed at home yesterday.' German (Richards 2004, 366)

However, German does exceptionally allow V2 in embedded clauses with a restricted class of embedding verbs that optionally take clauses without a complementizer (Thiersch 1978; Haider 1984;

[7]Like in Dutch (see footnote 5), imperatives, polar questions, and topic-drop clauses have a V1 order.

Vikner 1995; Biberauer 2002; Heycock 2006; i.a.). For example, we see in (13) that embedded V2 is possible under *behaupten* ('to claim') when the complementizer is absent (13b).

(13) a. Watson behauptete [*daß* Moriarty nor das Geld gestohlen **hatte**].
Watson claimed that Moriarty only the money stolen had

b. Watson behauptete [dieses Geld **hatte** Moriarty gestohlen].
Watson claimed this money had Moriarty stolen
'Watson claimed that Moriarty had stolen the/this money.' German (Vikner 1995, 71)

Note the contrast matrix and embedded clauses: V2 is the default word order in matrix clauses, but it is only allowed in a restricted set of embedded clauses. Thus, although V2 occurs in German in both matrix and embedded clauses, most types of embedded clauses will never have V2. This can be seen as a language-internal version of the cross-linguistic 3/4 pattern established in Table 1; i.e. no language has V2 only in embedded clauses, and no language has V2 more readily available in embedded clauses than in matrix clauses while the reverse is widely attested.

A counterpart to the German *limited* embedded V2 pattern is found in Western Naskapi, where COMPOSITE agreement is generally required in matrix contexts, such as in (14a), and SUFFIXAL agreement is generally required in embedded clauses, such as in (14b).

(14) a. **chi**= wâpim -iti **-n** COMPOSITE
2= see -INV -1>2
'I see you (sg.)'

b. Ø-chischâyiht-im [wîyâpim -it **-ân**] SUFFIXAL
3-know-3>INAN <IC>see -INV -1>2
'S/he knows that I see you (sg.)' Western Naskapi (Brittain 2001b, 25, 112)

However, just like V2 in German, COMPOSITE agreement clauses are exceptionally possible with a restricted class of embedding verbs in Western Naskapi. These verbs optionally take embedded clauses that lack the otherwise obligatory complementizer known in the Algonquianist literature as *Initial Change* (IC) (Brittain 1999, 2001b; see also Section 3.2.5). For example, when *âhkwâtâyim* ('to be excited') is the subordinating verb, the embedded clause can either have IC and SUFFIXAL agreement or lack IC and have COMPOSITE agreement, as shown in (15a) and (15b) respectively.

(15) a. chichiwa nit-âhkwâtâyim-âw [*châ*-nitûwîu **-t**] IC+SUFFIXAL
really 1-be.excited-3>3OBV <IC>FUT-hunt -3
'Really, I am excited that he will go hunting.'

b. chichiwa nit-âhkwâtâyim-âw [**Ø-** wî-nitûwî **-w**] COMPOSITE
really 1-be.excited-3>3OBV 3- want-hunt -3
'Really, I am excited that he is going hunting.' W. Naskapi (Brittain 2001b, 33n2)

What is striking is that not only is embedded COMPOSITE agreement very restricted in Western Naskapi, but that the exceptional embedded environment is the same as in German and other Germanic languages with limited embedded V2 (see Vikner 1995).

The limited COMPOSITE agreement pattern is thus parallel to limited V2 in terms of the embedded environments in which COMPOSITE agreement is exceptionally possible. Additionally, and, perhaps, even more strikingly, limited COMPOSITE agreement also parallels the limited V2 patterns in terms of the contexts where COMPOSITE agreement is blocked, namely with overt complementizers and specific types of negation. For example, in some languages V2 becomes optional in matrix clauses with so-called *focus adverbs* in SpecCP (Egerland 1998; Nilsen 2003), as illustrated for Swedish in (16a). Crucially, focus adverbs can be followed by a complementizer, as in (16b), in which case V2 is blocked and the verb remains in situ (Platzack 1986; Holmberg 2015).

(16) a. Kanske {**kommer**} han inte {**kommer**}. V2/non-V2
maybe {comes} he not {comes}

b. Kanske *att* han inte **kommer**. *that*+non-V2
maybe that he not comes
'Maybe he's not coming.' Swedish (Holmberg 2015, 355-6)

Similarly, Western Naskapi *focus constructions* are matrix clauses with a focused argument, adverb, or a particle preceding the verb, which are also an exceptional environment where SUFFIXAL agreement is allowed in matrix clauses (see Brittain 2001b, 139–40). Crucially, just as in Swedish, these clauses optionally allow an overt complementizer (IC) after the focused element, in which case the verb *must* surface with SUFFIXAL agreement despite being in a matrix clause, as in (17).

(17) mîn nâkit-**âhk** mîn chấtûhtâ-**t** — IC+SUFFIXAL
again <IC>leave-3>INAN again <IC>.set.off-3
'Again, he leaves it (the campsite). Again, he sets off.' — W. Naskapi (Brittain 2001b, 139)

The complementary distribution of overt Cs and V-to-C movement is one of the hallmarks of V2 (absent only with general embedded V2; see Section 2.1.3). Here it is paralleled in Algonquian with the complementary distribution of COMPOSITE agreement and the IC complementizer.

Yet another parallel is observed with the relationship between V2/COMPOSITE agreement and negation. For example, when the verbs that exceptionally take V2 complement clauses in Danish (a limited embedded V2 language) are negated, V2 becomes impossible, as shown in (18).

(18) a. Peter troede [at den film **havde** Maria set].
Peter thought that that film had Maria seen
'Peter thought that Maria had seen that film.'

b. *Peter troede *ikke* [at den film **havde** Maria set].
Peter thought not that that film had Maria seen
'Peter didn't think that Maria had seen that film.' — Danish (Reinholtz 1993, 405)

Western Naskapi, which has a limited embedded COMPOSITE agreement pattern, also disallows COMPOSITE agreement in embedded clauses in the presence of the *âkâ* negator, as shown in (19).

(19) a. chischâyim-âw [*âkâ* mîchisu-**iyichî**] — ✓NEG+SUFFIXAL
know-3>3OBV NEG.COMP eat-3

b. *chischâyim-âw [*âkâ* Ø-mîchisu-**w**] — ✗NEG+COMPOSITE
know-3>3OBV NEG.COMP 3-eat-3
'He knows she isn't eating.' — W. Naskapi (Brittain 2001b, 110, 114)

The *âkâ* negator is crucially a negative complementizer, required when embedded clauses and wh-questions are negated (Brittain 2001b, Sect. 3.3). Similarly, the blocking of V2 in (18b) has been attributed to the embedded CP containing a negative element (either the C itself or a silent negative operator in SpecCP) (Iatridou & Kroch 1992; Reinholtz 1993). This type of embedded CP is selected by negated matrix verbs, which is why there is a correlation between negation in the matrix clause and lack of V2 in the embedded clause. This means that in both Danish and W. Naskapi a negative element in the embedded clause blocks V2 or COMPOSITE agreement.[8]

In sum, the limited COMPOSITE agreement pattern is not only comparable to limited embedded V2 in terms of the embedded environments in which COMPOSITE agreement is exceptionally possible, but also surprisingly in terms of the contexts where COMPOSITE agreement is blocked, namely with overt complementizers and specific types of negation.

2.1.3 *General embedded V2/COMPOSITE agreement*

Embedded V2/COMPOSITE agreement is crucially not always *limited*. Icelandic famously exhibits a *general embedded V2* pattern, where V2 is the default order also in embedded clauses, including those with an overt complementizer like (20a). However, the distribution of V2 in Icelandic is still not entirely symmetrical across matrix and embedded clauses in that V2 is disallowed in embedded questions like (20b), and is not required in relative and adverbial clauses.

(20) a. Jón efast um að [á morgun **fari** María snemma á fætur.]
John doubts that tomorrow gets Mary early up
'John doubts that Mary will get up early tomorrow.' Icelandic (Richards 2004, 366)

b. Jón veit ekki [Hvaða mynd ***{hafi}** María {**hafi**} horft á í gær.]
John knows not which picture {had} Mary {had} watched yesterday
'John doesn't know what/which film Mary watched yesterday.' (p.c. G. R. Harðarson)

Thus, V2 in Icelandic is still more restricted in embedded than in matrix environments: the matrix pattern is essentially the same as in Dutch and German,[9] but V2 is crucially blocked in embedded questions, despite the more widespread availability of embedded V2 in the language. This means that while matrix wh-questions require a V2 order, embedded wh-questions prohibit it. Once

[8] It has been suggested that cases where embedded V2 is impossible under inherently negative verbs like 'doubt' and 'regret' can be analyzed along the same lines; see e.g. Reinholtz 1993 for an argument based on NPI licensing.

[9] The main difference is in that V1 occurs in Icelandic also with so-called *Narrative Inversion*, and that Icelandic, like Swedish (see (16)), does not require V2 with focus adverbs (see Holmberg 2015, 352–3, 355).

again, we see here a version of the familiar 3/4 pattern: if a matrix vs. embedded asymmetry in V2 is observed, it is always the embedded version of the relevant clause that disallows V2.

A COMPOSITE agreement pattern comparable to Icelandic V2 is attested in Wampanoag, where COMPOSITE agreement is found generally in matrix and embedded clauses (cf. (21a)), and only some embedded clauses require SUFFIXAL agreement. Interestingly, COMPOSITE agreement is blocked in embedded questions (cf. (21b)), the same environment where V2 is blocked in Icelandic.

(21) a. Matta wunnamptam-uu [noh pish Ø-quinnupp-**u** wutch pohkenahtu] COMPOSITE
not believe-NEG he will 3-return-3 from darkness-LOC
'He believeth not that he shall return out of darkness . . . [Job 15:22]'

b. . . . wehquetush [teaguas anumau-**un**] SUFFIXAL
ask-IMPER what <IC>.give-1SG>2SG
'. . . ask what I shall give thee. [1 Kings 3:5]' Wampanoag (Richards 2004, 365, 337)

In sum, all three general V2 patterns from Table 1 have counterparts in Algonquian with COMPOSITE agreement: Dutch and Plains Cree restrict V2/COMPOSITE agreement to matrix clauses only (pattern #1), German and Western Naskapi differ in also allowing V2/COMPOSITE agreement in a limited set of embedded environments (pattern #2), and finally in Icelandic and Wampanoag embedded V2/COMPOSITE agreement is generally available, but it is blocked in a limited set of embedded environments (pattern #3). Importantly, both phenomena conform to the 3/4 pattern from Table 1: (i) there are no languages that have V2/COMPOSITE agreement in embedded, but not in matrix environments, and (ii) there are no languages that have V2/COMPOSITE agreement in more embedded than matrix environments. The two phenomena thus vary in same way with respect to the matrix/embedded parameter, and interestingly also show parallel behavior on a more fine-grained level, as with the complementary distribution with overt complementizers and the identity of the exceptional matrix and embedded environments that deviate from the baseline pattern.

2.2 *Residual V2/COMPOSITE agreement*

The languages discussed so far all had V2 or COMPOSITE agreement as the general pattern in matrix clauses, and differed only regarding the pattern in embedded clauses. However, languages can also differ regarding the generality of V2 across the board, where some languages exhibit a more limited *residual V2* pattern (Rizzi 1990). We will see now that even with respect to this other major parameter, we find a *residual COMPOSITE agreement* counterpart in Algonquian.

The residual V2 pattern is found in the Germanic family in modern English, where V-to-C movement—or rather Aux-to-C movement yielding subject-auxiliary inversion—is limited to a small set of clausal environments. Crucially, Aux-to-C movement is not the default option, we find it only with *interrogative inversion*, *negative inversion*, and *conditional inversion*:

(22) a. Where **have** I seen you before? [interrogative inversion]
b. Never **have** I met someone so incredibly rude. [negative inversion]
c. **Had** I been rich, everything would have been OK. [conditional inversion]

In earlier versions of English, inversion took place with lexical verbs as well and thus involved V-to-C movement (Biberauer & Roberts 2016); cf. Middle English conditional inversion in (23).

(23) a. **Dewite** þ ungesewenlice ut þonne fylð adune þ gesewenlice
depart.SBJV the invisible(soul) out then falls down the visible(body)
'If the invisible soul departs, then the visible body falls down.' (*AEHom I, 10: 123-4*)

b. **Wenst** þu þat ic ne cunne singe?
wishes you that I not can sing
'Do you think that I can't sing?' (*The owl and the Nightingal 1.47*)

A counterpart to residual V2 is found in the Plains Algonquian language Arapaho, an outlier within the language family in many respects, including the distribution of COMPOSITE agreement (Cowell & Moss Sr. 2008). Unlike in the Algonquian languages discussed in Section 2.1, basic declarative clauses, like (24a), require SUFFIXAL agreement in Arapaho, whereas negative clauses, like (24b), are among the small class of clauses that require COMPOSITE agreement. Importantly, the two agreement paradigms differ in the same way as in other Algonquian languages: the presence of the preverbal marker (**hé-**), and the different suffix forms (**-nee** vs. **-be**).

(24) a. n<on>óóhob -í **-nee** SUFFIXAL
<IC>.see -DIR -2PL>1
'You$_{pl}$ see me.'

b. **hé**= íhoow- noohob -í **-be** COMPOSITE
2= NEG- see -DIR -2PL>1
'You$_{pl}$ don't see me.' Arapaho (Cowell & Moss Sr. 2008, 488)

Outside negative clauses like (24b), COMPOSITE agreement is used in Arapaho also in questions, illustrated in (25a), certain modal clauses (e.g. dubitative evidentials), and conditional clauses with the modal particle *eebeh-*, illustrated in (25b).

(25) a. **he**= ih- touʔ- noʔkóóʔ [question]
2= PAST- when- arrive
'When did you arrive?'

b. [**n**= eebéh- noʔúsee] h<é>ét- noʔúxoh-óʔ né-ínoo. [conditional]
1= MOD- arrive IC.FUT- bring-1SG>3SG 1SG-mother
'If I come, I'll bring my mother' Arapaho (Cowell & Moss Sr. 2008, 242, 266)

Note that the environments where inversion takes place in English are strikingly similar to those where we see COMPOSITE agreement in Arapaho, namely: conditional/modal environments, negative environments,[10] and interrogative clauses. Thus, the absence of inversion/COMPOSITE agreement can be seen in both cases as the default pattern, as inversion/COMPOSITE agreement is observed only in a limited set of environments. We suggest that this is not a coincidence; the Arapaho SUFFIXAL/COMPOSITE pattern is to the basic Algonquian patterns what English is to the basic Germanic V2 patterns; i.e. Arapaho has a residual COMPOSITE agreement pattern.[11]

[10] Recall also that in Arapaho COMPOSITE agreement is required with sentential negation. Negation also triggers inversion in some varieties of English; e.g. in African American English (Sells, Rickford, & Wasow 1996), Alabama English (Feagin 1979), Appalachian English (Montgomery & Hall 2004), and West Texas English (Foreman 1999). In "standard" English, only some negative expressions trigger negative inversion (Haegeman 2000).

[11] French patterns even more closely with Arapaho in terms of its residual V2 pattern, in that inversion also occurs

Languages with a residual V2 pattern crucially show the same variability in embedded V2 as the general V2 languages from Section 2.1. Thus, while inversion is generally observed in English only in matrix clauses, there are varieties of English, like Belfast English (Henry 1995), where inversion is attested in embedded clauses as well. Importantly, across the different varieties of English, inversion is overall observed in more matrix environments than embedded ones, and with respect to specific clausal environments (e.g. questions), inversion is either limited to matrix clauses or is allowed in both matrix and embedded clauses. Thus, we again observe the familiar 3/4 pattern. This is also the case in Arapaho, where COMPOSITE agreement is allowed in some embedded clauses, but overall it occurs in more matrix environments than embedded ones.

2.3 Summary and Generalizations

In this section we considered variation in the distribution of V2/COMPOSITE agreement with respect to two parameters: (i) sensitivity to the matrix versus embedded contrast, and (ii) having a general versus a residual distribution. We have shown that in both cases a 3/4 pattern emerges, summarized for V2 again in Table 2 and for COMPOSITE agreement in Table 3.

pattern	matrix clause	embedded clause	example
#1	V2	no V2	Dutch
#2	V2	V2	Icelandic, German, …
#3	no V2	no V2	Russian, Chinese (non-V2)
#4	no V2	V2	unattested

Table 2: Matrix vs. embedded (a)symmetries in V2 distribution

with lexical verbs (due to the general availability of V-to-T movement; cf. Pollock 1989). We discuss English instead of French in order to highlight the parallels between the variation within Algonquian and the variation within Germanic.

[12] Mi'kmaq (Eastern Algonquian) has lost the COMPOSITE/SUFFIXAL alternation (Inglis 2002), although it does have specialized verb forms limited to specific embedded contexts: if-adjuncts, when-adjuncts, subjunctive/infinitival contexts. These are more comparable to infinitive and subjunctive verb in Indo-European languages in that they are, like infinitives, limited to embedded contexts, and like both subjunctives and infinitives only appear embedded under a specific set of attitude predicates (e.g. 'want' and 'hope'). See Section 3.3 for some further discussion of Mi'kmaq.

pattern	matrix clause	embedded clause	example
#1	COMPOSITE	SUFFIXAL	Plains Cree
#2	COMPOSITE	COMPOSITE	Western Naskapi, Wampanoag, ...
#3	SUFFIXAL	SUFFIXAL	Mi'kmaq[12]
#4	SUFFIXAL	COMPOSITE	unattested

Table 3: Matrix vs. embedded (a)symmetries in COMPOSITE/SUFFIXAL distribution

In sum, COMPOSITE agreement is, like V2, more pervasive in matrix clauses than embedded ones—considering both language-wide distribution and specific clausal environments. The parallel between the two is further strengthened by the parallelism with respect to the general/residual parameter, where outlier languages with a residual V2/COMPOSITE agreement pattern are found in both cases. Finally, there are striking similarities between the phenomena at a more fine-grained level, such as the complementary distribution of V2/COMPOSITE agreement with overt complementizers, the environments where embedded V2/COMPOSITE agreement deviates from the baseline pattern, and the clausal environments where residual V2/COMPOSITE agreement is found.

It is also important to consider this in light of the traditional view of the COMPOSITE/SUFFIXAL alternation (see e.g. Goddard 1974), which is that it marks a clause type contrast unique to Algonquian languages. However, if we consider the different distributions of COMPOSITE VS. SUFFIXAL agreement across Algonquian, we find no clear natural class—in terms of semantic or discourse functions—that characterizes "COMPOSITE clauses" or "SUFFIXAL clauses". For example, Wampanoag "SUFFIXAL clauses" include relative, what/if adjunct, and embedded wh-question clauses, while "COMPOSITE clauses" are all the remaining clauses. In contrast, Arapaho "COMPOSITE clauses" are a subset of negative, modal, and interrogative clauses, while "SUFFIXAL clauses" are all the remaining clauses. As noted above, there are many other distribution patterns that group the clauses in distinct ways. The only way all the relevant clausal environments can be characterized as natural classes is by drawing the parallel with V2 vs. non-V2 clausal environments.

The remarkable parallelism in the distribution of V2 in Germanic and COMPOSITE agreement in Algonquian inspires the question: do these parallels mean the two phenomena have a common grammatical source? As mentioned, V2 is generally analyzed as V-to-C movement with additional fronting of an XP to SpecCP. Given the difficulties with identifying verb movement in Algonquian (see Section 1.2), it is conceivable that the two phenomena are triggered/blocked in the same clausal environments, but involve different grammatical processes: verb movement in the former and a morphological alternation in the latter. While accidental parallelism is always a possibility, it is important to explore the more interesting hypothesis that the parallelism is due to a common grammatical source, and we argue that this hypothesis can be independently supported.

Specifically, we show in the next section, based on a morphological examination of the two agreement paradigms in Algonquian, that COMPOSITE agreement is in fact a morphological reflex of V-to-C movement. The parallels in distribution with V2 and the morphological behavior of the agreement affixes together point to the same conclusion: V-to-C movement exists in Algonquian languages, despite not having the usual effect on word order. We will also show that comparable alternations in agreement morphology can be found in transparently V2 languages where V-to-C movement is clearly reflected in the word order, which only further strengthens our proposal.

3. Morphology as a test for movement

There are two seemingly contradictory ways in which verb movement has been observed to correlate with agreement morphology: some types of verb movement correlate with richer agreement paradigms (the *Rich Agreement Hypothesis*; Roberts 1985; Platzack & Holmberg 1989; Pollock 1989), while others can result in impoverished agreement paradigms (*anti-agreement*; Chung

1982, 1998; Georgopoulos 1991; Ouhalla 1993). A careful morphological examination of the Algonquian agreement alternation reveals that it abstractly displays both types of verb movement-agreement interactions: (i) verb movement results in a larger number of agreement morphemes on the verb (*more movement—more morphemes*), and (ii) verb movement results in individual agreement morphemes showing fewer φ-feature distinctions (*more movement—more neutralization*).

Another way in which verb movement interacts with morphology through its effects on adjacency-dependent processes; the verb may move either away from or closer to elements whose realization depends on adjacency to the verb. We show that the distribution of Algonquian preverbal agreement can be explained by the assumption that its realization is fed by V-to-C movement.

These three pieces of morphological evidence, in conjunction with the distribution patterns of COMPOSITE agreement established in the previous section, point towards COMPOSITE agreement being the morphological reflex of V-to-C movement in Algonquian languages. This converging evidence from morphology and the patterns of distribution across clausal environments thus also sheds light on the long-standing debate in the Algonquian literature on whether SUFFIXAL or COMPOSITE agreement contexts involve verb movement, which we briefly discuss below.

3.1 Argument #1: More movement—more morphemes

The first piece of evidence in favor of COMPOSITE agreement being a reflex of V-to-C movement comes from the alternation in the number of agreement morphemes between the COMPOSITE and SUFFIXAL agreement paradigms: the verb consistently shows a larger number of agreement morphemes in the COMPOSITE than in the SUFFIXAL paradigm, as illustrated for Wampanoag in (26).

(26) a. … nâw -uquy **-âk** -up
see -INV -2PL -PRET
'… (if/when/…) they saw you$_{pl}$'

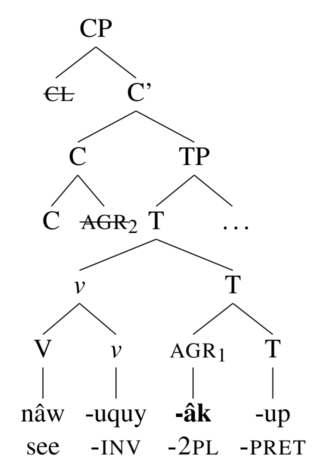
b. **ku-** nâw -uk **-uwô** -pan **-eek**
2- see -INV -NON1PL -PRET -PL
'They saw you$_{pl}$' (Richards 2004, 327)

The correlation between the number of agreement affixes on the Algonquian verb and V-to-C movement has been independently suggested by Halle & Marantz (1993) for Potawatomi and Richards (2004) for Wampanoag. In particular, Richards argues that there are three loci of agreement in the clause that must become part of the verb: the preverbal agreement morpheme (CL; which he takes to be a proclitic), the outer suffix (AGR$_2$) in C, and another affix lower in the clause (AGR$_1$). This is illustrated in (27) (simplifying somewhat Richards' structure).[13]

(27) [$_{\text{CP}}$ CL [$_{\text{C'}}$ C-AGR$_2$ [$_{\text{TP}}$ T-AGR$_1$ [$_{v\text{P}}$ v(TH) [$_{\text{VP}}$ V ...]]]]]

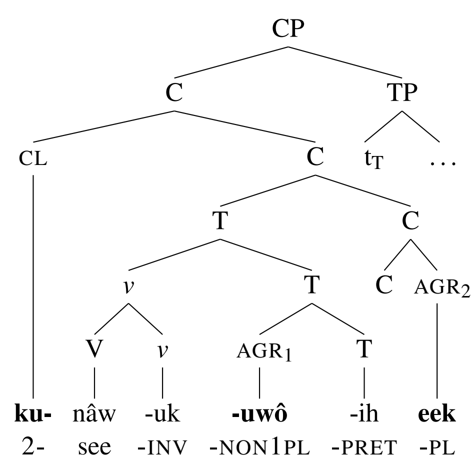
The basic idea is that AGR heads may only be morphologically realized when they are part of the verbal complex, which means that if the verb head-moves only to T, as in (28a), only AGR$_1$ may be realized. Conversely, if the verb head-moves not only to T, but all the way to C, as in (28b), AGR$_1$, AGR$_2$, and CL may be realized (we discuss the conditions on the realization of CL in detail in Section 3.3). Importantly, the two options respectively yield the SUFFIXAL and the COMPOSITE paradigm of Wampanoag (the trees correspond to the examples in (26)).

(28) a. SUFFIXAL agreement



'... they saw you$_{pl}$.'

b. COMPOSITE agreement



'They saw you$_{pl}$.'

[13] Note that the distribution and number of AGR morphemes can vary from language to language. There are cases, like in Arapaho (see Section 3.2), where only the form but not the number of suffixes changes between SUFFIXAL and COMPOSITE agreement, suggesting the absence of C-AGR. A similar case is Blackfoot, where the preverbal agreement morpheme is present in both paradigms, suggesting CL is located in SpecTP instead (see Section 3.3).

This approach captures the *more movement—more morphemes* effect of verb movement and thus provides an explanation for the COMPOSITE paradigm having more agreement morphemes per verbal form than the SUFFIXAL paradigm. But if that is all there is to the COMPOSITE/SUFFIXAL alternation, why is the Halle & Marantz/Richards analysis not universally accepted?

One reason is the changing forms of agreement affixes between the COMPOSITE and SUFFIXAL paradigm, which Richards does not account for. Halle & Marantz, on the other hand, posit an *Ind(ependent)* head between V and T, associated with a special discourse function, which can morphologically condition the affixes in the COMPOSITE paradigm. However, recall that the distribution of COMPOSITE agreement can vary significantly from language to language, making it hard, if not impossible, to characterize COMPOSITE agreement clauses across Algonquian in terms of a single discourse function—especially given the outlying Arapaho distribution. Additionally, invoking an Algonquian-specific category *Ind* leaves unexplained the parallels between COMPOSITE agreement and V2 in Germanic, and also introduces a redundancy into their analysis: C is the trigger for V-to-C movement, but the *Ind* head is responsible for the changing affixes.

Another reason is that there exist other analyses that can derive the same basic facts, namely: (i) it is SUFFIXAL, not COMPOSITE, agreement that reflects V-to-C movement (Campana 1996; Brittain 1997, 1999, 2001b; Branigan 2012), and (ii) the verb never moves in Algonquian, so the agreement alternation has a different source (Bruening 2001; Lochbihler & Mathieu 2016).[14] With the *SUFFIXAL = V-to-C* analysis, the difference in the number of agreement morphemes is attributed either to an anti-agreement effect (Campana 1996) or the verb selecting for a more/less

[14] Non-movement analyses presuppose a non-polysynthetic analysis of Algonquian (see Section 1.2), and use examples with more than one constituent preceding the verb as evidence against a V-to-C movement analysis. But note that even in prototypical V2 languages, one finds exceptional V3 (even V4, V5, and so on) orders (see e.g. Holmberg 2015 for references), so this does not constitute conclusive evidence for the lack of V-to-C movement—especially since the Algonquian examples in question are very limited and in fact very much resemble well known V3 contexts.

articulated agreement paradigm (Brittain 2001b); the latter is also what non-movement analyses have to assume (Lochbihler & Mathieu 2016).[15] Setting aside for now the anti-agreement analysis (see Section 3.2), note that a selection-based analysis of the COMPOSITE/SUFFIXAL agreement alternation does not differentiate between movement and non-movement analyses.

A selection-based analysis requires each verb to come in two versions (COMPOSITE and SUFFIXAL agreement selecting), and the clausal environment determines which version is used.[16] This introduces a similar redundancy as the Halle & Marantz analysis (i.e. both COMPOSITE clauses *and* COMPOSITE verbs must be independently specified), which is why the selection-based analysis is compatible with a non-movement analysis, a *SUFFIXAL = V-to-C* analysis, and even a *COMPOSITE = V-to-C* analysis. In other words, if the possibility of verbs directly selecting the agreement paradigm is introduced, there is no *a priori* reason why the agreement paradigms should correlate with verb movement in any particular way. More importantly, if this approach is extended to the changing forms of agreement affixes (i.e. the two versions of the verb can select distinct affix forms; cf. Brittain 2001b), there is no reason to expect a systematic relationship between the two paradigms, as they are not derivationally related. This issue is not necessarily avoided if the changing affix forms are treated as allomorphs (cf. Halle & Marantz 1993; Lochbihler & Mathieu 2016), as in principle the COMPOSITE forms could be allomorphs of the SUFFIXAL forms or vice versa.

[15] We are simplifying here, as Brittain (2001b) and Lochbihler & Mathieu (2016) treat preverbal agreement differently; Brittain argues that it occurs when the suffixes have deficient φ-features (see Section 3.2 for our account of this "deficiency"), while Lochbihler & Mathieu argue that it realizes the φ-features of C. Note that this does not affect our arguments below, as we also argue in Section 3.3 that preverbal and postverbal agreement are conditioned differently.

[16] An anonymous reviewer suggests an alternative analysis, where selection occurs instead between C and T and different Cs select for different Ts, requiring either COMPOSITE or SUFFIXAL inflection, thus avoiding the need for each verb to come in two versions. However, T is not the only locus of the COMPOSITE/SUFFIXAL alternation, as theme signs, located in *v*, also participate in it (see footnote 19). Thus, each type of *v* (there are typically 4 agreement paradigms based on transitivity and animacy of the agent) would also have to be doubled, and the appropriate version of *v* would need to be selected for by T. An analysis of this type would require C, T, and at least four types of *v* to each come in two versions related to each other via selection. Crucially, even if we set aside this complication, we would still have no explanation for the morphological asymmetries discussed in Section 3.2, which are problematic for any analysis that treats the two agreement paradigms as morphologically unrelated, like selection based analyses do.

In order to determine whether the Algonquian agreement alternation is tied to V-to-C movement or not, and if so which of the agreement paradigms is the reflex of V-to-C movement, it is crucial to first determine: (i) whether the agreement affix forms in the two paradigms are in any way systematically related, and (ii) whether one of the paradigms is derived from the other. In the next section we present evidence that across Algonquian individual suffixes in the COMPOSITE paradigm consistently express fewer φ-feature distinctions than the SUFFIXAL paradigm counterparts, which is a hallmark of morphological neutralization and indicates the presence of a derived conditioning environment. We argue that this is an instance of a *more movement—more neutralization* effect, which indicates that COMPOSITE agreement arises due to V-to-C movement.

3.2 Argument #2: More movement—more neutralization

Consider the Arapaho examples repeated from (24), where we can see different agreement suffixes in the COMPOSITE (29a) and SUFFIXAL paradigms (29b), despite the same subject and object.

(29) a. hé= íhoow- noohob -í **-be**
2= NEG- see -DIR -2PL>1
'You$_{pl}$ don't see me.'

b. n<on>óóhob -í **-nee**
<IC>.see -DIR -2PL>1
'You$_{pl}$ see me.'
Arapaho (Cowell & Moss Sr. 2008, 488)

If **/-be/** and **/-nee/** are allomorphs, it is impossible to know *a priori* which one is the underlying form. In order to determine that, one must consider all the affix forms across both paradigms.

We show next that a careful morphological comparison of the two agreement paradigms across several Algonquian languages reveals that COMPOSITE suffixes systematically show the morphological behaviour of derived forms in relation to their SUFFIXAL counterparts.

3.2.1 *Spelling out the argument*

Let us first consider in abstract terms how a derivational relationship between two morphological paradigms can be established. Consider the two toy paradigms in Table 4.

Paradigm I			Paradigm II		
	SG	PL		SG	PL
1	α	η	1	γ	ε
2	β	δ	2	γ	ε
3	ζ	ε	3	ζ	ε

Table 4: Abstract paradigmatic distinctions (toy example)

Each paradigm consists of six cells: singular (SG) and plural (PL) forms for first (1), second (2), and third (3) person. *Paradigm I* has a distinct form in each cell, while *Paradigm II* makes fewer distinctions: one form is used in all PL cells, and one form is used for 1st and 2nd SG.

There are two analytical options. One is to treat both paradigms as entirely independent from each other, in which case we expect no interaction between them. This could, for example, be taken as the reason why the morpheme /γ/ is found in Paradigm II but not in Paradigm I. However, any similarities between the paradigms (e.g. the /ε/ vs. /ζ/ contrast in the 3rd person) would have to be treated as a coincidence under such an analysis. Moreover, there is no principled reason for Paradigm I to be comprised of six instead of three distinct forms: it is equally likely for Paradigm I to have three forms and for Paradigm II to have six. In other words, if two such paradigms were found consistently across a number of related languages, we would expect no systematicity with respect to which paradigm would make fewer and which paradigm would make more distinctions.

The other, more restrictive, analysis treats the morphological forms of Paradigm I and Paradigm II as one paradigm underlyingly: the appearance of two paradigms is the result of morphological operations. Generally, morphological operations that yield different surface forms of morphemes are associated with specific conditioning environments. That is, only when a specific context is met, the rule is triggered; in any other context the rule does not apply. One such class of rules are so-called *impoverishment rules* (Halle & Marantz 1993; Halle 1997; Calabrese 2008), which eliminate features or featural distinctions, resulting in syncretic forms.[17]

Let us consider how an impoverishment analysis of the paradigms in Table 4 would work. Since Paradigm II makes fewer paradigmatic distinctions, features are deleted through impoverishment rules. Specifically, 1st and 2nd person are not distinguished across the paradigm and plural forms make no person distinctions at all, which is captured by the impoverishment rules in (30), given the rules of exponence in (31)–(32). Morphological operations apply in specific contexts, so we posit the context X_{II}, which stands for the syntactic environment requiring the use of Paradigm II.

(30) a. $[\,\pm\text{sp(eaker)}\,] \rightarrow \varnothing$ / __ X_{II}]
b. $[\,\pm\text{part(icipant)}\,] \rightarrow \varnothing$ / __ $-\text{sg}, X_{II}$]

(31) a. $[+\text{part},+\text{sp}\,] \Leftrightarrow /\alpha/$
b. $[+\text{part},-\text{sp}\,] \Leftrightarrow /\beta/$
c. $[-\text{part}\,] \Leftrightarrow /\zeta/$
d. $[+\text{part}\,] \Leftrightarrow /\gamma/$

(32) a. $[+\text{part},+\text{sp},-\text{sg}\,] \Leftrightarrow /\eta/$
b. $[+\text{part},-\text{sp},-\text{sg}\,] \Leftrightarrow /\delta/$
c. $[-\text{sg}\,] \Leftrightarrow /\varepsilon/$

The rule in (30a) states that [±sp] features, which distinguish 1st from 2nd person, are deleted in the context of X_{II}. As a result, $/\alpha/$, $/\beta/$, $/\delta/$ and $/\eta/$ can not be used as they all make reference to [±sp] features. Additionally, $/\gamma/$ replaces $/\alpha/$ and $/\beta/$, as the $/\gamma/$ morpheme is specified for [+part] contexts, where [+part] is a prerequisite for expressing the [±sp] contrast (Noyer 1992; Harley & Ritter 2002). The reason $/\gamma/$ is not used in Paradigm I is due to a blocking effect: [+part,+sp] and [+part,−sp] are more specific than [+part] (see Kiparsky 1973 on the *Elsewhere Principle*:

[17] What is important for our argument is that the morphological operation requires a trigger that is present in some clauses and absent in others. The type of operation is of less importance, and it could be that something other than impoverishment can derive the pattern seen here. One alternative, suggested by an anonymous reviewer, would be that the Algonquian agreement prefixes are derived through *fission* (Noyer 1992) of the features on the suffix, leaving the suffix only with a subset of its features (see e.g. McGinnis 1995; Campbell 2012 for this type of analysis). This analysis predicts that loss of contrast in the suffixes will only occur when the prefix is present. But we will see in Sect. 3.3 that the occurrence of the prefix can be independent from the morphological changes in the suffixes.

the exponent chosen in the morphological component must be the most specific form for the given feature specification). In plural Paradigm II contexts ([−sg, X_{II}]), rule (30b) will also apply, which deletes [±part], resulting in a complete neutralization of person distinctions in the plural. This means that the general plural morpheme /ɛ/ must be used in all PL contexts in Paradigm II.

Importantly, morphological rules, like (30), are constrained by locality considerations; that is, the conditioning environment for the rule must be present within the same relevant domain as the element affected by the rule. We assume here, following Bobaljik (2012), that morphological processes cannot apply across syntactic maximal projections. In other words, the conditioning element must be in the same (complex) head as the element affected by the rule. In the case of (30), the rules can only apply if X_{II} is part of the same complex head as the φ-features it targets, as in (33a), but not if a maximal projection (YP) intervenes between them, as in (33b).

(33) a. ✓ $\varphi \ldots]_{Y^0} \ldots X_{II}$ b. ✗ $\varphi \ldots]_{YP} \ldots X_{II}$

Relating this to the issue of morphological effects of V-to-C movement, suppose that C is a conditioning environment for a morphological rule targeting an AGR head inside the verbal complex. The rule can only apply if C is inside the same complex head as the AGR head; i.e. when V-to-C movement takes place.[18] Consider now the predictions the two analyses of the toy paradigms in Table 4 make in relation to the Algonquian agreement alternation, with Paradigm I and Paradigm II corresponding to the SUFFIXAL and COMPOSITE paradigms respectively. Given an analysis where the agreement morphemes in the SUFFIXAL and COMPOSITE paradigms are not related to each other, we expect no systematic pattern in the number of φ-feature contrasts expressed by the affixes in each paradigm: the SUFFIXAL forms should be just as likely to make fewer distinctions than

[18] Note that while head movement can result in word-formation, we do not assume that this is the only way to form words. For example, as discussed in Sect. 3.3, the agreement prefix (and potentially other morphemes) can become part of the verbal word under adjacency with the verb (e.g. via *m-merger*; Marantz 1984).

the COMPOSITE forms. The alternative is an analysis where the suffixes are drawn from a common paradigm and the apparent two paradigms arise due to an impoverishment rule triggered in the syntactic environments that require COMPOSITE agreement; in our analysis V-to-C movement. If the latter analysis is correct, we expect the COMPOSITE suffixes to consistently make fewer feature distinctions. In the following we show that the pattern predicted by the impoverishment analysis is exactly what we find across Algonquian and even in some cases in Germanic.

3.2.2 *Paradigmatic neutralizations in Arapaho*

In our first case study, we consider Arapaho agreement suffixes, starting with the animate intransitive paradigms shown in Table 5 ('12' = inclusive 1PL), with all the suffix forms listed in (34).[19]

SUFFIXAL intransitive			COMPOSITE intransitive		
	SG	PL		SG	PL
1	-noo	-niʔ	1	-Ø	-be
2	-n	-nee	2	-Ø	-be
12		-noʔ	12		-n
3	-t/ʔ	-θiʔ	3	-Ø	-noʔ

Table 5: Arapaho Animate Intransitive paradigm

(34) a. SUFFIXAL: **/-noo/**, **/-n/**, **/-t/**, **/-niʔ/**, **/-nee/**, **/-noʔ/**, **/-θiʔ/**
b. COMPOSITE: **/-be/**, **/-n/**, **/-noʔ/**, **-Ø**

Note that the singular suffixes of the COMPOSITE paradigm make no person distinctions: all cells are zero morphemes (**-Ø**). The SUFFIXAL paradigm, on the other hand, has dedicated 1st, 2nd, and 3rd person singular suffixes. This asymmetry can be straightforwardly explained if COMPOSITE

[19]For ease of exposition, we only present partial paradigms here, leaving out: (i) 3rd person obviative markers, as they are independent from person and number contrasts (Brittain 2001a; Richards 2010; Lochbihler 2012, i.a.), (ii) preverbal agreement, discussed in Section 3.3, and (iii) theme signs (direct/inverse markers), which are not central to our argument. However, as discussed by Oxford (2014, 2019), inverse markers have a wider distribution in COMPOSITE paradigms compared to SUFFIXAL paradigms (i.e. the same marker occurs with more subject-object combinations), so they also show more syncretism in the COMPOSITE paradigm, which is compatible with our analysis; we thank Norvin Richards (p.c.) for this point. Note that it is not relevant for our analysis whether or not theme signs are agreement affixes, as argued by Oxford, or not, since the different forms of the theme sign must in either case encode an underlying feature-based contrast that can be neutralized via impoverishment or some other morphological operation.

forms are derived from SUFFIXAL forms, which can be accomplished by the impoverishment rule in (35), deleting *all* person features ([π]) in the context of singular features ([+sg]).

(35) $[\pi] \rightarrow \varnothing$ / __ +sg] "COMPOSITE"]

As the rule neutralizes all person distinctions, the use of morphemes realizing any specific value of [π] is blocked. Thus, the 1st, 2nd, and 3rd person SG suffixes of the SUFFIXAL paradigm cannot be used in the COMPOSITE paradigm and the person-neutral SG suffix **-Ø** is used instead.

More evidence for the impoverishment analysis is found with 1st and 2nd person plural forms. In the SUFFIXAL paradigm, we see distinct 1PL and 2PL suffixes, spelling-out the features in (36a) and (36b) respectively. In the COMPOSITE paradigm, however, one suffix (**/-be/**) covers both 1PL and 2PL: **/-be/** spells-out the features shared by 1PL and 2PL, namely [+part,−sg] (cf. (36c)).

(36) a. [+part,+sp,−sg] ⇔ /-niʔ/ (SUFFIXAL: 1st person plural)
b. [+part,−sp,−sg] ⇔ /-nee/ (SUFFIXAL: 2nd person plural)
c. [+part,−sg] ⇔ /-be/ (COMPOSITE: 1st & 2nd person plural)

The pattern is consistent with an impoverishment rule neutralizing the 1st vs. 2nd person contrast in [−sg] contexts (note that **/-be/** has the distribution of /γ/ in the toy paradigms in Table 4).[20]

The effect of the impoverishment rule is also evident in the Arapaho transitive animate agreement paradigms. The relevant suffixes are summarized in Table 6 (where 'subject > object').

Note the striking difference in syncretism between the SUFFIXAL and COMPOSITE paradigms: the former consists of ten suffixes, while the latter consists of only four suffixes (all the forms are listed in (37)). Additionally, apart from three new suffixes in the SUFFIXAL paradigm, all the suffixes in the two transitive paradigms are also found in the intransitive paradigms (see Table 5).

(37) a. SUFFIXAL: **/-noo/**, **/-n/**, **/-t/**, **/-niʔ/**, **/-nee/**, **/-noʔ/**, **/-θiʔ/**, **/-noni/**, **/-ʔi/**, **/-i/**
b. COMPOSITE: **/-be/**, **/-n/**, **/-noʔ/**, **-Ø**

[20] This is a simplified analysis of Arapaho agreement morphology. For ease of exposition, the rules in (36) do not include 1PL inclusive forms as they involve a more complex feature make-up (see e.g. Harley & Ritter 2002).

SUFFIXAL transitive animate					COMPOSITE transitive animate				
			SG (object)	PL (object)				SG (object)	PL (object)
2SG	>	1	-n	-n	2SG	>	1	-Ø	-be
2PL	>		-nee	-nee	2PL	>		-be	-be
3SG	>		-noo	-t	3SG	>		-Ø	-be
3PL	>		-θiʔ	-θiʔ	3PL	>		-Ø	-be
1SG	>	2	-n	-nee	1SG	>	2	-Ø	-be
1PL	>		-n	-nee	1PL	>		-Ø	-be
3SG	>		-n	-nee	3SG	>		-Ø	-be
3PL	>		-noni	-nee	3PL	>		-Ø	-be
3SG	>	12		-noʔ	3SG	>	12		-n
3PL	>			-noʔ	3PL	>			-n
1SG	>	3	-ʔ	-ʔi	1SG	>	3	-Ø	-noʔ
1PL	>		-t	-θiʔ	1PL	>		-be	-be
2SG	>		-t	-i	2SG	>		-Ø	-noʔ
2PL	>		-nee	-nee	2PL	>		-be	-be
12(PL)	>		-noʔ	-noʔ	12(PL)	>		-n	-n

Table 6: Arapaho Transitive Animate agreement

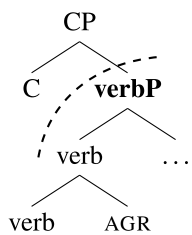
Importantly, the 1PL vs. 2PL contrast, which was neutralized in the COMPOSITE animate *intransitive* paradigm, is also neutralized in the COMPOSITE animate *transitive* paradigm: in the SUFFIXAL paradigm, the contrast is observed for both subject and object marking, while in the COMPOSITE paradigm **/-be/** marks all 1PL/2PL objects, as well as some 1PL/2PL subjects. Furthermore, the impoverishment rule (35) (i.e. full person neutralization in singular contexts) also applies with transitive animate forms: note that in Table 6 in all cells where both subject and object are singular, all person distinctions are neutralized with COMPOSITE forms but not with SUFFIXAL forms.

The crucial generalization about the intransitive and transitive animate paradigms in Arapaho (which extends to the rest of the agreement system not presented here) is that COMPOSITE paradigm suffixes never express more φ-feature distinctions than their SUFFIXAL counterparts.

Let us consider how this generalization relates to the question whether there is V-to-C movement in Algonquian. Suppose that the verb moves to C in Arapaho only in COMPOSITE agreement environments, and that there are impoverishment rules triggered by C targeting agreement suffixes. As illustrated in (38)–(39), this is sufficient to derive the asymmetry in the amount of syncretism between the two paradigms (the details for each derivation will be provided below).

(38) a. n<on>óóhob-í-**nee** SUFFIXAL
<IC>.see-DIR-2PL>1
'You$_{pl}$ see me.'

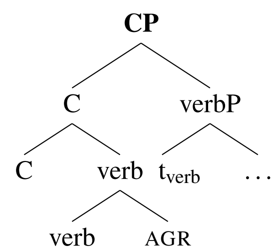
b.



i. [+part,−sp,−sg]$_{\text{AGR}}$ ⇔ **/-nee/** ✓
ii. [+part,−sg]$_{\text{AGR}}$ ⇔ **/-be/** ✗
iii. [±sp]$_{\text{AGR}}$ → ∅ / [C, [−sg] __] ✗

(39) a. hé-íhoow-noohob-í-**be** COMPOSITE
2-NEG-see-DIR-2PL>1
'You$_{pl}$ don't see me.'

b.



i. [+part,−sp,−sg]$_{\text{AGR}}$ ⇔ **/-nee/** ✗
ii. [+part,−sg]$_{\text{AGR}}$ ⇔ **/-be/** ✓
iii. [±sp]$_{\text{AGR}}$ → ∅ / [C, [−sg] __] ✓

AGR starts off with the same φ-feature values ([+part,−sp,−sg]) in both derivations, acquired from the 2nd person plural subject (see Béjar & Řezáč 2009, Oxford 2014, 2019 on the mechanisms governing which argument is agreed with in Algonquian). Due to the *Elsewhere Principle* (Kiparsky 1973), the most specific form chosen in (38) is the one inserted by rule (i.), since [−sp,+part] is more specific than [+part]. Rule (iii.) cannot apply since C is not in the same complex head as AGR (Bobaljik 2012). In (39), V-to-C movement has applied, so C *is* in the same complex head as AGR, and the conditions for rule (iii.) are met, deleting [−sp]. As a result of this, rule (i.) can no longer apply, since there is no [−sp] feature on AGR anymore, and rule (ii.) applies instead.[21]

The advantage of this analysis is that V-to-C movement and the change in suffix forms are in a direct causal relationship: when V-to-C movement occurs, the context for the impoverishment rule is created, which causes more syncretism in the agreement suffixes. Unlike in the alternative

[21] Although we frame our proposal in terms of a realizational model of morphology (Halle & Marantz 1993, 1994; Harley & Noyer 1999), where syntactic features can be modified by morphological operations before phonological spell-out, this is not a crucial assumption. The analysis should be adaptable to any framework where neutralization can only occur if the conditioning context is in the same word (or comparable domain) as the affected morpheme.

analyses discussed in Section 3.1, there is no separation between V-to-C movement and the source of the changing suffix forms. This is in essence an anti-agreement analysis, where movement leads to loss of contrast in agreement morphology. The proposed correlation between V-to-C movement and COMPOSITE agreement thus straightforwardly explains both why the verb hosts more agreement morphemes (see Section 3.1) and why the suffixes used in the paradigm show more syncretism. This is markedly different from an anti-agreement account where verb movement correlates with the loss of agreement morphemes in the SUFFIXAL paradigm (e.g. Campana 1996), which only derives the difference in the number of agreement morphemes in the two paradigms.[22]

Another advantage of the proposed analysis is that the syntax of subject and object agreement can be identical with COMPOSITE and SUFFIXAL agreement (e.g. along the lines proposed by Béjar & Řezáč 2009, Oxford 2014, 2019). This is ideal, given that there are no discernible differences in the syntactic licensing of arguments in COMPOSITE and SUFFIXAL clausal environments; we also saw that in Arapaho there is significant overlap in the COMPOSITE and SUFFIXAL suffix forms used respectively in animate intransitive and transitive clauses, which would be surprising if differences in the suffix forms played a role in the licensing of arguments via agreement.

Recall, however, from Section 3.2.1 that having more syncretic forms in one of the paradigms is not yet conclusive evidence for impoverishment—it could be that the two paradigms are completely independent from each other. What needs to be shown is that the suffixes of the COMPOSITE paradigm consistently express fewer distinctions than their SUFFIXAL counterparts in languages where the two paradigms are found. In that case, the impoverishment analysis can explain a generalization that would be missed by treating the two paradigms as independent from each other.

[22] In relation to the syncretism asymmetry, Campana (1996) suggests that it might be correlated to there being fewer morphemes in the SUFFIXAL paradigm, which requires them to "do more work" (i.e. express more feature distinctions). While we do not exclude the possibility that the syncretism might have originated due to functional considerations like this, our goal is to offer an explicit formal analysis of the synchronic state of the languages in question.

3.2.3 *Paradigmatic neutralizations in other Algonquian languages*

We consider here data from three additional Algonquian languages: Ojibwa (Valentine 2001), Plains Cree (Wolfart 1973) (both Central Algonquian), and Nipmuck (Gustafson 2000) (Eastern Algonquian). Including Arapaho, we thus take into account languages from all three main branches of Algonquian. For ease of exposition we only focus on the Animate Intransitive paradigms, presented in Table 7,[23] although the transitive paradigms do not contradict our generalizations.

		SUFFIXAL		COMPOSITE	
Language:		SG	PL	SG	PL
(A) Ojibwa	1	-yaan	-yaang	-Ø	-min
	2	-yan	-yeeg	-Ø	-m
	12		-yang		-min
	3	-d	-waad	-Ø	-wag
(B) Plains Cree	1	-yaan	-yaahk	-n	-naan
	2	-yan	-yek	-n	-waaw
	12		-yahk		-naw
	3	-t	-cik	-w	-wak
(C) Nipmuck	1	-yan	-yank	-Ø	-emen
	2	-yan	-yaakw	-Ø	-emen
	12		-yakw		-emen
	3	-t/-k	-hetit	-w	-wak

Table 7: Variation in Animate Intransitive verbal agreement forms across Algonquian

All three languages crucially express fewer feature distinctions in the COMPOSITE paradigm, with some variation in how general the loss of distinctions is. This is expected, since impoverishment can target different φ-features or be triggered in the context of different φ-features. What is

[23]For similar reasons as with the Arapaho paradigm (see footnote 19), we leave out 3rd person obviative, proclitics, and theme signs. Note also that further morphological segmentation of the suffixes might be possible. The sources differ on segmenting out the **/-k/** (Plains Cree), **/-k(w)/** (Nipmuck), and **/-g/** (Ojibwa) as a separate PL marker in the SUFFIXAL paradigms, and similar cases can be identified in the COMPOSITE paradigms. For instance, Cook (2008) notes that 3PL in the COMPOSITE paradigm in Plains Cree can be further segmented into a 3rd person **/-w/** morpheme and a plural **/-k/** morpheme—this would mean that the plural **/-k/** morpheme is found in both SUFFIXAL and COMPOSITE paradigms. Another example of the possible underlying connection between the two paradigms in Plains Cree comes from the vowel length distinctions that are present in the plural participant forms of the SUFFIXAL and are retained in the corresponding morphemes in the COMPOSITE. Although such further segmentation could potentially provide additional evidence in favour of our single paradigm analysis, we leave this open for future research.

striking is that all the cases of neutralization are localized to the COMPOSITE paradigm. In parallel to the Arapaho pattern presented above, we see cases of person distinctions being lost in the singular. In the SUFFIXAL paradigms, both Ojibwa and Plains Cree have a three-way person distinction with singular forms, whereas in the COMPOSITE paradigms the situation is different: (i) in Ojibwa, all person distinctions are neutralized (just like in Arapaho); and (ii) in Plains Cree, the distinction between 1st and 2nd person is lost, and a more general morpheme **/-n/** takes over for both (just like the plural **/-be/** morpheme in Arapaho). While Nipmuck shows no loss of distinctions in singular forms, it shows allomorphy with the 1st/2nd person morpheme (**/-yan/** vs. **-Ø**). The Nipmuck pattern is consistent with our claims, since the suffixes in the COMPOSITE paradigm do not express more distinctions than their counterparts in the SUFFIXAL paradigm.

The syncretism asymmetry is also found with plural forms—again, just like in Arapaho. In all three languages, the SUFFIXAL paradigms have four plural suffix forms, whereas the COMPOSITE paradigms of two of the languages have fewer plural forms: (i) in Nipmuck, all person distinctions are lost, leaving a single plural form (**/-emen/**); and (ii) in Ojibwa 1PL exclusive and inclusive forms become syncretic (**/-min/**). Plains Cree maintains all person distinctions in the plural, but uses different morphemes in the two paradigms. This is similar to the singular forms in Nipmuck, in that the same number of distinctions is expressed, but with different morphemes.

Crucially, no language introduces a new morpheme in the COMPOSITE paradigm that would lead to expressing *more* distinctions in the COMPOSITE paradigm than in the SUFFIXAL paradigm. To be more precise, a counterexample to the proposed analysis would be if, for instance, in Nipmuck the COMPOSITE paradigm would have two different overt morphemes for 1SG and 2SG, whereas the SUFFIXAL forms would be the same (**/-yan/**). To our knowledge, such a ‘reverse’ pattern is unattested in Algonquian with the COMPOSITE/SUFFIXAL alternation.

Like their counterparts in Arapaho, the Ojibwa, Plains Cree, and Nipmuck agreement suffixes consistently express fewer φ-feature distinctions in the COMPOSITE paradigm. This fits an impoverishment analysis, but would have to be seen as coincidental under any analysis that treats the suffixes in the two paradigms as unrelated to each other. We therefore take this morphological generalization as evidence for our analysis where the COMPOSITE paradigm is derivationally related to the SUFFIXAL paradigm via impoverishment. Recall however that this is only a part of our proposal; we are making a stronger claim that the trigger for the impoverishment is specifically the creation of a verbal complex that includes the C head, which arises as a side effect of V-to-C movement. We further motivate this particular approach by pointing out that the same impoverishment patterns can result from V-to-C movement in languages with transparent V2 effects in Germanic.

3.2.4 *Paradigmatic neutralizations in Dutch*

The relevant correlation between V2 and impoverishment affecting agreement paradigms is found in Standard Dutch (Zwart 1997; Ackema & Neeleman 2003; Bennis & Maclean 2006) and numerous other varieties (Don, Fenger and Koeneman 2013). Standard Dutch examples illustrating both the V2 and the agreement asymmetry are provided in (40). When the verb is in an embedded clause, as in (40a), we find an overt agreement morpheme. This agreement morpheme is changed to a null one when the verb is in V2 position and the subject follows the verb, as seen in (40b).[24]

(40) a. …*dat* je met Stamppot naar de kattenbak loop-**t**. [non-V2]
…that you with Stamppot to the litterbox walk-AGR
…'That you walk with Stamppot to the litterbox.'

[24] Although both V2 and the postverbal subject position are necessary conditions, what is important for the discussion at hand is the fact that the alternation can only occur when the verb is in C and that it yields a loss of φ-feature distinctions in agreement suffixes, just as in Algonquian. The precise analysis of these facts is not important for this paper, but see Zwart (1997), Bennis & Maclean (2006), & Don, Fenger, & Koeneman (2013) for competing analyses.

b. Met Stamppot loop-**Ø** je naar de kattenbak. [V2]
with Stamppot walk you to the litterbox
'You walk to the litterbox with Stamppot.'

By looking at micro-variation and verbal paradigms in 267 Dutch varieties, Don, Fenger, & Koeneman (2013) further show that in 97 varieties in the relevant V2 contexts (i.e. when the subject follows the fronted verb in C; see footnote 24), a more impoverished agreement paradigm surfaces. Paradigms from several such varieties are shown side by side in Table 8.

		non-V2 agreement		V2 agreement	
Dialect:		SG	PL	SG	PL
(A) Maasbree, Arcen	1	-Ø	-e	-Ø	-e
	2	-s	-t	-s	-e
	3	-t	-e	-t	-e
(B) Spijkerboor	1	-Ø	-en	-Ø	-en
	2	-en	-t	-Ø	-en
	3	-t	-en	-t	-en
(C) Bovensmilde, Giethoorn	1	-e	-en	-e	-en
	2	-en	-t	-Ø	-Ø
	3	-t	-en	-t	-en
(D) Gistel, Poelkapelle	1	-en	-en	-Ø	-en
	2	-t	-t	-Ø	-Ø
	3	-t	-en	-t	-en

Table 8: Variation in verbal agreement forms across Dutch dialects

Note that there are differences in how general the impoverishment is, but the impoverishment is localized to V2 contexts, where the verb unambiguously moves to C—just as it was localized in Algonquian to the COMPOSITE paradigm. The (A) group of varieties only has impoverishment in one context: the **/-e/** suffix used for 1/3PL in the non-V2 contexts spreads to 2PL, resulting in complete person neutralization in the plural. Group (B) has more general impoverishment affecting all 2nd person contexts: in the singular, the three-way person distinction becomes a two-way one in the V2 context, and in the plural, we find the same complete loss of person distinctions as in group (A). Group (C) is different in that it also shows number neutralization: the changed forms lose the distinction between 2SG and 2PL. Finally, group (D) has a complex pattern combining the neutralizations from groups (B) and (C). Although groups (C) and (D) might appear like a counterexample because there seem to be more morphemes in the V2 agreement paradigm, note crucially that the "added" morpheme is **-Ø**. Don, Fenger, & Koeneman (2013) show that **-Ø** is in fact not a new morpheme, agreement suffixes are just absent in these cases due to the impoverishment.[25]

In all cases of alternating agreement patterns in Dutch, V2 agreement forms are either more impoverished than their non-V2 counterparts or maintain the same feature distinctions. For example, in groups (A) and (B), all person distinctions in the plural are neutralized, while in groups (B) and (D) the distinction between 1st and 2nd person singular disappears. Even in cases, like in groups (C) and (D), where V2 agreement seems to require more suffix forms, the "extra suffix" actually corresponds to the loss of agreement morphology due to impoverishment. This means that in all cases, the φ-features on the verb are consistently being impoverished in the relevant V2 contexts. Thus, for Dutch, the fact that the verb moves to the head of CP is not only reflected by the word order, but it can also cause a change in the forms of the agreement suffixes.

3.2.5 *Summing up the proposal and its consequences*

Several seemingly unrelated facts about Algonquian COMPOSITE agreement are straightforwardly explained if this agreement paradigm is the reflex of V-to-C movement: (i) COMPOSITE agreement occurs in Algonquian in the clausal environments where V2/auxiliary inversion occurs in Germanic, (ii) the verb is affixed with more individual agreement morphemes in the COMPOSITE paradigm than in the SUFFIXAL paradigm, and (iii) individual agreement suffixes in the COMPOS-

[25] The analysis can be extended to the distribution of **-Ø** in the other groups (see Don, Fenger, & Koeneman 2013 for details), and in fact potentially to all the cases of **-Ø** in Algonquian as well. This would mean that there is even more impoverishment in COMPOSITE paradigms than suggested above. However, motivating the extension of the analysis to Algonquian is not possible here for reasons of space, and also not crucial for our proposal.

ITE paradigm consistently display more syncretism than their SUFFIXAL paradigm counterparts. The relevance of (iii) is strengthened by the fact that the same kind of asymmetry is attested with V2 vs. non-V2 agreement in Dutch, where V-to-C movement is also reflected in the word order.

Because this analysis ties the morphological properties of COMPOSITE agreement directly to V-to-C movement, there is no need to specify both COMPOSITE agreement clausal environments and COMPOSITE agreement verb forms. Furthermore, the reason why V2 occurs in Germanic in some but not other clausal environments can be directly extended to Algonquian: V-to-C movement is triggered only when C has a particular feature specification (den Besten 1977; Holmberg & Platzack 1995; Zwart 1997; i.a.). For reasons that will become clear in the next section, we specifically assume Roberts's (2010) implementation of this idea, where C attracts the verb only when the former has unvalued uninterpretable [V(erb)] and [T(ense)] features that must be valued by their valued interpretable counterparts on the finite verb. When C has the relevant features, V-to-C movement takes place, where this additional head-movement step allows the verb to incorporate more agreement morphemes than it would otherwise (see discussion in Section 3.1) and makes C and the verb part of the same complex head, allowing impoverishment rules conditioned by the presence of C to affect the agreement morphemes on the verb. The morphological properties of COMPOSITE agreement are thus a side effect of certain kinds of C being able to attract the verb.

Differences in the distribution of COMPOSITE agreement across Algonquian can then also be modelled along the same lines as the differences in V2 distribution across Germanic. It is impossible due to space limitations to fully lay out here how each COMPOSITE agreement distribution pattern is derived. However, because the variation with respect to V2 in Germanic and COMPOSITE agreement in Algonquian is strikingly parallel, as we established in Section 2, it should be easy to see that the analyses proposed for the different V2 patterns in Germanic (see e.g. Holmberg 2015 for an overview) can be easily transplanted to Algonquian. The gist of the idea is that the variation reflects differences in the CP domain, such as which types of C are required with which types of clauses and the possibility for the CP domain to be comprised of more than one CP projection (e.g. in languages like Icelandic where V2 can co-occur with overt complementizers; see Section 2.1.3).

Let us contrast this approach with a previous attempt to characterize the difference between COMPOSITE and SUFFIXAL clausal environments. Brittain (1997, 2001b) argues that COMPOSITE agreement signals the lack of a CP and consequently the lack of V-to-C movement (recall that, unlike the current analysis, Brittain argues that SUFFIXAL agreement results from V-to-C movement). Brittain's motivation for this stems from the idea that CP is crosslinguistically associated with focus, questions, and embedded clauses, which are also contexts where SUFFIXAL agreement can occur in the Cree/Innu-aimun/Naskapi languages. This approach faces problems with other patterns of COMPOSITE/SUFFIXAL agreement distribution, such as the Wampanoag one (see Section 2.1.3), where embedded clauses generally require COMPOSITE agreement, or the Arapaho one (see Section 2.2), where questions—clauses Brittain associates with the obligatory presence of CP—require COMPOSITE agreement, which Brittain attributes to the absence of CP.

Furthermore, as discussed by Bogomolets (2018), there is evidence that all clauses in Arapaho project a CP. Bogomolets shows this on the basis of the distribution of the *Initial Change* (IC) complementizer (see Section 2.1.2). In Arapaho specifically, IC is incompatible with any other C-related element, including: question particles, wh-questions, and other overt complementizers. This complementary distribution indicates competition between IC and C-related elements, which follows from IC being a C-related element itself. The complementary distribution, importantly, spans across matrix and embedded clauses, suggesting that CP is always projected in Arapaho.

Crucially, IC in Arapaho is also incompatible with COMPOSITE agreement,[26] which directly follows from our analysis: the verb in C is simply another competitor for the C-slot, making IC and COMPOSITE agreement, which is the result of V-to-C movement, incompatible.[27] Our analysis therefore does not face the problems that a Brittain-style analysis faces with the Arapaho facts, where COMPOSITE agreement unexpectedly occurs in the contexts Brittain associates with CP.

3.3 Argument #3: Behaviour of the preverbal AGR *marker*

In the previous sections, we provided evidence that the systematic variation in postverbal agreement morphology in Algonquian reflects the presence of V-to-C movement. This is because V-to-C movement is necessary to create the syntactic environment that feeds the morphological operations causing the variation in agreement suffix forms. Here we consider the distribution of preverbal agreement markers, which are found predominantly, but crucially not exclusively, alongside the COMPOSITE agreement suffixes. These markers are generally considered clitics, in contrast to the affixal postverbal markers (Halle & Marantz 1993; Brittain 2001b; Richards 2004; Cook 2008; Branigan 2012; Oxford 2014; i.a.), although it is not crucial for our analysis whether they are proclitics or prefixes. Rather, what is important is that the preverbal markers are bound morphemes

[26]In Algonquian languages with the more "standard" distribution of SUFFIXAL and COMPOSITE agreement, the distribution of the IC morpheme is also different. However, it has been argued independently that in those languages IC is the realization of the head of CP as well (Brittain 2001b; Brittain & Dyck 2006). Moreover, it holds across the family that IC is in complementary distribution with COMPOSITE agreement, as our analysis would predict.

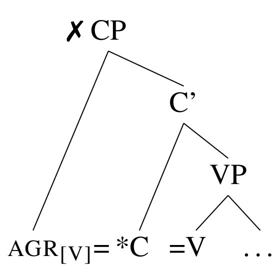
[27]Morphologically IC is a bound form, which—depending on the language and/or phonology of the stem—surfaces as a prefix, infix, or umlaut mutation on the stem. Thus, it is an overt C that combines with the verb even in the absence of V-to-C movement. This is entirely compatible with our analysis, as we assume a one-way correlation between head-movement and word-formation: head-movement may lead to word-formation, but words can also be formed by post-syntactic processes like *m-merger* (see Bogomolets 2018 for such an analysis of IC). A key reason for assuming post-syntactic word formation in this case is due to how the phonology of the verb stem conditions the prosodic incorporation of IC (see Fenger 2020 for an overview on the reflexes of word-formation at different derivational stages, and ftn. 29). Crucially, due to the stage at which IC becomes part of the verb, IC does not feed impoverishment on the agreement suffixes like V-to-C movement does, as any manipulation of morpho-syntactic features must take place before the exponents of the syntactic nodes are determined. An anonymous reviewer points out that there are other overt Cs in Algonquian realized as affixes on SUFFIXAL agreement verbs. We would analyze these in the same way as IC: overt Cs that block V-to-C movement, but become part of the verb via *m-merger*. In the next section, we also argue that the agreement prefix becomes part of the verb in the same way, rather than via head-movement.

which require a verbal host. In the continuation we refer to them as *preverbal agreement* and remain agnostic regarding their clitic vs. affixal nature.

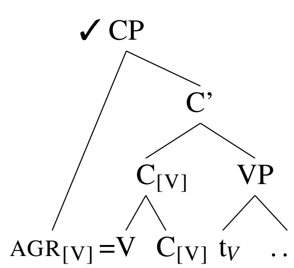
The logic behind the argument put forward in this section is that verb movement is predicted to potentially affect the appearance of bound morphemes whose realization depends on a local verbal host; i.e. verbal clitics or affixes. It is reasonable to expect that verbs closer to the bound morpheme constitute better hosts than verbs which are farther removed syntactically and/or phonologically. For Algonquian preverbal agreement specifically, we are going to suggest that it can only attach to elements of category V if both of them are in the same maximal projection.

We follow here a long line of works which provide evidence that preverbal agreement in Algonquian originates in SpecCP (Halle & Marantz 1993; Richards 2004; Cook 2008; Déchaine & Wiltschko 2014; Branigan 2012; Oxford 2014).[28] If, as we suggest, these bound morphemes require a verbal host (see also Richards 2004; Branigan 2012), then movement of the verb to C is a prerequisite for preverbal agreement to be realized, since an intervening morphosyntactic element of category C will prevent the merging of the bound morpheme with its host (cf. (41a)), whereas head movement of V-to-C may void the intervention and thus feed the merger (cf. (41b)).

(41) a.



b.



Recall that we assume, following Roberts (2010), that when the verb moves to C, the C head has verbal ([V]) features, which is why the complex C head in (41b) is an appropriate local host for the bound agreement morphemes, which require a host of category V. Without V-to-C movement,

[28]But see Déchaine & Wiltschko 2014 and the discussion below regarding preverbal agreement in Blackfoot.

the preverbal AGR is adjacent to C, but C does not have a V-feature, and is thus not an appropriate host. The verb, on the other hand, satisfies the category requirement, but is not local enough. Thus, in the absence of V-to-C movement, the preverbal AGR has no host and cannot be realized.

As noted above, preverbal agreement almost without exception co-occurs with the COMPOSITE agreement suffixes, as shown in the Wampanoag examples in (42). This is why it is usually considered one of the defining characteristics of the COMPOSITE agreement paradigm.

(42) a. **ku=** nâw -uk **-uwô** -pan **-eek** COMPOSITE
2= see -INV -NON1PL -PRET -PL
'They saw you$_{pl}$'

b. ... nâw -uquy **-âk** -up SUFFIXAL
see -INV -2PL -PRET
'... (if/when/...) they saw you$_{pl}$' Wampanoag (Richards 2004, 327)

This correlation follows directly from our analysis, since V-to-C movement not only conditions the realization of the agreement suffixes, but also feeds the realization of preverbal agreement.

Note though that while the suffixes incorporate into the verb via head-movement, preverbal agreement combines with the verb under adjacency—via *m-merger* (Marantz 1984) or a similar post-syntactic process.[29] Thus, our analysis predicts that the realization of preverbal and postverbal agreement might come apart under very specific circumstances. Namely, when a verbal element distinct from the main verb would occupy the C position. Algonquian languages in fact have such a class of elements, traditionally knows as *preverbs*, some of which seem to behave like auxiliary verbs. If such an auxiliary verb co-occurs with a main verb, it should be possible for the auxiliary (in C) to host the preverbal agreement, while the main verb (not in C) surfaces with SUFFIXAL agreement suffixes. The prediction is in fact borne out in Arapaho with examples like (43), where

[29] For reasons of space, we cannot discuss the consequences of the two different word-formation strategies. In short, preverbal agreement shows a greater degree of prosodic independence (see e.g. Russel 1999), while also interacting differently from the agreement suffixes with phonological processes like vowel harmony (Bogomolets 2022), both of which suggest word-formation after spell-out (see Fenger 2020).

the suffix appearing alongside the preverbal marker is the SUFFIXAL 1st person inclusive **/-noʔ/** rather than the anticipated COMPOSITE counterpart **/-n/** (see Table 5 in Section 3.2.2).

(43) **ńe=** ét- cii- biθihí **-noʔ** preverbal AGR + SUFFIXAL
1- FUT- NEG- eat -12
'We're not going to eat.' Arapaho (Cowell & Moss Sr. 2008, 259)

This agreement marker "chimera" is observed, with some speakers, specifically when negation occurs between the future tense preverb and the main verb (Cowell & Moss Sr. 2008, 259).

Examples like (43) are strikingly similar to English auxiliary inversion (see Section 2.2), where the main verb does not move to C, but an auxiliary verb does. This can be easily extended to (43): like in English, the future marker, as an auxiliary, moves to C and thus has the V-feature required to host the preverbal AGR.[30] Crucially, there is independent evidence showing that the future marker in (43) indeed moves to C. In Arapaho, the form of negation depends on whether or not C is occupied: when there is nothing occupying the C position, negation surfaces as *hoowu-*, but in the presence of a complementizer or other C-related elements, negation surfaces as *cii-* (Bogomolets 2018), which is the form required in (43). Thus, everything apart from the suffix behaves as expected in syntactic environments where COMPOSITE agreement is required.

The possibility of preverbal agreement co-occurring with SUFFIXAL morphology shows that the preverbal and postverbal markers are independent from one another. This is entirely unexpected from the perspective of analyses that attribute the COMPOSITE/SUFFIXAL alternation to verbs directly selecting the appropriate agreement morphemes (see Section 3.1),[31] as well as the

[30] The pattern shown in (43) is observed with some preverbs (e.g. with the future tense preverb), but not with others, and in some environments (e.g. in negative clauses), but not in others. This is again parallel to English where Aux-V movement is restricted to only some clausal environments and can be further restricted to only some auxiliaries. For instance, while *have* can undergo conditional inversion, *do* and *be* can not: *Had I been rich, everything would be okay.* vs. **Did I go to the party, everything would be okay.* (see e.g. Biberauer & Roberts 2016)

[31] This includes Lochbihler & Mathieu (2016, 374–5), who although considering preverbal and postverbal agreement to have distinct syntactic loci (C/T vs. *v* respectively), directly link the two by way of selection: the C that yields preverbal agreement is selected for by the *v* that is also responsible for the surface forms of the suffixes.

proposal that preverbal agreement is inserted only to "fill in" for the feature distinctions neutralized in the COMPOSITE paradigm suffixes (Brittain 2001b); as those distinctions are not neutralized in the SUFFIXAL paradigm, there should be no reason to insert the preverbal marker in (43). Only the V-to-C movement analysis proposed above straightforwardly explains both Arapaho agreement patterns: the exceptional one in (43) as well as the basic one. We are dealing with two separate processes: (i) one affecting the realization of preverbal agreement, and (ii) one affecting the realization of postverbal agreement—both fed by V-to-C movement. Crucially we only see that the two are separate in cases where an auxiliary rather than the main verb moves to C.

Additional evidence that the two reflexes of V-to-C movement (allomorphy in the agreement suffixes and the presence of preverbal agreement) are independent from each other is also found in Blackfoot (Frantz 1991). In Blackfoot, preverbal agreement is present with both SUFFIXAL and COMPOSITE agreement. It has been argued that the preverbal marker in Blackfoot is situated lower in the structure compared to other Algonquian languages, namely, in SpecTP (Bliss 2013; Ritter & Wiltchko 2014; Bliss & Gruber 2015). This is consistent with an analysis, where the verb always moves at least as high as T, so the preverbal marker can always attach to the verb from SpecTP, and thus the extra V-to-C movement step is reflected only via the change in agreement suffix forms.

Yet another piece of evidence for the independence of preverbal and postverbal agreement, for which we thank an anonymous reviewer, comes from a historical change in Mi'kmaq. Current varieties have lost preverbal agreement, but retain different agreement paradigms to mark mood and finiteness distinctions (Inglis 2002; see also footnote 12). However, in the older variety reported by Father Pacifique (Francis & Hewson 1990), some of these same agreement paradigms were also accompanied by prefixal agreement. What this shows is that the two loci of agreement are not part of the same paradigm, as the loss of one over time left the other unaffected.

4. Summary and Discussion

In this paper, we compared the seemingly Algonquian-specific Conjunct/Independent Order alternation with V2 phenomena, considering the striking parallels in their syntactic distribution, cross-linguistic variation regarding their distribution patterns, as well as the morphological differences in agreement marking they give rise to. We showed that the parallel behavior of the two phenomena follows from them being reflexes of the same type of V-to-C movement, which yields different surface results due to independent grammatical differences. In the case of polysynthetic languages like the Algonquian languages, in contrast to canonical V2 languages, V-to-C movement is only reflected in the morphology of the verb. We have shown that it affects the form of agreement suffixes and influences the spell-out of bound morphemes which require a local verbal host. What is commonly assumed to be a family-specific phenomenon is thus simply the result of the interaction of multiple universally available grammatical processes and constraints: head-movement, impoverishment, and morpho-phonological locality considerations.

Due to this link between V-to-C movement and the realization of agreement morphology, the existence of such morphological alternations can be used as a test for detecting V-to-C movement in polysynthetic languages. Note also that it is not necessary for the grammatical factor obscuring the word order effects of V-to-C movement to be polysynthesis. Another relevant case our findings might relate to is V-to-C movement in VSO languages, which we discuss briefly below.

VSO orders are in principle compatible with the verb being either in C or T. In fact, older generative analyses of VSO in Irish often did make explicit parallels to V2 in Germanic, attributing the word order to obligatory V-to-C movement (Deprez & Hale 1986; Stowell 1989), but this view has since been abandoned for modern Irish (for discussion and references, see McCloskey 1996;

Carnie, Harley, & Pyatt 2000). However, there is good evidence that Old Irish did in fact exhibit a verb movement alternation similar to the one discussed above for Algonquian, accompanied by almost identical morphological consequences (Carnie, Harley, & Pyatt 2000).

In Old Irish, the verb bears *absolute agreement* when in absolute first clausal position, as in (44a), which differs from the *conjunct agreement* it bears when it is preceded by a complementizer (e.g. interrogative and negative Cs), as shown in (44b), or a so-called preverb particle.

(44) a. Beir**id** in fer in claideb. [absolute]
carries.3SG the man the sword
'The man carries the sword.'

b. Ní { beir / *beir**id** } in fer in claideb. [conjunct]
NEG { carries.3SG.CONJ / carries.3SG } the man the sword
'The man does not carry the sword.' Old Irish (Carnie, Harley, & Pyatt 2000, 45)

Carnie, Harley, & Pyatt (2000) argue that absolute agreement is the result of a morphological change triggered by C when the verb is also in C, while conjunct agreement results from verb only moving to T when another element occupies C. This effectively mirrors our analysis of the Algonquian agreement alternation. Furthermore, we see that different C-related elements compete for the C-head position with each other and with the verb, which also mirrors the distribution of these elements and COMPOSITE agreement in Arapaho (see Section 3.2.5; Bogomolets 2018).

Further evidence for the placement of the verb in C in Old Irish comes from object enclitic placement. The clitic must follow the first element in the clause: the verb with absolute agreement, as in (45a), a preverb, or a complementizer, as in (45b) (again a negative complementizer).

(45) a. Bertaig-th **=i** [absolute + enclitic]
shake-3SG =3SG.M.O
'He shakes him.'

b. Ní **=m** accai. [conjunct + enclitic]
NEG =1SG.O (PV.)see.3SG.CONJ
'She does not see me.' Old Irish (Carnie, Harley, & Pyatt 2000, 51)

As Carnie, Harley, & Pyatt (2000) point out, the distribution of the enclitic straightforwardly follows from it cliticizing to whichever element is in C. This again mirrors our analysis of Algonquian, where the appearance of pre-verbal agreement is sensitive to the presence of the verb in C. The Algonquian and Old Irish agreement alternation cases can thus be seen as essentially the same phenomenon: morphological alternations driven by V2-style V-to-C movement.

We conclude this paper with a final piece of evidence in favor of our analysis coming from the patterns of language acquisition. An anonymous reviewer has pointed out that a case study of L1 acquisition of verbal morphology in Northern East Cree has shown that children acquire the COMPOSITE agreement earlier than the SUFFIXAL agreement (Rose & Brittain 2011). Importantly, Rose & Brittain convincingly argue that the asymmetry in the timing of acquisition of the two agreement patterns cannot be attributed to the input frequency and must be conditioned by the inherent properties of the grammar. Given the analysis of the COMPOSITE/SUFFIXAL distinction proposed in this paper, we expect to observe a parallel asymmetry in the acquisition of the V2 patterns in Germanic languages. This prediction is borne out: children learning Dutch, Icelandic, German, Norwegian, and Swedish have been shown to correctly place the finite verbs in the second position from very early stages of acquisition and with virtually no errors (see Waldmann 2012 for references and overview). The acquisition of V2 in matrix clauses has been argued to correlate with the acquisition of verb-subject agreement (Clahsen & Penke 1992) and to precede the acquisition of complementizers and non-V2 clauses (Müller 1994; Waldmann 2008). Under the traditional view on V2 in Germanic and COMPOSITE/SUFFIXAL agreement in Algonquian as two unrelated syntactic phenomena, the observed robust parallelism in the ordering of acquisition (V2/COMPOSITE > non-V2/SUFFIXAL) is another unexplained coincidence. Under the proposal put forward here, this parallelism in acquisition is not accidental, but rather is predicted if the two surface phenomena stem from a single syntactic source.

There is thus converging evidence from several different sources suggesting that V2-style V-to-C movement can arise even when it has no consequence for the surface word order and is only reflected in morphological alternations. The proposal put forward in this paper thus suggests that V2 phenomena are cross-linguistically more pervasive than previously thought. It is our hope that future studies of V2 can benefit from this by considering languages of typological profiles different from canonical Germanic V2 languages.

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