

Size matters: Deriving person hierarchies from nominal structure

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Abstract

Existing work has sought to explain the Algonquian person hierarchy ($SAP > X > 3 > 3' > 0$) in terms of the geometry of person features. This paper identifies problems for the feature-geometric approach and proposes that the hierarchy instead reflects the structural size of the nominal categories: first and second persons are ϕP , impersonal X is $DefP$, proximate third persons are DP , and obviative third persons are KP . Each successive layer of nominal structure makes the person features in ϕP less accessible to an external agreement probe. The person hierarchy thus reduces to an effect of minimality: the hierarchy is simply a statement of the amount of nominal structure that intervenes between a probe and the person features in ϕP . This approach does away with the need for stipulated feature geometries and ties the person hierarchy directly to the well-established phrasal syntax of nominals.

Keywords: person hierarchies; nominal structure; agreement; inverse marking; minimality; Algonquian; Meskwaki

1 Introduction

Where do person-based agreement hierarchies come from? A prominent answer is that the source is the articulation of the *probe* (Béjar & Rezac 2009). This paper presents an alternative: the source can instead be the structural size of the *goal*. I propose that the well-known Algonquian person hierarchy, which governs agreement and inverse marking, is actually a reflection of the amount of nominal structure that lies between the probe on Infl and the person features of the goal. I show that the $SAP > X > 3 > 3'$ hierarchy can be understood as a $\phi P > DefP > DP > KP$ hierarchy, with each successive layer of structure ($DefP$, DP , KP) making the person features on ϕP less accessible to the probe. Minimality thus favours agreement with whichever goal projects the least amount of structure above ϕP . This approach does away with the need for stipulated feature geometries and ties the person hierarchy directly to the well-established phrasal syntax of nominals (e.g. Ihsane & Puskás 2001; Déchaine & Wiltschko 2002).

The paper proceeds as follows. Section 2 provides background on Algonquian morphosyntax. Section 3 describes the system of “theme signs”, which includes the inverse

marker whose appearance is governed by the person hierarchy $SAP > X > 3 > 3' > 0$. Section 4 proposes an analysis of the nature of the inverse marker, but not the hierarchy that governs its appearance. The remainder of the paper seeks to explain this hierarchy. Section 5 shows that existing feature-geometric accounts face challenges and suggests that the solution may instead lie in the syntactic structure of the nominals themselves. Section 6 lays out a model of Algonquian nominal categories in which SAPs are ϕP , impersonal X is DefP, proximate 3 is DP, and obviative 3' is KP. Section 7 shows that the person hierarchy follows directly from this set of structures: each step in the hierarchy corresponds with an additional layer of nominal structure, with each additional layer making the person features in ϕP less accessible to the probe on Infl.

2 Background

This section introduces the Algonquian language family (§2.1), the Algonquian phi-feature categories that are relevant to this paper (§2.2), and the overall layout of the Algonquian agreement system (§2.3).

2.1 The Algonquian languages

The Algonquian languages are spoken across a large area of North America, stretching from the plains to the east coast. The argument in this paper could be developed using data from almost any Algonquian language, as the key pattern to be explained—the person hierarchy that governs the Independent Order verb inflection—goes back to Proto-Algonquian (Goddard 1967; 2007; Pentland 1999) and has been retained in most of the daughter languages. I have chosen to focus on data from Meskwaki (ISO 639-3 *sac*), a Central Algonquian language spoken in Iowa by approximately 200 people (Thomason 2003: 1). There are two practical reasons for this choice. First, Meskwaki is in many respects the most conservative Algonquian language (Hewson 2009: 417) and its phonological conservatism allows its inflectional patterns to be observed with little interference from morphophonemic alternations. Second, the documentation of Meskwaki verb inflection (Goddard 1994) is particularly clear and complete.

2.2 Phi-features

The Algonquian “person hierarchy”, the focus of this paper, is in fact conditioned not solely by person, but rather by a mix of phi-features. The phi-feature categories that play a role in the hierarchy are listed in Table 1, along with the labels that are conventionally used in Algonquianist sources (e.g. Hockett 1948: 8; Pentland 1999: 227, fn. 5; Goddard 2007: 208, fn. 2). Three of the categories require explanation before we proceed: inanimate 0, impersonal X, and obviative 3'.

Inanimate 0. Algonquian nominals are divided into two grammatical genders, *animate* and *inanimate*, with the animate gender encompassing all nouns that denote sentient beings

LABEL	DEFINITION
SAP	speech-act participant (first/second person)
X	animate impersonal subject
3	animate third person
3'	animate obviative third person
0	inanimate third person

Table 1: Algonquian phi-feature categories

as well as some others (Goddard 2002). It is a convention of Algonquian linguistics to label animate third persons as “3” and inanimate third persons as “0”. Animacy plays a prominent role in Algonquian morphosyntax: it figures in the person hierarchy, it is expressed in the inflectional “peripheral suffix” (Goddard 1974) that occurs on nouns and verbs (e.g. Meskwaki *-a 3s, -aki 3p, -i 0s, -ani 0p*), and it is encoded directly in lexical verb stems (e.g. Meskwaki *wa:pam-* ‘see an animate’, *wa:pat-* ‘see an inanimate’).

Impersonal X. Algonquian languages have a set of verb inflection that is used when the speaker wishes to leave the agent unspecified. Although a verb so inflected can be translated as an English passive, most Algonquianists consider it to be a type of *impersonal* construction (Blevins 2003) in which a non-referential animate agent occupies the grammatical subject position and the theme remains as the grammatical object (see discussion in Goddard 1967: 88; Dryer 1996; Hockett 1996; Pentland 1999: 241; 2016; Trommer 2006; Zúñiga 2006: 111–114; Oxford 2014: 138–150). Algonquianists use the symbol “X” to denote the non-referential subject of an impersonal. A Meskwaki impersonal form is given in (1a); compare this with the normal active form in (1b) (Thomason 2003: 101, 112).

- | | | | | |
|-----|----|----------------------------|----|-------------------------------|
| (1) | a. | ni:h=ne:se:heko:pi | b. | ni:h=ne:se:heko:ki |
| | | ne- i:h= ne:se:h -eko: -pi | | ne- i:h= ne:se:h -ekw -w -aki |
| | | 1- FUT- cure -INV -X | | 1- FUT- cure -INV -1s -3p |
| | | ‘I will be cured’ (X→1) | | ‘they will cure me’ (3→1) |

The impersonal form in (1a) translates idiomatically as an English passive, but for reasons discussed in the sources cited above, a more accurate literal translation, reflecting the impersonal nature of the construction, would be something like ‘X will cure me’, ‘people will cure me’, or ‘there will be curing of me’, in which the theme remains the grammatical object.

Obviative 3’. When an Algonquian clause contains more than one third-person referent, a special type of marking becomes obligatory: one referent, typically the most topical, is designated as *proximate* (3) and all others are *obviative* (3’) (Goddard 1984; 1990; Dahlstrom 1996; Thomason 2003). Consider the treatment of the noun *ataška:h-* ‘kingfisher’ in the Meskwaki examples in (2) (Bloomfield 1927: 181).¹ In (2a), the kingfisher is the only third-person referent in the clause, so it is designated as proximate by default; all

¹I have respelled Bloomfield’s examples in the modern orthography.

noun phrases that refer to it—both *ataška:ha* ‘the kingfisher’ and the appositive *nesi:me:ha* ‘my younger brother’—are inflected with the proximate suffix *-a* (3s). In (2b), the kingfisher occurs along with a more topical third-person referent, Wisahkeha, who is designated as proximate; *ataška:h-* ‘kingfisher’ is thus inflected as obviative (*-ani* 3’s).

- (2) a. *ataška:ha nesi:me:ha ni:h=nawiha:wa.*
ataška:h -a ne- si:me:h -a ne- i:h= nawih -a: -w -a
kingfisher -3s 1- sibling -3s 1- FUT- visit -3OBJ -1s -3s
 ‘I shall visit **the kingfisher (3)**, my younger brother (3).’
- b. *Wi:sahke:ha e:h=nawiha:či ataška:hani.*
 Wi:sahke:h -a e:h= nawih -a: -t -i **ataška:h -ani**
 W. -3s AOR- visit -3OBJ -3 -IDC **kingfisher -3’s**
 ‘Wisahkeha (3) visits **the kingfisher (3’)**.’

Note that obviation is not tied to thematic roles: although it is the theme that is inflected as obviative in (2b), it is equally possible to have an obviative agent, as is the case for *aša:h-* ‘Sioux’ in (3).

- (3) *oškinawe:haki e:=mešenekowa:či aša:hahi.*
 oškinawe:h -aki e:= mešen -ekw -wa: -t -i **aša:h -ahi**
 youth -3p AOR- capture -INV -PL -3 -IDC **Sioux -3’p**
 ‘**The Sioux (3’)** captured the youths (3).’ (Bloomfield 1927: 182)

2.3 Agreement

This section describes the overall layout of the Algonquian agreement system. A fundamental point is the existence of two parallel sets of verb inflection known as the *Independent Order* and *Conjunct Order*, which occur canonically in main clauses and subordinate clauses, respectively. The two sets of inflection mark the same categories but do so using different morphological shapes. As an example, compare the Independent and Conjunct first-person plural forms of the verb *nepa:-* ‘sleep’ in (4) (Goddard 1994: 190, 202).² The Independent expresses ‘1p’ using the circumfix *ne-...-pena*; the Conjunct uses the unrelated suffix *-ya:k*.

- | | | | |
|--------|--------------------------|----|-----------------------|
| (4) a. | <i>nenepa:pena</i> | b. | <i>nepa:ya:ke</i> |
| | ne- nepa: -pena | | nepa: -ya:k -e |
| | 1- sleep -1p | | sleep -1p -IDC |
| | ‘we sleep’ (Independent) | | ‘we sleep’ (Conjunct) |

²The Meskwaki verb paradigms in Goddard (1994) contain a blank in the position of the stem. Throughout this paper, when citing forms from Goddard, I supply the stems *nepa:-* ‘sleep’, *wa:pam-* ‘see an animate’, and *wa:pat-* ‘see an inanimate’, as appropriate.

This paper focuses on the Independent inflection, as it is the Independent that displays the person hierarchy in its clearest and most elaborate form.

The agreement morphology of the Independent follows the template in (5) (Goddard 1974; 1979b), exemplified here by the 1→3 transitive form *newa:pamekona:naki* ‘we see them’ (Goddard 1994: 191).

(5)	Person	+	Verb	+	Theme	+	Central	+	Peripheral
	Prefix		Stem		Sign		Suffix		Suffix
	ne-		wa:pam		-ekw		-ena:n		-aki
	1-		see		-INV		-1p		-3p

The template contains three separate layers of agreement marking: the *peripheral agreement*, the *central agreement*, and the *theme sign*.

Peripheral agreement. The word-final peripheral suffix, here *-aki* ‘3p’, indexes third persons only (animate 3, obviative 3’, inanimate 0). Not all Independent verb forms include a peripheral suffix.

Central agreement. The person prefix and central suffix work together as a single *central agreement* marker (Goddard 1974), here *ne-...-ena:n* ‘1p’. The central agreement marker indexes whichever argument ranks highest on the hierarchy $SAP > X > 3 > 3' > 0$. In some forms the central agreement marker consists of only a person prefix (e.g. *ne-* ‘1’) or only a central suffix (e.g. *-w* ‘3’) rather than a prefix-suffix combination.

Theme sign. For the purposes of this paper, the most important agreement slot is the innermost one: the *theme sign* (Bloomfield 1946; 1962), which occurs in all transitive forms and is the locus of the Algonquian system of *direct-inverse* marking. The theme sign is keyed to the same $SAP > X > 3 > 3' > 0$ hierarchy that determines the outcome of central agreement. Two different theme signs mark the *direction* of a transitive event with respect to the hierarchy (Wolfart 1973). The *direct* theme sign appears when the subject outranks the object, as in the 1→3 form in (6a), while the *inverse* theme sign appears when the object outranks the subject, as in the 3→1 form in (6b).

(6)	a.	<i>newa:pama:wa</i>		b.	<i>newa:pamekwa</i>
		ne- wa:pam -a: -w -a			ne- wa:pam -ekw -w -a
		1- see -DIR -1s -3s			1- see -INV -1s -3s
		‘I see her’ ³ (1→3)			‘she sees me’ (3→1)

The forms in (6) exemplify a signature feature of the Algonquian agreement system: the choice of theme sign is the only difference between opposite transitive forms. Regardless of whether the form is 1→3 or 3→1, the central agreement will index the first-person argument, as it ranks higher on the person hierarchy, and the peripheral agreement will index the leftover third-person argument. The central and peripheral agreement markers on their

³There is no masculine-feminine contrast in Algonquian; for simplicity, I use default feminine in all English translations of third-person forms.

own are thus not sufficient to indicate which argument is the subject and which is the object. The full weight of expressing grammatical functions is carried by the theme sign: the direct theme sign in (6a) indicates that the higher-ranked argument acts on the lower-ranked argument (i.e. 1→3) while the inverse theme sign in (6b) indicates the opposite (3→1). The theme sign, together with the person hierarchy that governs it, thus plays a critical role in Algonquian morphosyntax.

3 The theme sign system

Although the conventional “direct-inverse” description of Algonquian theme signs is compelling, it quickly begins to unravel when we take a closer look. A first obvious problem is that there are actually *five* different theme signs, not just the two that we would expect if the theme sign truly was simply a marker of “direct” versus “inverse”. Table 2 shows the forms of the five theme signs in several Algonquian languages.⁴

PA	SH	MES	MEN	OJ	CR	DEL	CH
*-i	-i	-i	-e	-i	-i	-i:	-e
-eθ	-el	-en	-en	-in	-it	-əl	-at
-a:	-a:	-a:	-a:	-a:	-a:	-a:	-ó
-am	-am	-am	-am	-am	-am	-am	-om
-ekw	-ekw	-ekw	-ekw	-igw	-ikw	-əkw	-ae

PA = Proto-Algonquian (Goddard 1979a), SH = Shawnee (Andrews 1994), MES = Meskwaki (Goddard 1994), MEN = Menominee (Bloomfield 1962), OJ = Ojibwe (Valentine 2001), CR = Cree (Wolfart 1973), DEL = Delaware (Goddard 1979b), CH = Cheyenne (Goddard 2000)

Table 2: Theme signs in several Algonquian languages

In this section I set aside the conventional description and take a clean-slate approach to understanding the patterning of theme signs. After surveying the distribution of each of the five theme signs (§3.1), I propose that four of the theme signs are best characterized as object agreement markers (as in Rhodes 1976), with only the fifth theme sign, *-ekw*, requiring the extra descriptive apparatus of a person hierarchy and a notion of “inverse” (§3.2). I show that this characterization of theme signs is preferable to existing alternatives (§3.3). The outcome of this section is a simple characterization of the conditioning of inverse marking which provides the foundation for the analysis to be developed in the rest of the paper.

⁴The table shows only the basic allomorph of each theme sign. The Proto-Algonquian (PA) theme sign **-a:* had an allomorph **-e:*; the PA theme sign **-am* had the allomorphs **-a:* and **-e:* (Goddard 2007). Some verbs, known as TI Class 2 verbs, take a theme sign **-aw* in place of **-am* (Bloomfield 1962; Goddard 1979b). Due to regular sound change, many of the daughter languages have two phonologically-conditioned reflexes of the PA theme sign **-eθ*; for example, Meskwaki has *-eh* before a consonant and *-en* elsewhere.

3.1 Distribution of theme signs

This section surveys the distribution of each of the five theme signs in the Independent inflection of Meskwaki (Goddard 1994: 190–91). To avoid presupposing an analysis, each theme sign is glossed simply as “TS”. The distribution of theme signs in the Meskwaki Independent matches that of Proto-Algonquian (Goddard 2007) and most of the other Algonquian languages.⁵ Although the focus here is on the Independent inflection for reasons discussed above (§2.3), two Conjunct forms will also be cited in order to clarify the conditioning of the theme signs *-i* and *-en*.

The theme sign *-i* occurs in 2→1 forms, such as (7a). In the Conjunct it also occurs in 3→1 forms, such as (7b).

- | | | | | |
|-----|----|---------------------------|----|------------------------------|
| (7) | a. | kewa:pamipwa | b. | wa:pamiči |
| | | ke- wa:pam -i -pwa | | wa:pam -i -t -i |
| | | 2- see -TS -2p | | see -TS -3 -IDC |
| | | ‘you all see me’ (2→1) | | ‘she sees me’ (3→1 Conjunct) |

The theme sign *-en*, which becomes *-eh* before a consonant, occurs in 1→2 forms, such as (8a), and in 3→2 Conjunct forms, such as (8b).

- | | | | | |
|-----|----|-----------------------------|----|-------------------------------|
| (8) | a. | kewa:pamenepwa | b. | wa:pamehki |
| | | ke- wa:pam -en -epwa | | wa:pam -eh -k -i |
| | | 2- see -TS -2p | | see -TS -3 -IDC |
| | | ‘I see you all’ (1→2) | | ‘she sees you’ (3→2 Conjunct) |

The theme sign *-a:*, which umlauts to *-e:* before the central suffix *-w* ‘3’ (Goddard 2007: 209), occurs in SAP→3, X→3, and 3→3’ forms.

- | | | | | |
|-----|----|-----------------------------|----|-----------------------------|
| (9) | a. | newa:pama:pena | c. | wa:pame:wa |
| | | ne- wa:pam -a: -pena | | wa:pam -e: -w -a |
| | | 1- see -TS -1p | | see -TS -3 -3s |
| | | ‘we see her’ (SAP→3) | | ‘she sees the other’ (3→3’) |
| | b. | wa:pama:pi | | |
| | | wa:pam -a: -pi | | |
| | | see -TS -X | | |
| | | ‘she is seen’ (X→3) | | |

⁵Across the Algonquian family, the main variations in the patterning of theme signs in the Independent are as follows. Some Ojibwe dialects extend the inverse marker to 1p→2 forms (Rhodes & Todd 1981: 57). Blackfoot extends the inverse marker to 2→1 forms (Frantz 2009: 61) and has lost all transitive forms with inanimate subjects (Ritter & Rosen 2010). Arapaho has innovated new theme signs in 2→1p and 1p→2 forms (Goddard 1979a: 93). Mi’gmaq has lost the Independent Indicative inflection entirely (Goddard 2007: 227).

The theme sign **-am**, which has the allomorph *-a:* in Independent forms that lack the central suffix *-w* ‘3’, occurs in SAP→0, X→0, and 3→0 forms.

- (10) a. newa:pata:pena
 ne- wa:pat **-am** -pena
 1- see.it **-TS** -1p
 ‘we see it’ (SAP→0)
- c. wa:patamwa
 wa:pat **-am** -w -a
 see.it **-TS** -3 -3s
 ‘she sees it’ (3→0)
- b. wa:pata:pi
 wa:pat **-am** -pi
 see.it **-TS** -X
 ‘it is seen’ (X→0)

The theme sign **-ekw** occurs in X→SAP, 3→SAP, 0→SAP, 3′→3, 0→3, and 0→3′ forms. This theme sign has three variant shapes, *-ekw*, *-ekwi*, and *-eko:*, whose conditioning I will not consider in this paper.⁶

- (11) a. newa:pameko:pi
 ne- wa:pam **-eko:** -pi
 1- see **-TS** -X
 ‘I am seen’ (X→SAP)
- d. wa:pamekwa
 wa:pam **-ekw** -w -a
 see **-TS** -3 -3s
 ‘the other sees her’ (3′→3)
- b. newa:pamekwa
 ne- wa:pam **-ekw** -w -a
 1- see **-TS** -1s -3s
 ‘she sees me’ (3→SAP)
- e. wa:pamekwiwa
 wa:pam **-ekwi** -w -a
 see **-TS** -3 -3s
 ‘it sees her’ (0→3)
- c. newa:pamekwi
 ne- wa:pam **-ekwi**
 1- see **-TS**
 ‘it sees me’ (0→SAP)
- f. wa:pamekwiniwani
 wa:pam **-ekwi** -ni -w -ani
 see **-TS** -3′ -3 -3′s
 ‘it sees the other’ (0→3′)

3.2 Characterization of theme signs

Table 3 summarizes the preceding section by listing the contexts in which each of the five theme signs occurs. If we focus on the *objects* that each theme sign occurs with, a clear pattern emerges: *-i* occurs with first-person objects, *-en* occurs with second-person objects,

⁶It is standard to regard all such variants as flavours of the same inverse theme sign: see Thomason (2003: 102–3, 112) for Meskwaki *-ekw/-ekwi/-eko:*, Goddard (1979b: 82) for Delaware *-əkw/-əkē*, and Bloomfield (1962: 142) for Menominee *-Ekw/-Eko/-Eke:*.

-a: occurs with animate third-person objects (3 and 3'), and *-am* occurs with inanimate third-person objects (0). These four theme signs, then, can be characterized simply as markers of object agreement.

TS	CONTEXTS	GLOSS
<i>-i</i>	2→1 (in Conjunct also 3→1)	1OBJ
<i>-en</i>	1→2 (in Conjunct also 3→2)	2OBJ
<i>-a:</i>	SAP→3, X→3, 3→3'	3OBJ
<i>-am</i>	SAP→0, X→0, 3→0	0OBJ
<i>-ekw</i>	X/3/0→SAP, 3'→3, 0→3/3'	INV

Table 3: Contexts for each theme sign in the Independent inflection

The object agreement analysis cannot, however, be extended to the fifth theme sign, *-ekw*, which occurs with objects of all three persons. The occurrence of *-ekw* in forms as different as 3'→3 and X→1 indicates that *-ekw* cannot be tied to any particular phi-feature. Instead, as in the traditional description, we can only account for the conditioning of *-ekw* by positing the hierarchy in (12) (Goddard 1979b: 83; Pentland 1999: 235; Thomason 2003: 101), along with the rule that *-ekw* occurs whenever the object outranks the subject on this hierarchy (i.e. in “inverse” contexts).

$$(12) \quad \text{SAP} > \text{X} > 3 > 3' > 0$$

$\xleftarrow{\hspace{1.5cm}} \text{-ekw}$

We can now describe the conditioning of the five theme signs as follows:

- (13) a. If the object outranks the subject on the hierarchy in (12), the theme sign is realized as *-ekw*.
- b. Otherwise (i.e. if the subject outranks the object or if the two arguments are equally ranked), the theme sign indexes the object (*-i* 1OBJ, *-eh* 2OBJ, *-a:* 3OBJ, *-am* 0OBJ).

The upshot of this description is that the theme sign is fundamentally a marker of object agreement, a typologically ordinary function that is not theoretically challenging. The only wrinkle is the exponent *-ekw*, which overrides the expected object-agreement markers and is conditioned in what appears to be an entirely different way. Descriptively, *-ekw* must continue to be characterized as an inverse marker—that is, a marker that appears when the thematic hierarchy is misaligned with the person hierarchy (Wolfart 1973; Blain 1998). The nature of such a marker, and the hierarchy that governs it, is a much trickier theoretical problem. We will turn to this problem in Section 4, but before doing so, it is necessary to address some alternative proposals regarding the characterization of theme signs.

3.3 Alternative characterizations of theme signs

The characterization of theme signs presented above is one of several approaches to theme signs that can be identified in the literature on Algonquian languages. The three main analyses are summarized in Table 4. (I set aside the theme sign *-am* here, as there is widespread agreement that it marks an inanimate object.) This section outlines the three analyses and argues that Analysis A is preferable.

TS	A	B	C
<i>-i</i>	1OBJ	1OBJ	DIRECT
<i>-en</i>	2OBJ	2OBJ	INVERSE
<i>-a:</i>	3OBJ	DIRECT	DIRECT
<i>-ekw</i>	INVERSE	INVERSE	INVERSE

Table 4: Three analyses of theme signs

Analysis A, adopted in this paper, singles out *-ekw* as a special inverse marker and regards the remaining theme signs as object agreement. To my knowledge, the object-agreement approach was first proposed by Rhodes (1976); other proponents include Brittain (1999), McGinnis (1999), and Oxford (2014). Recent comments by Ives Goddard, the foremost comparative Algonquianist, appear to endorse this analysis: Goddard states that theme signs “indicate...the identity specifically of the object” (2007: 232) and that transitive verbs “have an object marker, called a theme sign” (2015: 372).

Analysis B differs from Analysis A in only one respect: the theme sign *-a:*, which occurs with third-person objects, is regarded as a *direct* marker rather than a third-person object marker. There is thus a pair of object-marking theme signs (*-i* 1OBJ, *-en* 2OBJ) and a pair of direct-inverse theme signs (*-a:* DIR, *-ekw* INV). This is the received analysis in the descriptive Algonquian literature (Bloomfield 1962: 152; Goddard 1979b: 83–84; Nichols 1980: 164; Hockett 1992; Pentland 1999: 235; Valentine 2001: 270).⁷

The motivation for regarding *-a:* as a “direct” marker is likely its frequent occurrence in minimal pairs with the inverse theme sign. As an example, the only difference between the forms in (14) (repeated from (6)) is that (14a) has the theme sign *-a:* while (14b) has the inverse theme sign *-ekw*.

- | | | | | | |
|------|----|----------------|----------------------|----|-----------------------|
| (14) | a. | newa:pama:wa | | b. | newa:pamekwa |
| | | ne- wa:pam -a: | -w -a | | ne- wa:pam -ekw -w -a |
| | | 1- see | -3OBJ -1s -3s | | 1- see |
| | | | | | -INV -1s -3s |
| | | ‘I see her’ | (1→3) | | ‘she sees me’ |
| | | | | | (3→1) |

⁷Bloomfield (1962: 152) and Hockett (1992) in fact analyze *-i* as ‘thou→me’ rather than ‘1OBJ’ and *-en* as ‘I→thee’ rather than ‘2OBJ’. This is still a variant of Analysis B, however, as it identifies the *-i* and *-en* theme signs with particular person features rather than regarding them as direct-inverse markers. In a later chapter, Bloomfield (1962: 180) notes that *-i* and *-en* also occur in ‘he→me’ and ‘he→thee’ forms, respectively, which is consistent with the core meaning of the theme signs being ‘me’ (1OBJ) and ‘thee’ (2OBJ).

Given the overall symmetry of the morphology in these forms, a symmetrical direct-inverse analysis of the theme signs may seem appropriate. A problem for this conclusion, however, is that *-a:* is not the only theme sign that can contrast minimally with inverse *-ekw*. Consider the forms in (15). Here, again, the two forms differ only in the choice of theme sign, but in this case the inverse theme sign *-ekwi* is paralleled not by the “direct” theme sign *-a:*, but rather by the inanimate-object theme sign *-am*.

- | | | | | |
|------|----|--|----|--|
| (15) | a. | wa:patamwa
wa:pat -am -w -a
see.it -0OBJ -3 -3s
'she sees it' (3→0) | b. | wa:pamekwiwa
wa:pam -ekwi -w -a
see -INV -3 -3s
'it sees her' (0→3) |
|------|----|--|----|--|

If we take the putative “direct” category seriously, we are forced to analyze *-am* as a direct theme sign, since, like *-a:*, it contrasts minimally with the inverse theme sign *-ekw*. We now have *two* direct theme signs, *-a:* and *-am*, and to distinguish them we must say that *-a:* occurs with animate third-person objects while *-am* occurs with inanimate objects. But this is tantamount to adopting Analysis A, since we are now characterizing *-a:* as an animate third-person object marker. Positing a “direct” category thus gains us nothing, as we still end up needing to appeal to the features of the object. Upon closer inspection, then, Analysis B turns out to be simply a notational variant of Analysis A—one that may be useful for pedagogical purposes, but is entirely unhelpful for theoretical inquiry, as it saddles us with two mysterious categories (“direct” and “inverse”) rather than just one (“inverse”).

Analysis C takes the direct-inverse idea a step further, applying it not only to the *-a:/-ekw* pair, but to the *-i/-en* pair as well, which are taken as a special set of direct-inverse markers dedicated to local forms (i.e. forms in which both arguments are first/second person). Under this analysis, *-i* marks “local direct” and *-en* marks “local inverse”. In the classic descriptive Algonquian literature, Analysis C is found only in Wolfart (1973). Despite a rebuttal by Hockett (1992), Wolfart’s analysis has often been assumed in subsequent work (e.g. Dahlstrom 1991: 42–43; Déchaine 1999: 55; Béjar & Rezac 2009: 49), though usually without extensive justification.

Analysis C presupposes that the hierarchy includes a $2 > 1 > 3$ ranking rather than the flatter $SAP > 3$ ranking given in (12) above. The $2 > 1$ ranking makes it possible to characterize $2 \rightarrow 1$ forms as direct and $1 \rightarrow 2$ forms as inverse. This analysis faces an immediate empirical problem, however: the putative “local direct” theme sign *-i* that occurs in $2 \rightarrow 1$ forms is also found in $3 \rightarrow 1$ Conjoint forms, which are neither local nor direct—a contradiction that does not arise if *-i* is analyzed as a first-person object marker, as in Analyses A and B. This is just one of several flaws in Analysis C, as discussed at length by McGinnis (2005: 712–13), Zúñiga (2006; 2008), and Macaulay (2009), with Zúñiga (2006: 127) going as far as to conclude that “the Algonquian person hierarchy $2 > 1 > 3$ is...at best an oversimplification and at worst an urban legend.” I thus do not adopt Analysis C here.

3.4 Summary: The theme sign system

In Meskwaki, as in most Algonquian languages, the theme sign ordinarily indexes the object (*-i* 1OBJ, *-en* 2OBJ, *-a*: 3OBJ, *-am* 0OBJ) but is overridden by the inverse marker *-ekw* when the object outranks the subject on the hierarchy $SAP > X > 3 > 3' > 0$. From a theoretical perspective, this characterization of theme signs leaves us with four exponents that are trivially simple to account for (i.e. as instances of object agreement) and one exponent, inverse *-ekw*, that is much more difficult. There are two basic questions to be answered about *-ekw*: first, what *is* it—that is, what features or structural entities does it spell out—and second, what is the source of the elaborate $SAP > X > 3 > 3' > 0$ hierarchy that governs its distribution? The first question has a fairly clear answer and will be addressed in Section 4. The second question is the topic of the remainder of the paper.

4 What is the inverse marker?

The theoretical literature contains many different views on the nature of inverse marking (e.g. Rhodes 1976; Halle & Marantz 1993; Brittain 1999; Bliss 2005; Bruening 2005; Quinn 2006; Béjar & Rezac 2009; Lochbihler 2012; Bliss et al. 2014; Oxford 2017). Since I concluded above that the theme sign is fundamentally an object agreement marker, I focus here on two recent analyses that derive the inverse marker as a side-effect of agreement: the Cyclic Agree analysis of Béjar & Rezac (2009) (§4.1) and the impoverishment analysis of Oxford (2017) (§4.2).

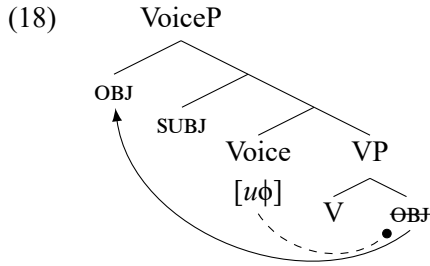
For concreteness, I will show how each analysis handles the prototypical pair of “direct-inverse” forms in (16) (repeated from (6)). Both forms involve a first-person argument indexed by central agreement (*ne-...-w* ‘1s’) and a third-person argument indexed by peripheral argument (*-a* ‘3s’). The forms differ only in the choice of theme sign: the 1→3 form has the third-person object marker *-a*: while the 3→1 form has inverse *-ekw*.

- | | | | | | | |
|------|----|-------------------|---------------|----|-----------------------|--------------|
| (16) | a. | newa:pama:wa | | b. | newa:pamekwa | |
| | | ne- wa:pam -a: | -w -a | | ne- wa:pam -ekw -w -a | |
| | | 1- see | -3OBJ -1s -3s | | 1- see | -INV -1s -3s |
| | | ‘I see her’ (1→3) | | | ‘she sees me’ (3→1) | |

We will see that while the details of the Cyclic Agree and impoverishment analyses differ, both analyses converge on the same characterization of the inverse marker: it appears whenever the object is the best match for a probe that is able to agree with either the subject or the object (or both).

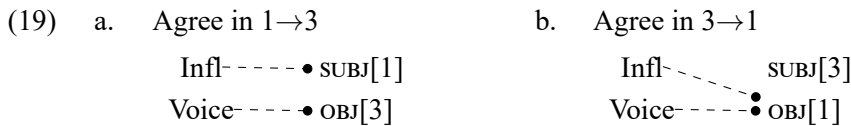
4.1 Deriving the inverse marker through Cyclic Agree

Béjar & Rezac (2009), henceforth BR, put forth a Cyclic Agree analysis of inverse marking in Ojibwe that has since been refined by Lochbihler (2012). BR propose that the direct-inverse pattern is driven by a probe on *v*, the head that introduces the external argument.



To account for the central agreement (Infl), which targets whichever argument ranks higher on the person hierarchy, Oxford proposes that Infl carries the “picky” probe that BR posited for ν , which favours agreement with SAPs over third persons. Since the two specifiers of VoiceP are equidistant from Infl, minimality does not favour agreement with one or the other. Instead, Oxford proposes that Infl agrees with whichever is the best match for the probe. If one specifier is an SAP and the other is a third person, for example, Infl will agree with the SAP, regardless of its thematic role.

The Agree relations in the examples in (16) above are sketched in (19). The probe on Voice (theme sign) consistently agrees with the only goal that it c-commands, i.e. the object. The picky probe on Infl (central agreement) consistently agrees with the first-person argument, which matches the probe better than the equidistant third-person argument does.



These Agree relations correctly derive all of the agreement morphology in (16) *except for the theme sign in the 3→1 form*. The analysis in (19b) predicts a first-person object theme sign, but the actual outcome is the inverse marker *-ekw*. Oxford shows that there is a simple explanation for this outcome. What distinguishes (19b) is that the object is agreed with not only by Voice but also by Infl. The two agreement heads thus end up with identical phi-feature specifications. Oxford proposes that a ban on such duplication triggers a morphological dissimilation process that impoverishes the phi-features of the lower head Voice, leaving Voice to be spelled out as an underspecified elsewhere form—which is *-ekw*, the so-called inverse marker (cf. Sandalo 2016 on inverse marking in the Brazilian language Kadiwéu and Nevins 2007 on “spurious *se*” in Spanish). Under this analysis, the inverse marker is simply the elsewhere spellout of Voice, realized when the object features on Voice have been erased due to their duplication on Infl.

4.3 Summary: What is the inverse marker?

The Cyclic Agree analysis of Béjar & Rezac (2009) and the impoverishment analysis of Oxford (2017) interface differently with the Algonquian facts and have different theoretical implications, but at their core, the two analyses share the same characterization of inverse

marking: the inverse marker *-ekw* appears whenever a “picky” probe P that is able to agree with either argument chooses to agree solely with the object. In other words, the inverse marker appears whenever the object is the best match for P.

This conclusion gives us a new way of understanding the Algonquian person hierarchy $SAP > X > 3 > 3' > 0$. We saw in Section 3 that from a descriptive perspective, the inverse marker appears whenever the object outranks the subject on the person hierarchy. We have seen in this section that from a theoretical perspective, the inverse marker appears whenever the object outranks the subject as a suitable goal for the probe P. In theoretical terms, then, what the Algonquian person hierarchy is actually describing is the agreement preferences of P. The probe agrees with whichever argument ranks higher on the person hierarchy, and if that argument happens to be the object, the outcome will be inverse morphology.

If we want to explain the distribution of the inverse marker, our task is now clear: we must explain why the agreement preferences of P are such that they can be described by the elaborate hierarchy $SAP > X > 3 > 3' > 0$. What makes each level on this hierarchy a better match for P than the next level? The remainder of the paper seeks to answer this question.

5 Against a featural account of the hierarchy

Where does the $SAP > X > 3 > 3' > 0$ hierarchy come from? The leading proposal in the existing literature is that the hierarchy reflects the structure of person features (Béjar 2003; Béjar & Rezac 2009; Lochbihler 2012; Oxford 2014), with higher levels in the hierarchy corresponding to more richly articulated person features. If we assume that the probe seeks to agree with the richest available set of person features, it follows that the probe will be satisfied most fully by the goal that ranks highest on the person hierarchy.

More concretely, the $SAP > 3$ ranking can be derived as follows. Béjar & Rezac (2009) propose that the probe seeks to agree not only for [PERSON] but also for the [PARTICIPANT] sub-feature that distinguishes SAPs from third persons. The relevant feature structures are shown in (20).⁸

$$(20) \quad \text{Probe} \quad \text{SAP} > 3$$

<i>u</i> PERS	PERS	[PERS]
<i>u</i> PART	PART	

An SAP is a better match for the probe because it values two of the probe’s features whereas a third person values only one.

The $SAP > 3$ ranking is only one step in the full $SAP > X > 3 > 3' > 0$ hierarchy. To extend Béjar & Rezac’s analysis to encompass the entire hierarchy, we can simply posit additional layers in the geometry of the person feature. This is the approach taken by Lochbihler (2012: 36–37, 244), who posits a [PROXIMATE] feature to distinguish {SAP, X, 3} from {3’,

⁸Béjar & Rezac (2009) in fact propose that the probe seeks not only [PERSON] and [PARTICIPANT] but also the [ADDRESSEE] sub-feature that distinguishes second person from first person. This proposal derives a $2 > 1 > 3$ person hierarchy, but as discussed above (§3.3), the hierarchy that governs the inverse marker *-ekw* is in fact just $SAP > 3$.

0} and an [X] feature to distinguish {SAP, X} from {3, 3', 0}. Lochbihler takes inanimates (0) to lack person features entirely (cf. Lochbihler et al. 2015). The resulting feature structures are shown in (21) (cf. also Oxford 2014: 89).

$$(21) \quad \text{Probe} \quad \text{SAP} > \text{X} > 3 > 3' > 0$$

$$\begin{bmatrix} \text{uPERS} \\ \text{uPROX} \\ \text{uX} \\ \text{uPART} \end{bmatrix} \quad \begin{bmatrix} \text{PERS} \\ \text{PROX} \\ \text{X} \\ \text{PART} \end{bmatrix} > \begin{bmatrix} \text{PERS} \\ \text{PROX} \\ \text{X} \end{bmatrix} \quad \begin{bmatrix} \text{PERS} \\ \text{PROX} \end{bmatrix} \quad \begin{bmatrix} \text{PERS} \end{bmatrix} \quad \emptyset$$

The features in (21) do successfully derive the hierarchy: it is now the case that for any two categories, the higher-ranked one matches more of the probe's features than the lower-ranked one does. However, despite being an effective way to capture the hierarchy, the feature-driven approach faces some conceptual and empirical problems. I discuss four problems here.

1. The feature-driven approach to the hierarchy requires us to add [PROXIMATE] and [X] to the geometry of person features, but the semantic contributions of these features are unclear and their positions in the geometry are ad hoc, motivated solely by the need to capture the person hierarchy. The feature geometry PERSON–PROXIMATE–X–PARTICIPANT is effectively a restatement of the person hierarchy SAP > X > 3 > 3', so rather than deriving the hierarchy, we have really just smuggled it into the analysis.

2. The features in (21) provide no way to single out third persons (3, 3', 0) as a natural class, but there is evidence from Algonquian morphosyntax that third persons are indeed a class. The peripheral agreement suffix mentioned in Section 2.3, for example, appears only when a third person is present and expresses a rich set of third-person contrasts (-a 3s, -aki 3p, -ani 3's, -ahi 3'p, -i 0s, -ani 0p). The expression of this rich set of contrasts makes it impossible to analyze the peripheral suffix as a default or elsewhere form; instead, it must be regarded as a dedicated third-person agreement marker. Trommer (2008) discusses additional third-person agreement markers in Menominee and shows that they, too, cannot simply be analyzed as default forms. We thus need a model of features in which third persons are a natural class, which is not the case in (21).

3. Under the analysis in (21), the features of proximate third persons ([PERSON, PROXIMATE]) are more specified than those of obviative third persons ([PERSON]). This asymmetry predicts that in contexts of syncretism, where feature specifications are lost (e.g. Bonet 1991; 1995), it should be obviative marking that emerges. This prediction is incorrect: whenever the proximate-obviative contrast is neutralized, it is in fact the proximate, not the obviative, that appears (Wolfart 1978). We thus need an analysis in which the proximate is *less* marked than the obviative, not more marked.

4. Under the feature geometry in (21), the proximate-obviative contrast (3 versus 3') is determined by the feature [PROXIMATE], which is a dependent of [PERSON]. Since inanimates (0) lack [PERSON] entirely and thus necessarily also lack all of its dependents, we predict that the proximate-obviative contrast cannot apply to inanimates. At a glance, this prediction may appear to be correct, since the inflection of inanimate nouns does not mark obviation

in most Algonquian languages (but not all: Bliss & Oxford 2014). However, despite the lack of marking on the noun itself, the inflection of agreeing verbs clearly demonstrates that inanimate nouns are indeed “covertly obviative” (Wolfart 1978: 259) in the same contexts where animate nouns are overtly marked as obviative, i.e. whenever the noun occurs along with another third person (Rhodes 1990a: 105).

To make this description more concrete, consider the Meskwaki example in (22) (Thomason 2003: 159). There are two third-person referents here, ‘he’ and ‘arrows’, so we expect one of them to be designated as obviative. Although the inanimate noun *aša:ti:hani* ‘arrows’ in (22b) shows no obviative inflection, the verb *nemate:-* ‘stand’, which agrees with ‘arrows’, displays the obviative agreement suffix *-ni* in addition to the inanimate agreement suffix *-k*. The obviative agreement on the verb shows that its inanimate subject ‘arrows’ is indeed obviative here, as we would expect, despite the lack of morphology for marking obviation on inanimate nouns.

- (22) a. i:na:h=pe:kama:ška:či,
 i:na:h pe:kama:ška: -č -i,
 there IC.arrive.rush -3 -IDC
 ‘When **he (3)** arrived there in a rush, ...’
- b. aša:ti:hani=či:hi e:h=nemate:niki.
 aša:ti:h -ani =či:hi e:h= nemate: **-ni -k -i**
 arrow -0p -POV AOR- stand **-OBV -0** -IDC
 ‘...he saw it was **arrows (0’)** standing there.’

Since obviation does apply to inanimates, any feature model that rules out inanimate obviatives, such as (21), cannot be correct.

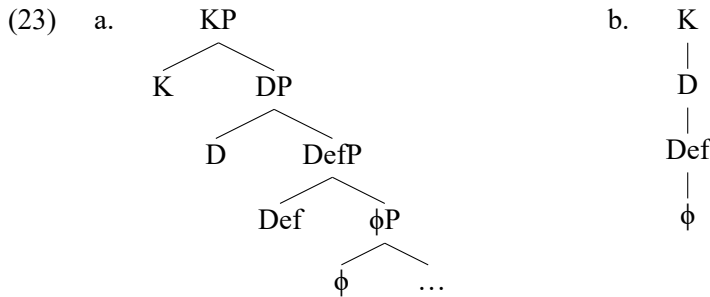
This section has shown that while a feature-driven approach to the person hierarchy can derive the $SAP > 3$ ranking (Béjar & Rezac 2009), attempts to extend this approach to the entire hierarchy (Lochbihler 2012; Oxford 2014) face conceptual and empirical problems. In addition to capturing the full $SAP > X > 3 > 3' > 0$ ranking, a successful analysis of the person hierarchy must also (1) avoid ad hoc or arbitrarily-ranked features, (2) capture the classhood of third persons, (3) represent obviative as more marked than proximate, and (4) allow for inanimate obviatives. The key to such an analysis, I propose, lies in turning our attention away from the *features* of the categories in the hierarchy and focusing instead on their *structures*.

6 A closer look at nominal structure

The Algonquian person hierarchy is a ranking of pronominal and nominal categories. Previous attempts to derive the hierarchy have focused on differences in the features of each category, but features are not the only source of variation in nominals: Déchaine & Wiltschko (2002) have shown that pronouns can also differ in the amount of syntactic structure they

project, which may range from NP to ϕ P to DP. I will propose that such structural differences provide the key to capturing the Algonquian person hierarchy.

In this section I lay the groundwork for a structure-based account of the person hierarchy by mapping out the syntactic structure of each of the categories in the hierarchy. The structures are based on well-established proposals in the theoretical literature and are supported by independent distributional and semantic evidence. As a preview, the maximal nominal structure that I will propose is shown in (23a). To save space below, I will usually show only the sequence of heads, as in (23b); this is to be understood simply as an abbreviated display of the branching structure in (23a).



I will propose that the categories in the Algonquian person hierarchy map to the structure in (23) as follows: all categories have a ϕ P layer (§6.1), all non-SAP categories add a DefP layer, with a further DP layer added to all referential third persons (§6.2), and all obviatives are topped off with a KP layer (§6.3). Each category in the person hierarchy is thus a constituent of the structure in (23). This set of structures leads to a simple account of the hierarchy, as we will see in Section 7.

Before proceeding to map out the *internal* syntax of Algonquian nominals, it is worthwhile to clarify my assumptions regarding their *external* syntax. Some analyses of Algonquian morphosyntax have assumed Jelinek’s (1984) Pronominal Argument Hypothesis (e.g. Reinholtz & Russell 1995; Junker 2004), but much recent work has abandoned this approach (see especially LeSourd 2006). I follow LeSourd in taking overt non-dislocated R-expressions to be arguments rather than adjuncts. When an overt R-expression is absent, I take the argument to be null *pro*. Since R-expressions and null *pro* have exactly the same agreement properties—a 3’p argument, for example, is treated identically by the agreement system regardless of whether it is overt or null—I assume that the structural template in (23) applies equally to both overt R-expressions and null *pro*.⁹

⁹I do not, however, take the template in (23) to apply to emphatic personal pronouns such as Meskwaki *ni:na* ‘I’, *ki:na* ‘you’, *wi:na* ‘s/he’. Unlike null *pro*, these pronouns occur only in A-bar positions and encode only person and number, showing no contrasts for animacy, obviation, or referentiality (Dahlstrom 1988: 167). These differences suggest that the structure of emphatic pronouns is unlike that of null *pro*. Since emphatic pronouns are excluded from clausal argument positions, they do not participate directly in subject/object agreement and are thus not relevant to this paper. For more on the syntax of emphatic pronouns, see Déchaine et al. (2015) for Plains Cree and Wiltschko et al. (2015) for Blackfoot.

6.1 ϕ P: Person and number

Following Déchaine & Wiltschko, I take ϕ P to be “a cover term for any intermediate functional projection that intervenes between N and D and that encodes ϕ -features” (2002: 410). In particular, I consider ϕ P to be the locus of *person* and *number* features. I represent person using the binary feature [\pm PARTICIPANT] (Noyer 1992), although nothing hinges on this choice. Following Lochbihler (2012), I take inanimates to be completely unspecified for person, as has also been proposed for Passamaquoddy (Alexiadou & Anagnostopoulou 2006: 58) and Ojibwe (Piriyawiboon 2007: 4) as well as various non-Algonquian languages (e.g. Rooryck 2000: 232 for French; Adger & Harbour 2007: 20 for Kiowa). The specification of ϕ P for each category in the Algonquian person hierarchy is shown in (24).

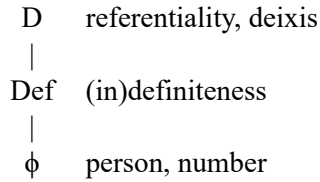
$$(24) \quad \begin{array}{ccccccc} \text{SAP} & > & \text{X} & > & 3 & > & 3' & > & 0 & > & 0' \\ \hline \phi & & \phi & & \phi & & \phi & & \phi & & \phi \\ [+PART] & & [-PART] & & [-PART] & & [-PART] & & & & \end{array}$$

Two comments on the display in (24) are in order. First, number features, which are present on ϕ for all categories except impersonal X, have been omitted because they play no role in the direct-inverse hierarchy. Second, the inanimate obviative ($0'$) has been added at the bottom of the hierarchy. It is debatable whether the direct-inverse hierarchy truly includes a $0 > 0'$ ranking. Our only opportunity to observe such a ranking would be in transitive forms with two inanimate arguments, which are illicit in some Algonquian languages (Rhodes 1990b: 402–3 for Ojibwe) and exceedingly rare in others. Where such forms do occur, they appear to involve a derived intransitive verb stem (Thomason 2003: 113, fn. 28 for Meskwaki) and are thus outside the scope of the direct-inverse system, since only transitive verbs take theme signs. Nevertheless, I include $0'$ in (24) because, regardless of its status in the person hierarchy, the category does exist (§5) and thus must be accommodated in any analysis of nominal structures.

6.2 DefP and DP: Definiteness and referentiality

The projection above ϕ P is DP (Déchaine & Wiltschko 2002). Much recent work has advanced a split-DP hypothesis (Giusti 1996; 2005; Zamparelli 1995; Ihsane & Puskás 2001; Laenzlinger 2005; Alexiadou et al. 2007; Ihsane 2008) in which the traditional DP (Abney 1987) is separated into a lower projection that is the locus of definiteness and a higher projection that is the locus of referentiality and deixis. Following Ihsane & Puskás (2001), I will refer to the lower projection as DefP and the higher projection as DP, giving the overall structure in (25).

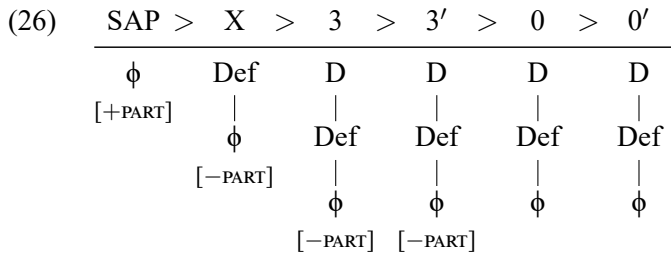
(25) Nominal structure under split-DP hypothesis



Referential third persons (3, 3', 0, 0') take part in contrasts of definiteness and deixis and thus require both DefP and DP, but this is not necessarily the case for first and second persons (SAPs) or impersonal X. The reference of SAPs is fully determined by the person features in φP: [+PARTICIPANT, +SPEAKER] denotes the speaker and [+PARTICIPANT, -SPEAKER] denotes the addressee. Mavrogiorgos (2010: 54) proposes that these participant features cause Greek first and second persons to be of type <e>, i.e. directly referential, which makes them incompatible with the [±DEFINITE] feature in DefP and the deictic/anaphoric features in DP. For similar reasons, Bartos (1999) and van Gelderen (2011: 74) propose that first and second persons are φP while third persons are DP. I adopt this proposal here.

As for impersonal X, it is obligatorily interpreted as an indefinite animate third person, so in addition to the [-PARTICIPANT] feature in φP, it must also be specified as [-DEFINITE] in DefP. Unlike other third persons, however, X is non-referential; it cannot be coindexed with a referential third person nominal (3, 3', 0, 0'). To account for its lack of referential properties, I propose that X lacks a DP layer. This proposal is supported by the fact that X does not participate in the obviation system. Normally a clause that contains two third persons must display obviation (e.g. 3→3'), but when one of the third persons is impersonal X, obviation is not triggered (see, for example, the X→3 form in (9b) above, in which neither argument is obviative). Since the proximate-obviative contrast involves reference (§2.2), its locus must be the referential DP layer. The absence of a DP layer on impersonal X thus explains why it stands outside the obviation system.

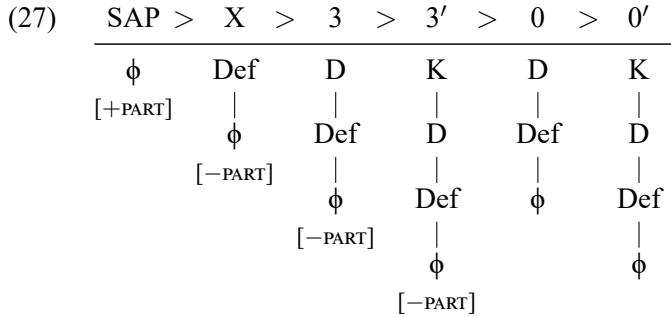
The proposed structures are summarized in (26): first and second persons are φP, impersonal X is DefP, and referential third persons are DP.



6.3 KP: Obviation

The structures in (26) differentiate nearly all of the categories in the Algonquian person hierarchy, but the distinction between proximate third persons (3, 0) and the corresponding obviatives (3', 0') remains to be captured. Here I follow Richards (2010: 136–7), who pro-

poses that obviatives are distinguished from proximates by the addition of a KP layer.¹⁰ The resulting fully-differentiated set of structures is shown in (27).



For Richards, the addition of a KP layer to one of two DPs in a clause serves to make the structure linearizable, as two nondistinct DP nodes cannot be linearized. An alternative motivation for the addition of KP could involve the referential properties of Algonquian DPs. Within a clause, all proximate DPs must corefer (as in (2a) above) while all obviatives must be disjoint (Branigan & MacKenzie 1999; Brittain 2001). If the obligatory coreference of proximate DPs reflects binding by a CP-level operator, as Branigan & MacKenzie (1999) propose, the addition of a KP layer to obviative DPs may serve to insulate them from binding by this operator, thus allowing disjoint reference. Since both conceptions of obviation apply only when a clause contains multiple DPs, they both correctly restrict obviation to referential third persons (3, 0), as these are the only categories in (27) that project a DP layer.

6.4 Summary: Nominal structures

This section has proposed a distinct syntactic structure for each category in the Algonquian person hierarchy: first and second persons are ϕ P, impersonal X is DefP, proximate third persons are DP, and obviative third persons are KP. Inanimates (0, 0') have the same structure as the corresponding animates (3, 3') but lack person features. The proposed structures are motivated by the distribution and semantics of the Algonquian categories and reflect well-established theoretical proposals such as the pronominal hierarchy of Déchaine & Wiltschko (2002), the split-DP hypothesis of Ihsane & Puskás (2001), and the DP/KP contrast in Richards (2010).

7 A structural account of the hierarchy

The nominal structures proposed above provide the key to understanding the SAP > X > 3 > 3' > 0 hierarchy. Recall that what this hierarchy actually describes is the agreement preferences of a “picky” probe P (§4): the higher a nominal is on the hierarchy, the more

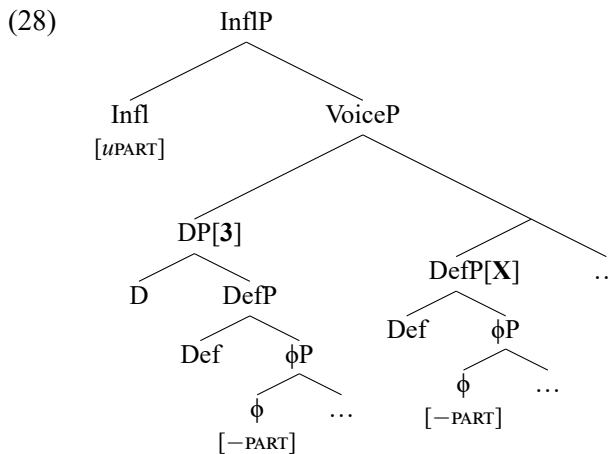
¹⁰Richards (2010: 137) in fact says only that obviation involves the addition of “a functional head of a particular type” to a DP, but from his preceding discussion (e.g. p. 132) it is clear that the head that Richards has in mind is K.

suitable it is as a goal for P, with inverse morphology surfacing when the most suitable goal happens to be the object. Our task is to explain why the agreement preferences of P follow such an elaborate hierarchy.

This section shows that the Algonquian person hierarchy is a direct reflection of how deeply embedded the person feature is in the nominal structures in (27) above. I begin by discussing the role of minimality in agreement with layered nominal structures (§7.1). I then show that minimality together with the proposed nominal structures derives the person hierarchy: the greater the structural depth of the person feature, the less accessible it is to a probe (§7.2). I then compare the structural account of the hierarchy with other approaches (§7.3).

7.1 Agreement with layered nominal structures

I assume here the approach to Algonquian agreement laid out by Oxford (2017) (§4.2), in which object agreement on Voice (the theme sign) attracts the object to the specifier of VoiceP, creating a multiple-specifier configuration in which both arguments are equidistant from Infl (the central agreement). This configuration is illustrated in (28) for an X→3 form.



The equidistance of the two arguments explains why Infl (the central agreement) can choose to agree with either argument, but what remains to be explained is why the choice is determined by the $SAP > X > 3 > 3' > 0$ person hierarchy. In the X→3 form in (28), for example, what makes Infl choose to agree with X rather than 3?

In fact, given the nominal structures laid out in the preceding section, the choice of X over 3 now follows directly from minimality—the requirement for a probe to agree with the closest goal with matching features (e.g. Chomsky 2000; 2001). I assume that Infl bears a simple person probe, i.e. [uPARTICIPANT]. It must thus agree with the closest head that has a [PARTICIPANT] feature. To make the idea of “closeness” formally explicit, I adopt Hornstein’s (2009) definition of structural distance in terms of *paths*:

(29) A path is the set of maximal projections (XPs) that dominate the target or the launch site. (Hornstein 2009: 40)

In the structure in (28), there are two potential goals for the probe on Infl:

- Goal X: the ϕ head within DefP[X]
- Goal 3: the ϕ head within DP[3]

The paths from Infl to these goals are as follows:

- Path to Goal X: {InflP, VoiceP, DefP, ϕ P}
- Path to Goal 3: {InflP, VoiceP, DP, DefP, ϕ P}

Since the path to Goal X is shorter than the path to Goal 3, minimality requires Infl to agree with Goal X rather than Goal 3. The $X > 3$ agreement preference is thus a direct consequence of minimality: because X has fewer structural layers than 3, its person feature is structurally closer to the probe on Infl and is thus the most accessible target for agreement.

This approach can be extended to the entire $SAP > X > 3 > 3' > 0$ hierarchy: whenever two nominals differ in the amount of structure projected above the ϕ head, minimality requires Infl to agree with the ϕ head of the *structurally smaller goal*, as it is closer to Infl than that of the structurally larger goal. Section 7.2 will show how this approach derives each step in the hierarchy, but first it is necessary to consider two questions that may arise about details of the proposed machinery.

The first question involves phases. The analysis presupposes that Infl can probe the internal structure of a DP. However, if DP is a phase, as is often assumed, shouldn't everything below the DP level be opaque to Infl due to the Phase Impenetrability Condition (PIC; Chomsky 2000, 2001)? In fact, there is much evidence that, unlike movement, Agree is not subject to the PIC (see e.g. Bošković 2007; Chomsky 2008: 143; Gallego 2011). Gallego, for example, argues that the interior of transferred phases cannot be modified but does remain visible. If so, then there is nothing to prevent Infl from agreeing with a ϕ head contained within a DP.

The second question involves the location of person features in the nominal structure. The analysis depends crucially on asymmetries in the structural depth of person features in different nominal categories. The outcome of agreement in (28) above, for example, depends on person features being more deeply embedded in a DP than they are in a DefP. But what if, rather than remaining in their base position in ϕ P, person features instead percolated to the topmost level of the nominal structure? Such percolation, which could be effected either by head-movement of ϕ to D/Def or by concord between D/Def and ϕ , would void any asymmetries in the location of person among nominal categories, thus rendering the proposed analysis untenable. I note, however, that both of the possible mechanisms of percolation, i.e. head-movement and concord, are often taken to be postsyntactic phenomena

(e.g. Chomsky 2001:37; Norris 2014). It is thus reasonable to assume that a nominal’s person features do indeed remain on ϕ P in the narrow syntax, even if they may well be copied to higher positions at PF.

7.2 Deriving the hierarchy

The central principle of the proposed analysis is that the more deeply embedded ϕ P is in the nominal structure, the less accessible it is to a probe. This section shows how this principle derives the entire Algonquian person hierarchy: the $SAP > X > 3 > 3' > 0$ agreement preference of Infl is a direct reflection of the structural depth of ϕ P in each of the nominal categories. To see how this is the case, let us consider each step in the hierarchy in turn.

Why everything outranks 0. The ranking of inanimates (0) at the bottom of the person hierarchy in fact requires no assumptions about nominal structure, as it follows from Lochbihler’s (2012) proposal that Algonquian inanimates lack person features entirely. An inanimate nominal is thus not a possible goal for the person probe on Infl, so Infl will always choose to agree with the other (animate) argument.

Why SAPs are mutually unranked. There is no ranking between first and second person for the purposes of direct-inverse marking (§3.3). This follows from the analysis of SAPs as ϕ P, as illustrated in (30) for a transitive form in which the arguments are first and second person.

(30)

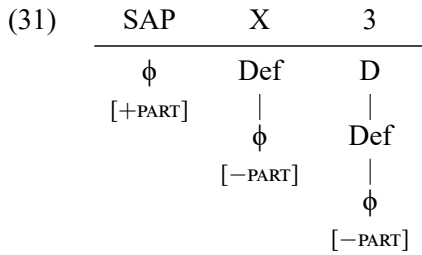
1	2

ϕ	ϕ
[+PART]	[+PART]

The structural symmetry of the two goals in a 1-and-2 form means that the person features of both are equally accessible to Infl. I propose that when faced with two equally accessible goals, Infl agrees with both, as has also been proposed for 1-and-2 forms in Potawatomi (Halle & Marantz 1993: 145), Passamaquoddy (Bruening 2005: 22), and Proto-Algonquian (Oxford 2014: 111).¹¹ Since inverse marking appears when the probe agrees only with the object (§4.3), the agreement of Infl with both goals in 1-and-2 forms correctly predicts the absence of inverse marking in such forms.

Why SAP outranks X and 3. The ranking of SAP above all third persons follows from the proposal that SAPs are ϕ P while third persons are either DefP (X) or DP (3). The structure of SAP, X, and 3 is compared in (31).

¹¹Support for the proposal that Infl agrees with both goals in 1-and-2 forms comes from the existence of 1-and-2 forms in which the central agreement indexes both arguments simultaneously. An example is Meskwaki *kewa:pamipena* ‘you see us’, in which the central agreement (*ke-...-pena*) indexes both ‘you’ (*ke-* ‘2’) and ‘us’ (*-pena* ‘1p’). Ordinarily the prefix and central suffix both index the same argument (§2.3); it is only in 1-and-2 forms that they may display this split patterning. This follows if the central agreement realizes the features of Infl and Infl agrees with both arguments only in 1-and-2 forms (cf. Goddard’s (1974: 319) statement that the 1-and-2 forms have “a structural principle of their own”).



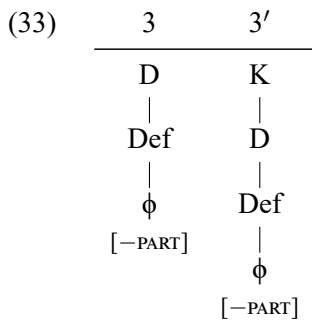
The extra structure above ϕP in X and 3 makes their person features less accessible than those of SAP, so in an SAP-and-X or SAP-and-3 form, minimality will always require the probe on Infl to choose SAP over X or 3.

Why X ranks between SAP and 3. Perhaps the most unusual property of the Algonquian person hierarchy is the ranking of impersonal X between SAP and 3. This ranking reflects the puzzling fact that while ‘I am seen’ (X→SAP) is marked as inverse, ‘she is seen’ (X→3) is marked as “direct” (non-inverse), as shown for Meskwaki in (32).

- (32) a. newa:pameko:pi
 ne- wa:pam -eko: -pi
 1- see -INV -X
 ‘I am seen’ (X→SAP)
- b. wa:pama:pi
 wa:pam -a: -pi
 see -3OBJ -X
 ‘she is seen’ (X→3)

The contradictory marking of impersonal forms follows directly from the nominal structures in (31) above. In an X→SAP form, the person features of the SAP object (ϕP) are more accessible than those of the X subject (DefP), so Infl agrees with the SAP object; the result, as always when Infl agrees only with the object, is inverse marking. In an X→3 form, however, it is the person features of the X subject (DefP) that are more accessible, as the person features of the 3 object are isolated by an additional DP layer. Infl thus agrees with the X subject, leaving Voice (the theme sign) to be spelled out as the usual object marker (-a: ‘3OBJ’, i.e. the “direct” marker) rather than the inverse marker that occurs when Infl agrees with the object. The ranking of X between SAP and 3 thus follows from the proposal that X has more structure than SAP but less structure than 3.

Why 3 outranks 3’. The proximate-over-obviative hierarchy follows from the proposal that obviatives have an extra KP layer, as shown in (33).



The KP layer on 3' makes its person feature more distant from Infl than that of 3, so minimality requires Infl to agree with 3 rather than 3'.

We have now derived the entire person hierarchy. Aside from the ranking of inanimates (0) at the bottom of the hierarchy, which follows from the absence of person features on inanimates, every other step in the hierarchy is a direct reflection of asymmetries in the structural size of the nominal categories. Under this analysis, the $SAP > X > 3 > 3'$ person hierarchy is really a $\phi P > DefP > DP > KP$ hierarchy. The Algonquian person hierarchy is thus simply a side-effect of the hierarchical structure of the DP.

7.3 Comparison with other analyses

There is a sense in which the proposed DP-structure approach to the Algonquian person hierarchy is the mirror image of the feature-geometric approach (Béjar & Rezac 2009; Lochbihler 2012; Oxford 2014): the feature-geometric approach seeks to derive the hierarchy from what lies *beneath* the person feature, i.e. the featural dependents of [PERSON], while the DP-structure approach seeks to derive the hierarchy from what lies *above* the person feature, i.e. the layers of syntactic structure that project above ϕP . Both approaches ultimately derive the person hierarchy from some type of hierarchical structure in the syntax, but I suggest that the DP-structure approach is preferable because the hierarchy it posits ($\phi P > DefP > DP > KP$) is well-established in the theoretical literature whereas the hierarchy required in the feature-geometric approach (PERSON–PROXIMATE–X–PARTICIPANT; §5) depends on an ad-hoc arrangement of ad-hoc features.

The DP-structure analysis also captures the empirical generalizations that were shown to be challenging for the feature-geometric analysis (§5). The classhood of third persons is captured by the analysis of all third persons as DefP. The unmarked status of proximate with respect to obviative is captured by the analysis of proximate as DP and obviative as KP. And the possibility of obviation on inanimates is now accommodated, as a KP layer can be added to an inanimate DP just as it can to an animate DP.

The closest existing antecedent to the DP-structure analysis of the Algonquian person hierarchy is the work of Quinn (2006), who proposes a “Core-Periphery” model of person features in which the speaker is the core and further persons (2, 3, 3') are derived through iterated layers of Core-Periphery structure. Table 5 compares Quinn’s featural representations of SAP, 3, and 3' with the structural representations that I have proposed.

	THIS PAPER	QUINN 2006: 147–150
SAP	ϕP	[Core ₁] (Periphery ₁)
3	DP [ϕP]	[[Core ₁] Periphery ₁] _{Core₂} Periphery ₂
3'	KP [DP [ϕP]]	[[Core ₁] Periphery ₁] _{Core₂} [[Core ₃] Periphery ₃] _{Periphery₂}

Table 5: Differentiating SAP, proximate 3, and obviative 3'

Much differs between Quinn’s proposals and mine. Quinn’s representations involve feature-internal structure rather than phrasal syntax and amount to an entirely new model of

the nature and interpretation of person, whereas I have attempted to formulate an analysis that places all hierarchical structure in the syntax proper and draws on the independently-motivated hierarchy of DP-internal projections. Nevertheless, my analysis echoes two of Quinn’s key insights: first, that the person hierarchy can be accounted for without a stipulated feature geometry, and second, that each step down the hierarchy correlates with an increase in structural complexity. To an extent, then, my proposals can be seen as a syntactic implementation of Quinn’s insights, although many differences remain.

8 Conclusion

The Independent Order verb inflection of the Algonquian languages displays effects of an $SAP > X > 3 > 3' > 0$ person hierarchy: in a transitive verb form, the central agreement (Infl) indexes whichever argument ranks higher on the hierarchy and the theme sign (Voice) is realized as a special “inverse” marker whenever the higher-ranked argument is the object. Under a layered analysis of nominal categories in which SAP is ϕP , impersonal X is DefP, proximate 3 is DP, and obviative 3' is KP, the hierarchy follows from minimality: the ranking of categories is simply a statement of how much structure separates the probe on Infl from the person features in ϕP .

This analysis shares with feature-geometric approaches the idea that the Algonquian person hierarchy reflects some sort of hierarchical morphosyntactic structure. But the DP-structure analysis allows us to dispense with a stipulated feature geometry (cf. Quinn 2006) and instead rely on a hierarchy of functional projections (ϕP , DefP, DP, KP) with much independent and crosslinguistic support. Furthermore, by relocating the structural hierarchy from the features to the syntax proper, we get a simpler model of the syntactic system, as all hierarchical relationships now stem from standard phrasal syntax and there is no longer a need to posit a separate layer of hierarchical relationships among features (Harbour 2006).

Abbreviations

0 = inanimate proximate third person, 0' = inanimate obviative third person, 1s, 1p = first-person singular, first-person plural (likewise for other persons), 3 = animate proximate third person, 3' = animate obviative third person, A→B = subject A, object B (in transitive forms), A > B = A outranks B (in hierarchies), AOR = aorist, DIR = direct, FUT = future, IC = initial change, IDC = indicative, INV = inverse, OBJ = object, OBV = obviative, PART = participant, PERS = person, PL = plural, POV = point-of-view, PROX = proximate, SAP = speech-act participant, SUBJ = subject, TS = theme sign, X = animate impersonal subject

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