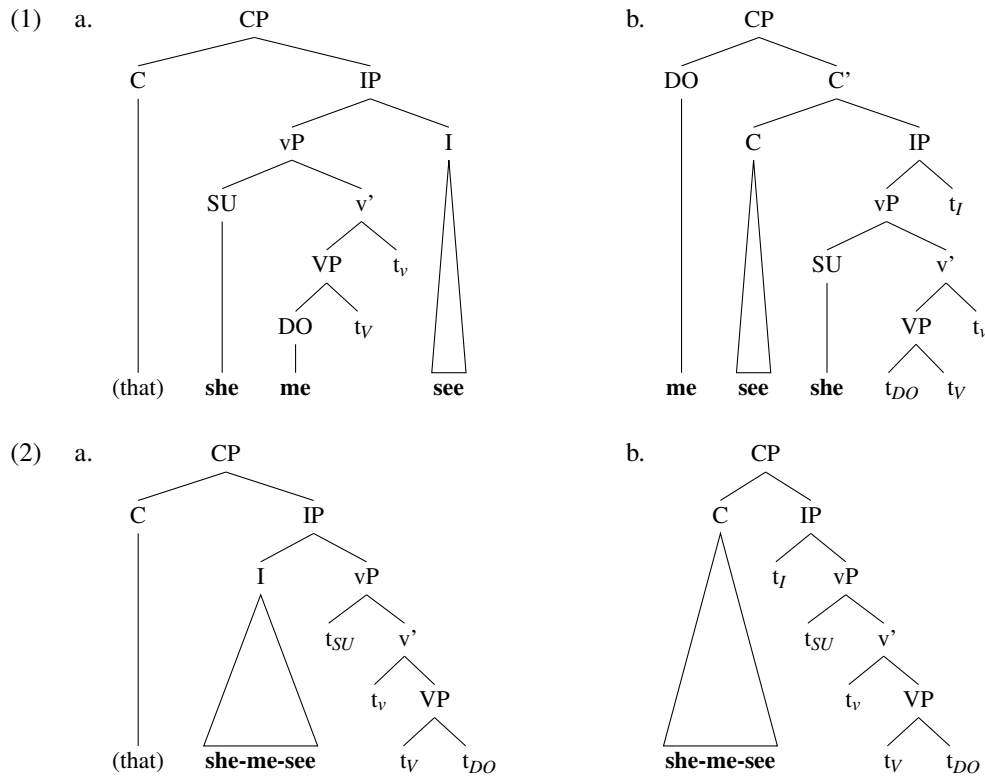


Unifying V-C Movement in Algonquian and Germanic: A View from Morphology

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1 Introduction

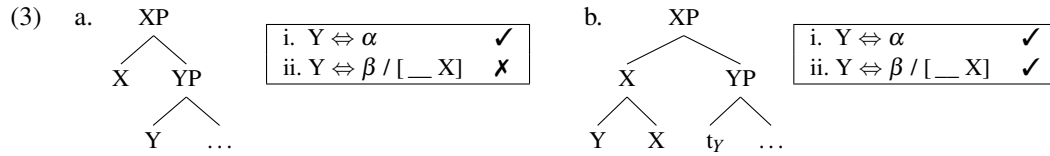
In his cross-linguistic overview of Verb Second (V2), Holmberg (2015) raises an interesting question: If V2 were present in a polysynthetic language, would it be possible to identify it? The standard V2 pattern is usually recognized through the position of the verb in relation to other constituents in a clause, as illustrated by the contrast between (1a) and (1b). In polysynthetic languages, on the other hand, where lexical arguments are generally assumed to be externally merged as adjuncts to CP and linked to null proforms in argument positions in IP (see Jelinek 1984, Baker 1996), any effects of V2 would be hard to detect. Since a clause in such languages often consists of just one verb form, the true position of the verb in clauses like (2a) and (2b) is impossible to determine from the word order in case an overt C is not present. Moreover, the position of the verbal complex can be even further obscured by the presence of other constituents which can optionally base-adjoin to CP.



We will argue in this paper that the position of a verb in polysynthetic languages can in fact be identified, but through alternative means. Specifically, we propose that the position of the verb can be determined by looking at its morphology. The basic idea is that because V-C head-movement is a prerequisite for V2, the non-moved and moved verb differ in terms of whether C is part of the verbal complex or not, which leads to potential asymmetries with respect to morphological processes. Following Bobaljik (2012), a head X cannot be a trigger for allomorphy on a head Y (cf. ii) if the two are in distinct maximal projections (3a), but if they are in the same head-complex, it can (3b).

*Authors listed alphabetically. Arapaho data from Cowell and Moss Sr. 2008. We would like to thank Ian Roberts, Jonathan Bobaljik, Željko Bosković, and the audience at PLC 41 for helpful suggestions and feedback.

This means that C should only be able to be a trigger for allomorphy on the verbal complex if C is part of the verbal complex — which is only the case when there is V-C movement.



In fact, an example of this kind of asymmetry is attested in Algonquian, where agreement morphology on the verb alternates based on the type of the clause. We propose that this alternation directly correlates to the presence/absence of V-C movement. We show that the different patterns of this agreement alternation in Algonquian languages in general, and the pattern of Arapaho more specifically, show a striking parallelism with the distribution of V-C movement across Germanic. In addition to the allomorphy pattern, we also provide evidence for V-C movement from phonological interactions between “agreement proclitics” and the verb stem.

This paper is organized as follows. In Section 2, we show that there is a remarkable parallelism between the distribution of the two agreement paradigms in Algonquian and the distribution of V2/V-C movement across Germanic. In Section 3, we briefly discuss Richards’s (2004) account of the Algonquian agreement alternation, which also ties the agreement patterns to the presence/absence of V-C movement, but leaves out entirely the issue of allomorphy. We then present our analysis in terms of the locality of morphological processes in Section 4. Section 5 concludes the paper.

2 A Parallel between Algonquian and Germanic

Before we draw any parallels between Algonquian and Germanic, let us first present the basic facts concerning the two alternating agreement paradigms in Algonquian. In most Algonquian languages, any verb may surface with one of two distinct agreement paradigms, and the choice of paradigm is determined by the syntactic environment (see, for example, Brittain 2001, Cowell and Moss Sr. 2008, Oxford 2014). The most salient difference between the two paradigms is the difference in the number of agreement morphemes, which is illustrated in (4).¹

- (4) a. SIMPLE agreement (traditionally *Conjunct Order*):
 stem – TH – AGR_x
- b. COMPLEX agreement (traditionally *Independent Order*):
AGR_y – stem – TH – AGR_x

A particular verb can surface with either all agreement affixes following the stem, as in (4a) (SIMPLE agreement), or with agreement marking both preceding and following the verb stem, as in (4b) (COMPLEX agreement). However, SIMPLE and COMPLEX agreement do not differ only with respect to the “richness” of agreement morphology: the exponents of the individual agreement affixes themselves vary between the two paradigms. The difference between the two paradigms is illustrated with examples from Wampanoag (Eastern Algonquian) in (5). The verb in the matrix clause in (5a) bears COMPLEX agreement — a proclitic and two suffixes, whereas the verb in the embedded clause in (5b) bears SIMPLE agreement — just the *central* suffix (Richards 2004). Note that despite the verb and both arguments being constant, (5a) and (5b) differ both in terms of the number of agreement morphemes, and in the form of the central suffix (‘-uwô’ vs. ‘-âk’); in other words, allomorphy is present on the verb with respect to the agreement morphemes.

¹Abbreviations used in the paper: ‘X>Y’ = portmanteau marker for X acting on Y; ‘X.Y’ = fused marker for features X and Y; ‘1, 2, 3’ = 1st, 2nd, 3rd person; ‘NON.1’ = non-1st person; ‘AGR’ = agreement; ‘ASP’ = aspect; ‘COMP’ = complementizer; ‘F’ = feminine; ‘FUT’ = future; ‘IC’ = initial change; ‘INV’ = ‘inverse’; ‘MOD’ = modal; ‘NEG’ = negation; ‘PART’ = participle; ‘PL’ = plural; ‘PRET’ = preterite; ‘Q’ = interrogative; ‘SG’ = singular; ‘SUBJ’ = subjunctive; ‘T’ = tense; ‘TH’ = theme marker; ‘WH’ = wh-word.

- (5) a. **ku-** nâw -uk **-uwô** -pan **-eek** COMPLEX
 2- see -INV -NON1PL -PRET -PL
 ‘They saw you_{pl}’
 b. ... nâw -uquy **-âk** -up SIMPLE
 see -INV -2PL -PRET
 ‘... (if/when/...) they saw you_{pl}’ (Wampanoag; Richards 2004)

The key difference between the examples in (5) is the type of the clause itself. In Wampanoag, SIMPLE agreement is limited to a subset of embedded clauses: relative clauses, adjunct *when/if* clauses, and embedded *wh*-questions, whereas COMPLEX agreement shows up in all remaining types of clauses (Richards 2004). This kind of complementary distribution, with minor variations, seems to be the general pattern in Algonquian: SIMPLE agreement is required with a “marked” subset of clauses, whereas COMPLEX agreement is the “unmarked” or default paradigm.

However, this is not the only pattern attested in Algonquian. The Arapaho language (Plains Algonquian) is an outlier within the language family in many respects (see Cowell and Moss Sr. 2008). The distribution of the two agreement paradigms in Arapaho is radically different: COMPLEX agreement (traditionally *Non-Affirmative Order*) is restricted to a small set of clauses — negative, interrogative, and modal clauses (as opposed to being the default paradigm), and SIMPLE agreement (traditionally *Affirmative Order*) is the actual default paradigm. Importantly, the two paradigms are distinguished from one another in exactly the same way as in other Algonquian languages. As shown in (6), the verb in the basic declarative clause surfaces with SIMPLE agreement (6a), while the negative clause surfaces with COMPLEX agreement (6b). The two paradigms differ in terms of the presence/absence of the agreement proclitic (**‘hé-’**), and in the form of the agreement suffix (**‘-éinóni’** vs. **‘-éiʔí’**).

- (6) a. n<on>óóhob **-éinóni** SIMPLE
 <IC>.see -3>2
 ‘They see you_{sg.}’
 b. **hé-** íhoow- noohob **-éiʔí** COMPLEX
 2- NEG- see -3PL>2SG
 ‘They don’t see you_{sg.}’ (Arapaho; Cowell and Moss Sr. 2008)

A representative sample of the variation in terms of the SIMPLE/COMPLEX alternation pattern is shown in Table 1, where we add for comparison also the pattern of the Cree-Montagnais-Naskapi language complex (CMN) (Central Algonquian; Brittain 2001). Note that, at first glance, the Arapaho pattern appears to be reversed if compared to the two “basic” Algonquian patterns.

	Wampanoag	CMN	Arapaho
COMPLEX	<default>	<default>	negative clauses modal clauses interrogative clauses
SIMPLE	relative clauses; adjunct <i>when/if</i> clauses; embedded <i>wh</i> -questions	embedded clauses; <i>wh</i> -clauses; negative clauses; focus constructions	<default>

Table 1: The distribution of SIMPLE and COMPLEX agreement paradigms in Algonquian

In this study, we argue that the basic Algonquian pattern and the seemingly exceptional Arapaho one are both manifestations of the same underlying phenomenon: the presence vs. absence of V-C movement. In fact, the three patterns in Table 1 all have close parallels within Germanic with the different attested patterns of V2 (for a more detailed discussion of the parallelism, see Bogomolets et al. to appear). With the sentences in (7) below, we illustrate the standard German V2 pattern, which is sensitive (among other things) to the matrix/embedded clause contrast: V2 is blocked in an embedded clause (7a), but it is present in a matrix clause (7b).

- (7) a. Ich glaube [dass Hans gestern zu Hause geblieben ist.] [embedded: *V2]
 I believe that Hans yesterday at home stayed is
 ‘I believe that Hans stayed at home yesterday.’
 b. Gestern ist Hans zu Hause geblieben. [matrix: V2]
 yesterday is Hans at home stayed
 ‘Hans stayed at home yesterday.’ (based on Richards 2004:366, ex. 88)

Importantly, in relation to our proposal, there is ample (micro-)variation in Germanic in terms of the availability of V2 (see e.g., Holmberg 2015), and it matches closely the variation in SIMPLE/COMPLEX alternation patterns of Algonquian; compare Table 1 above with Table 2 below.

	Icelandic	German	English
V2	<default>	<default>	negative clauses modal clauses interrogative clauses
No V2	relative clauses; adjunct <i>when/if</i> clauses; embedded wh-questions	embedded clauses adjunct clauses negative clauses	<default>

Table 2: The distribution of V2 in Germanic (Aux-C for English)

The “outlier” in Germanic is modern English, as it lacks V2 in the standard sense, rather it has a *Residual V2* pattern (Rizzi 1990). In modern English, Aux-C movement is limited to some auxiliaries and “marked” contexts like *conditional inversion* (CI) (see Biberauer and Roberts 2016), illustrated in (2), or *interrogative inversion*. Notice that the contexts where modern English requires Aux-C movement (see Table 2) and those in which COMPLEX agreement is required in Arapaho (see Table 1) essentially overlap.

- (8) a. Had I been rich, everything would have been OK. (CI)
 b. *Did I do that, everything would be OK. (*CI)

In earlier stages of English, Aux/V-C movement used to be more pervasive, and this kind of movement was allowed with lexical verbs as well as auxiliaries (Biberauer and Roberts 2016):

- (9) a. Dewite þ ungesewenlice ut þonne fylð adune þ gesewenlice
 depart.SUBJ 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*)

We argue that the Arapaho SIMPLE/COMPLEX pattern is to the basic Algonquian patterns what English is to the basic Germanic V2 patterns.² The contexts where English has Aux-C movement are almost identical to the restricted set of contexts where Arapaho has COMPLEX agreement. This contrasts with the basic Algonquian/Germanic patterns, where COMPLEX agreement/V2 is the default option and SIMPLE agreement/lack of V2 is restricted to a few specific contexts (with some variation in terms of what those are). In the remainder of the paper we first briefly review Richards’ (2004) analysis, which links COMPLEX agreement directly to V-C movement, and we then expand on it by taking into account the existence of agreement allomorphs and how it relates to the position of the verb in the clausal spine. Before we proceed to the analysis itself, we draw another parallel between Algonquian and Germanic: namely, there are cases where V2 may also have an effect on the realization of agreement morphology in Germanic.

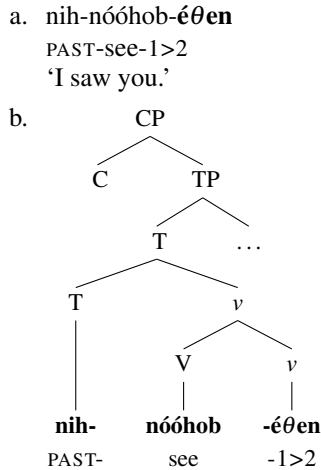
²We should note that French might be patterning even more closely with Arapaho in terms of its residual V2 pattern, in that it is possible with lexical verbs. We, however, discuss (Old/Middle) English instead in order to maintain the parallelism between variation within Algonquian and variation within Germanic.

As it stands, Richards' analysis cannot be extended to Arapaho. This is because he explicitly ties V-C movement, and therefore COMPLEX agreement, to canonical V2 contexts (matrix clauses, and some "plain" embedded clauses). Recall, however, that in Arapaho (most of) those contexts are the ones where SIMPLE agreement occurs as opposed to COMPLEX agreement. Despite this, we argue that a Richards-style analysis can be extended to Arapaho. The analysis needs to be amended so that all types of V-C movement yield COMPLEX agreement. There is, however, also a crucial issue that is set aside by Richards, namely the varying forms of the agreement morphemes themselves. We address this in the following section, where we present our analysis of the SIMPLE/COMPLEX alternation, which builds on Richards (2004) but also takes into account morphological asymmetries between the two paradigms, which has not been done in any of the previous movement analyses of the phenomenon. Finally, we argue that these morphological correlates of V-C movement may be the only strategy available for polysynthetic languages to overtly express V-C movement.

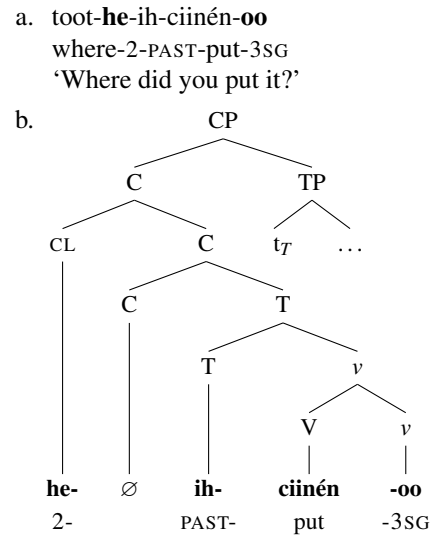
4 Morphological Correlates of V-C Movement

We draw on the basic idea put forward by Richards (2004). Namely, we take more agreement morphology to be the result of verb movement. Crucially, unlike any of the existing analyses, we also use the form of the AGR markers as evidence for V-movement.³ Let us now turn to the derivation of the Arapaho pattern. In our analysis, Arapaho has two loci of verbal agreement: AGR (hosted by v^0) and a proclitic CL (merged in SpecCP). V-C movement (= COMPLEX) in Arapaho is only possible in negative, modal and interrogative clauses; in all other contexts it does not take place. Consider then the structures for SIMPLE and COMPLEX verb forms after head movement:

(14) SIMPLE V (post head-movement)



(15) COMPLEX V (post head-movement)



We propose that when V only moves as high as T (14), the result is SIMPLE agreement. Conversely, when V moves further to C (15), this allows for the possibility of C-related allomorphy on v -AGR and the inclusion of CL in the verbal complex via *m-merger*. The different AGR-affix forms can thus be explained as resulting from the presence/absence of particular heads in the verbal complex (see also Oxford 2015). Crucially, both allomorphy and *m-merger* are morphological operations subject to strict locality constraints, and in the case of (14) blocked due to the absence of V-C movement; our analysis thus eliminates Richards' stipulated PF conditions on AGR/CL spell-out. In

³There also exist proposals which, conversely, link SIMPLE agreement (= less morphology) to verb movement (see Brittain 2001, Branigan 2012). But see Bogomolets et al. (to appear) where we show that such analyses cannot account for the full range of the possible distributions of COMPLEX and SIMPLE paradigms and they fail to provide an explanation for the striking parallelism between Germanic and Algonquian.

the following two sections, we look more closely at the morphological evidence for V-C movement by first focusing on the AGR-suffix in Section 4.1 and then on the CL proclitic in Section 4.2.

4.1 Part I: The AGR-suffix Allomorphs

We begin our discussion of the morphological evidence for V-C movement in Algonquian with considering the suffixes in the COMPLEX and the SIMPLE paradigms in Arapaho (Table 3):

Person	COMPLEX	SIMPLE	Person	COMPLEX	SIMPLE
1SG>2SG	e- • -éθe	-éθe-n	1PL>2SG	e- • -éé	-ee-n
1SG>2PL	e- • -éθe-be	-eθé-nee	1PL>2PL	e- • -ee-be	-éé-nee
1SG>3SG	ne- • -oo	-oʔ/-óʔ	1PL>3SG	ne- • -óó-be	-ee-t
1SG>3PL	ne- • -óó-noʔ	-óʔ-i	1PL>3PL	ne- • -óó-be	-éé-θ-iʔ
2SG>1SG	e- • -i	-í-n	2PL>1SG	e- • -í-be	-i-nee
2SG>1PL	e- • -í-be	-éíʔee-n	2PL>1PL	e- • -éíʔéé-be	-éíʔéé-nee
2SG>3SG	e- • -oo	-ót	2PL>3SG	e- • -óó-be	-óó-nee
2SG>3PL	e- • -óó-noʔ	-ót-i(i)	2PL>3PL	e- • -óó-be	-óó-nee
3SG>1SG	ne- • -eʔ	-éí-noo	3PL>1SG	ne- • -eí	-í-θ-iʔ
3SG>1PL	e- • -éí-be	-éíʔee-t	3PL>1PL	ne- • -éí-be	-éíʔíee-θ-iʔ
3SG>2SG	e- • -eí	-éí-n	3PL>2SG	e- • -eí(ʔí)	-éí-nón-i(i)
3SG>2PL	e- • -éí-be	-éí-nee	3PL>2PL	e- • -éí-be	-éí-nee

Table 3: Arapaho transitive agreement

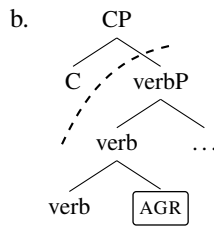
Even without a full segmentation, one can note obvious similarities between the suffixes of the COMPLEX and SIMPLE paradigm: e.g., with 1SG>2SG the **-éθe** suffix is constant across both COMPLEX and SIMPLE paradigms. But there are also notable differences across the paradigms: e.g. with 2SG>1PL the central suffix alternates between **-be** (COMPLEX) and **-n** (SIMPLE). We take this as evidence of *contextual allomorphy* in the latter case, and propose that the observed allomorphy is indirectly conditioned by V-C movement: only when the verb moves to C the two become part of the same morphological domain, and C can affect the realization of AGR, i.e., trigger allomorphy (cf. Bobaljik 2012, Embick 2010, Moskal 2015). Thus, in (16), the allomorphy rule (ii.) is inapplicable due to AGR and C being in different domains (nb. the structures only show relevant heads). In contrast, when the verb and C are in the same domain (after the verb moves) as in (17), the allomorphy rule (ii.) *can* and *must* apply as opposed to the elsewhere rule (i.).

(16) Arapaho SIMPLE:

- a. n<on>óóhob **-éínóni**

<IC>.see -3>2

'They see you_{sg}.'



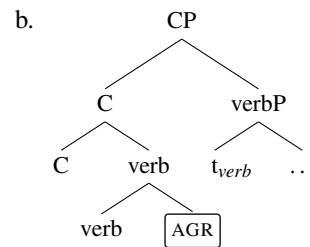
- | | |
|----------------------------------|---|
| i. AGR ⇔ éínóni | ✓ |
| ii. AGR ⇔ éíʔí / [__ C] | ✗ |

(17) Arapaho COMPLEX:

- a. héí- hoow- noohob **-éíʔí**

2- NEG- see -3PL>2SG

'They don't see you_{sg}.'



- | | |
|----------------------------------|---|
| i. AGR ⇔ éínóni | ✗ |
| ii. AGR ⇔ éíʔí / [__ C] | ✓ |

4.2 Part II: The Proclitic

The second kind of morphological evidence for V-C movement comes from the proclitic, which only shows up in the COMPLEX paradigm, i.e., according to our analysis, when the verb moves to

C. We propose that CL is pronominal, and does not originate inside the verbal head-complex, but rather becomes part of it through m-merger, giving rise to distinct phonological interactions (see discussion in Section 4.2.1). The m-merger of CL from SpecCP onto the verbal complex can only take place when the verb is in C, which is illustrated in (18b,c).

- (18) a. **héí-** hoow- noohob -éiʔí
 2- NEG- see -3PL>2SG
 ‘They don’t see you_{sg.}’
- b.
- c. m-merger:

It has been suggested that m-merger is (like contextual allomorphy) a local operation (Marantz 1984, Embick and Noyer 2001): it cannot apply over intervening maximal projections. In our case, this means CL cannot m-merge onto the verbal complex when verbP (the highest verbal projection) intervenes between it and the target. This in turn means that when V-C movement is absent, CL cannot attach itself to the verbal complex, resulting in SIMPLE agreement, as illustrated in (19).

- (19) a. n<on>óóhob -éinóni
 <IC>.see -3>2
 ‘They see you_{sg.}’
- b.

Additional evidence for this proposal comes from the phonological interactions observed between the proclitic and the verb stem which are addressed in the next subsection.

4.2.1 Further Evidence from Clitics

The phonological behaviour of the pronominal proclitic differs when compared to other verbal material. This points to the two kinds of verbal morphology being part of different domains (see also Piggott and Newell 2006) or alternatively resulting from different morpho-syntactic operations (e.g. m-merger vs. head-movement). Below, we show that pronominal proclitics in Arapaho act as if separated from the verb stem by a phonological boundary, and yet they still exhibit some sensitivity to the phonological properties of the verb stem, which we will take as an additional piece of evidence for claiming that the verb head-moves to C and CL attaches to it via m-merger.

The relative prosodic independence of the pronominal proclitic can be illustrated through the patterns of hiatus resolution. Arapaho does not allow onset-less syllables in the beginning of a word, and employs the mechanism of /h/-epenthesis in cases where this condition is violated. This is illustrated with the examples in (20), which show that the imperfective prefix **ii-** must be preceded by /h/ word initially (20a), but not word internally (20b).

- (20) a. **hii-**hoow-niisíθei
 IMPF-NEG-work
 ‘S/he doesn’t work’
- b. h<é>étn-**ii**-biiθíhi-noo
 <IC>FUT-IMPF-eat-1SG
 ‘I will be eating.’

Crucially, /h/-epenthesis also applies to **ii-** when preceded by a pronominal proclitic. This is seen in (21), which patterns with (20a) and not with (20b). The /h/-epenthesis in (21) suggests that there is a prosodic boundary present between the proclitic and other verbal material following it.

References

- Baker, Mark C. 1996. *The Polysynthesis Parameter*. Oxford: Oxford University Press.
- Bennis, Hans, and Alias Maclean. 2006. Variation in verbal inflection in Dutch dialects. *Morphology* 16:291–312.
- Biberauer, Theresa, and Ian Roberts. 2016. Parameter typology from a diachronic perspective: The case of conditional inversion. In *Theoretical Approaches to Linguistic Variation*, ed. E. Bidese, F. Cognola, and M. C. Moroni, 259–292. Amsterdam: John Benjamins.
- Bobaljik, Jonathan David. 2012. *Universals in Comparative Morphology: Suppletion, superlatives, and the structure of words*. Cambridge, MA: MIT Press.
- Bogomolets, Ksenia, Paula Fenger, and Adrian Stegovec. to appear. Arapaho, the English of Algonquian. In *Proceedings of NELS 47*, ed. A. Lamont and K. A. Tetzlof.
- Branigan, Phil. 2012. Macroparameter learnability. Ms., Memorial University of Newfoundland.
- Brittain, Julie. 2001. *The Morphosyntax of the Algonquian Conjunct Verb*. New York: Garland.
- Cowell, Andrew, and Alonzo Moss Sr. 2008. *The Arapaho Language*. Boulder, CO: University Press of Colorado.
- Don, Jan, Paula Fenger, and Olaf Koeneman. 2013. Micro-variation as a tool for linguistic analysis. Paper presented at GLOW 36, Lund.
- Embick, David. 2010. *Localism versus Globalism in Morphology and Phonology*. Cambridge, MA: MIT Press.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- Holmberg, Anders. 2015. Verb second. In *Syntax – Theory and Analysis*, ed. T. Kiss and A. Alexiadou, 342–383. Berlin: de Gruyter.
- Jelinek, Eloise. 1984. Empty categories, case, and configurationality. *Natural Language & Linguistic Theory* 2:39–76.
- Marantz, Alec. 1984. *On the Nature of Grammatical Relations*, volume 10 of *Linguistic Inquiry Monographs*. Cambridge, MA: MIT Press.
- Moskal, Beata. 2015. Domains at the border: Between morphology and phonology. Doctoral dissertation, University of Connecticut.
- Oxford, Will. 2015. Probe competition as a source of ergative person splits. In *Proceedings of NELS 45*, ed. T. Bui and D. Ozyildiz, 213–222. Amherst, MA: GLSA.
- Oxford, William Robert. 2014. Microparameters of agreement: A diachronic perspective on Algonquian verb inflection. Doctoral dissertation, University of Toronto.
- Phillips, Collin. 1998. Disagreement between adults and children. In *Theoretical Issues on the Morphology-Syntax Interface*, ed. A. Mendikoetxea and M. Uribe-Etxebarria, 359–394. San Sebastian: ASJU.
- Piggott, Glyne, and Heather Newell. 2006. Syllabification, stress and derivation by phase in Ojibwa. In *McGill Working Papers in Linguistics 20*, ed. E. Dobler and Y. Furukawa.
- Richards, Norvin. 2004. The syntax of the conjunct and independent orders in Wampanoag. *International Journal of American Linguistics* 70:327–368.
- Rizzi, Luigi. 1990. Speculations on verb-second. In *Grammar in Progress: Essays in Honour of Henk van Riemsdijk*, ed. J. Mascaró and M. Nespó, 375–386. Groningen: Foris.
- Zwart, Jan Wouter. 1994. Dutch syntax: A minimalist approach. Doctoral dissertation, Groningen University.

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