A Microparametric Approach to Syncretisms in Nominal Inflection

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1. Introduction

The goal of this paper is to investigate and analyse patterns of syncretism in the nominal paradigms of the Algonquian language family. Algonquian nouns are inflected for three bivalent features: animacy (animate/inanimate), number (singular/plural), and obviation (proximate/obviative). The latter of these refers to a morphological reference-tracking system: proximate and obviative nouns are necessarily disjoint in reference, and proximate nouns are typically more discourse-salient than obviative ones. Although all Algonquian languages make use of these three nominal features, the organization of the nominal paradigms varies across languages, resulting in various patterns of syncretism across the family.

Generative analyses of noun inflection have been proposed for certain individual Algonquian languages (e.g. Bliss 2013 for Blackfoot; Piriyawiboon 2007 for Ojibwe; Quinn 2006 for Penobscot). However, to the best of our knowledge, a pan-Algonquian analysis of syncretisms has not been attempted. As a starting point for this analysis, we consider which patterns are attested and unattested and what this range of patterns can reveal about syntax. We assume that patterns of syncretism provide evidence for dependency relations among features (Aikhenvald & Dixon 1998; Baerman et al. 2005) and that the primary source of crosslinguistic variation lies in the morphology-syntax mapping (Kayne 1996, 2005). Based on this, we develop a scope-based model of nominal syncretisms in Algonquian.

The paper proceeds as follows. In Section 2, we introduce the data: a survey of Algonquian nominal syncretisms conducted by Bliss and Oxford (2014). In Section 3 we lay out our proposal: a model for mapping nominal features onto syntactic structures based on patterns of syncretism. Sections 4–6 walk through three predictions of this model and demonstrate how they are borne out in Algonquian.

2. Background: Algonquian nominal syncretisms

Bliss & Oxford (2014) survey patterns of nominal syncretisms in 22 Algonquian languages.¹ A particularly prevalent syncretism found in Proto-Algonquian (PA) and many daughter languages is the neutralization of the proximate/obviative contrast on inanimate nouns, as illustrated for PA in (1).

(1) Proto-Algonquian nominal suffixes (Bloomfield 1946)

	Animate (3)		Inanimate (0)	
	PROX	OBV	PROX OBV	
SG	-a	-ali	-i	
PL	-aki	-ahi	-ali	

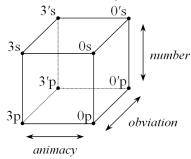
Because this syncretism is so prevalent, there is a widespread Algonquianist tradition of treating animacy

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For a full list of references for the data and generalizations stated in this section, see Bliss & Oxford 2014.

and obviation as belonging to the same dimension: nouns are classified as animate proximate (3), animate obviative (3'), or inanimate (0). However, there is evidence that animacy and obviation cross-classify. For example, in some Cree and Ojibwe dialects, there is a morphological proximate/obviative contrast in the inflection of inanimate nouns (as well as animate nouns). Moreover, in numerous languages, including PA, there is a proximate/obviative contrast in the verb morphology that indexes both animate and inanimate nouns. Obviation and animacy are thus distinct dimensions of contrast, and the Algonquian language family does indeed exhibit a three-dimensional system, as schematized in (2).

(2) Three-dimensional system



Having established the three-dimensional system, we can now draw generalizations about the different patterns of syncretism across the family. The first generalization is that there is no Algonquian language without syncretism in the noun inflection. All three features are active in all of the languages, but they are neutralized in different ways in different languages. The second generalization is that the patterns of syncretism are systematically constrained. Syncretisms that involve neutralization of the proximate/obviative contrast are the least restricted: they can be conditioned by number (e.g., plural nouns) or animacy (e.g., inanimate nouns). Syncretisms that involve neutralization of the singular/plural contrast are more restricted: they are conditioned only by obviation (e.g., obviative nouns). Finally, there are no syncretisms that involve neutralization of the animate/inanimate contrast, except accidental ones resulting from morphophonological processes.² These patterns are summarized in (3).

(3) Neutralization patterns in non-accidental syncretisms

Syncretism	Context for neutralization
obviation	number, animacy
number	obviation
animacy	— (all accidental)

The third generalization is that, across the family, there are two different patterns of syncretisms involving the neutralization of the proximate/obviative contrast. First, an obviation syncretism may be conditioned by animacy only, as observed in (e.g.) Meskwaki, Cree, Ojibwe, and Delaware, and exemplified in (4a) for Meskwaki. Second, an obviation syncretism may be conditioned by both animacy and number, as observed in Blackfoot, as well as with some Mi'gmaq noun stems, and exemplified in (4b). Henceforth, we focus on these two patterns, using Meskwaki and Blackfoot as representatives of the two systems.

(4) a. Meskwaki: obviation neutralized on inanimates

	Animate (3)		Inanimate (0)	
	PROX	OBV	PROX OBV	
SG	-a	-ani	-i	
PL	-aki	-ahi	-ani	

² Using diagnostics developed by Caha (2009), Bliss & Oxford (2014) test whether the attested syncretisms are accidental or not. Accidental syncretisms are set aside as resulting largely from phonological processes (e.g. the deletion of word-final short vowels) and thus having no consequences for morphosyntax.

b. Blackfoot: obviation neutralized on inanimates and plural animates

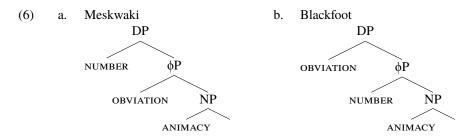
	Animate (3)		Inanimate (0)	
	PROX	OX OBV PROX O		OBV
SG	-wa -yi		-:	yi
PL	-iksi		-istsi	

3. Proposal

In a nutshell, our proposal is that patterns of syncretism can help to diagnose the relative syntactic positions of the features involved in the syncretisms. This proposal must be implemented in a model in which morphological spell-out can be constrained by syntactic configuration. Our proposal starts with the assumption that there is a correlation between affix ordering and syncretism (cf. Aalberse 2009; Aalberse & Don 2011). Specifically, if contrast A is further from the stem than contrast B, then A can be neutralized in the context of B. Assuming that affix ordering reflects syntactic structure (cf. Baker 1985), then the correlation similarly reflects syntactic structure, as schematized in (5).

- (5) STEM -B -A = [A [B [STEM]]]
 - a. A can be neutralized in the context of B
 - b. B cannot be neutralized in the context of A

In short, if A is neutralized in the context B, then A scopes over B. The consequence of this assumption for Algonquian is that in languages like Meskwaki, obviation scopes over (only) animacy, while in languages like Blackfoot, obviation scopes over both animacy and number. We assume that in both types of languages, animacy is a lexical feature (Armoskaite 2011; Wolfart 1973), and is therefore associated with the NP layer. Assuming that the nominal spine also includes the projections ϕP and DP, this yields the structures in (6).



These structures predict three differences in the morphosyntactic patterning of nominals in Meskwaki and Blackfoot. The following sections discuss these predictions and show that they are borne out.

4. Prediction 1: Content of ϕP

The first prediction regards the content of ϕP , the intermediate layer of the nominal projection. We assume that while some syntactic environments require full DPs, other environments permit impoverished nominal phrases (NP or ϕP). Under the analysis in (6), DP and NP structures have the same feature content in both languages, but the content of the ϕP differs: Meskwaki is predicted to have structures that are coded for obviation and animacy (but not number) while Blackfoot is predicted to have structures that are coded for number and animacy (but not obviation). This prediction is borne out.

First, we illustrate that both languages have DPs and NPs with the same feature content. In subject position, Meskwaki and Blackfoot both have full DPs marked for all three features (animacy, number, obviation), as illustrated in (7).

(7) a. Meskwaki DP subject

[DP Wîhkomeč-iki ihkwêw-aki în-iki] nêhkokâč-iki.
invite-3PROX.PL woman-3PROX.PL that-3PROX.PL hum.along-3PROX.PL

'The women invited as guests hummed along.' (Goddard 2007:23)

b. Blackfoot DP subject

Oma aakííwa stamsówaakissiwa.

[DP om-wa aakii-wa] stam-sowaakissi-wa
DEM-3PROX.SG WOMAN-3PROX.SG just-get.water-3PROX.SG

'The woman was just fetching water.'

Moreover, Meskwaki and Blackfoot both have incorporated NPs (i.e., bare nouns) marked only for animacy, as illustrated in (8).

(8) a. Meskwaki incorporated NP

penê-hkê-wa

turkey-hunt-3prox.sg

'S/he hunts turkey' (Goddard & Thomason 2014:277)

b. Blackfoot incorporated NP

Anna Leo á**ínnoka**kskimaa annohk.

ann-wa L a-innoka-ikskim-aa-wa annohk DEM-3PROX.SG L IMPF-elk-hunt-AI-3PROX.SG now 'Leo is elk-hunting today.' (Bliss 2013)

However, in syntactic environments that select ϕP , the two systems are predicted to differ, as summarized in (9). This prediction is borne out.

(9) Featural specifications of φPs

φР	Meskwaki	Blackfoot
obviation + animacy (no number)	yes	no
number + animacy (no obviation)	no	yes

Regarding first the top row of the table in (9), Meskwaki has pro- ϕ P clitics marked for obviation and animacy (but not number) in one particular verb paradigm, namely the Inanimate Intransitive (II) conjunct-order paradigm. One of two subject markers appears on II conjunct verbs: -ki (inanimate proximate) or -niki (inanimate obviative). These markers have traditionally been regarded as agreement suffixes, but a clitic analysis is also possible (Déchaine 1999; Oxford 2014). Notably, these Meskwaki clitics are marked for obviation and animacy but not number. Examples are given in (10).

(10) Meskwaki II conjunct clitics

a. meškwâ**-ki**

be.red-INAN.PROX

'It is red' OR 'they (inan.) are red'

b. *meškwâ-niki*

be.red-INAN.OBV

'It (obv.) is red' OR 'they (inan. obv.) are red'

In the same syntactic environment in Blackfoot, there are no ϕP clitics. The II conjunct paradigm has no agreement at all, as shown in (11), and the clitics that can appear in this environment (and others) are marked for number, as shown in (12).³

³ Unless otherwise cited, Blackfoot data are from Bliss' field notes (2003–2015). Thanks to Noreen Breaker, Beatrice Bullshields, and Rachel Ermineskin for sharing their language.

- (11) Blackfoot II conjunct: no agreement
 - a. Nitssksíni'pa otomaohksinááttssi kisóka'simi.
 nit-ssksini-'p-wa [CP ot-omaoksinaattsi-hsi kit-asoka'sim-yi
 1-know-1:INAN-3 3-be.red.II-CONJ 2-clothing-INAN.SG
 'I know your jacket is red.'
 - b. Nitssksíni'pa otomaohksinááttssi kisóka'simists.
 nit-ssksini-'p-wa [CP ot-omaoksinaattsi-hsi kit-asoka'sim-istsi]
 1-know-1:INAN-3 3-be.red.II-CONJ 2-clothing-INAN.PL
 'I know your clothes are red.'
- (12) Blackfoot II conjunct: clitics marked for number
 - a. Nitssksíni'pa otomaohksinááttss**áyi**.
 nit-ssksini-'p-wa [CP ot-omaoksinaattsi-hsi-**áyi**]
 1-know-1:INAN-3 3-be.red.II-CONJ-**3sg.prN**'I know it is red.'
 - b. Nitssksíni'pa otomaohksinááttssaawa. nit-ssksini'p-wa [CP ot-omaoksinaattsi-hsi-aawa] 1-know-1:INAN-3 3-be.red.II-CONJ-3PL.PRN 'I know they are red.'

In short, Meskwaki and Blackfoot clitics differ in both their internal and external syntax. Whereas Meskwaki clitics are pro- ϕ Ps that are coded for animacy and obviation, Blackfoot clitics are pro-DPs that exhibit the full range of number, obviation, and animacy contrasts (Bliss 2013; Frantz 2009). Unlike Meskwaki, the Blackfoot conjunct II paradigm does not select pro- ϕ Ps, and crucially, there is no environment in Blackfoot that selects for forms with obviation and animacy but not number.

Consider now the bottom row of the table in (9), repeated in (13).

(13) Featural specifications of ϕ Ps (repeated from (9))

φP	Meskwaki	Blackfoot
obviation + animacy (no number)	yes	no
number + animacy (no obviation)	no	yes

Blackfoot allows ϕPs (marked for number and animacy, no obviation) to function as secondary objects. In Algonquianist terms, secondary objects are those that the verb selects but does not agree with (Rhodes 1990). Animate Intransitive (AI) verbs in Blackfoot, which are morphologically intransitive, can take secondary objects as long as the object is not a full DP. Secondary objects of AI verbs can be bare or plural-marked but cannot be proximate or obviative. This is illustrated in (14).

(14) Blackfoot secondary object φPs

Nitáíkskimaa { ponoká / ponoká-iks / *ponoká-wa / *ponoká-yi }

I.hunt.AI { elk / elk-PL / elk-PROX / elk-OBV}

'I am hunting elk.' (Bliss 2013)

In contrast, Meskwaki secondary objects must marked as proximate or obviative, as shown in (15).

(15) Meskwaki secondary object DPs
Ne-pyêtaw-âwa têwêhikan-ani.
1-bring.for-1s:3s drum-AN.OBV.SG
'I brought him a drum.' (Dahlstrom 2009)

Blackfoot but not Meskwaki permits ϕP secondary objects that are coded for number and animacy but not obviation. To our knowledge, there are no syntactic environments in Meskwaki that select for forms with number and animacy only. In summary, both Meskwaki and Blackfoot have DPs, ϕPs , and NPs in

certain syntactic environments. However, as predicted by the structures in (6), Meskwaki and Blackfoot differ in the featural composition of their ϕ Ps. These findings are summarized in (16).

(16) Summary: Types of Nominal Expressions

Features	Environment	Meskwaki	Blackfoot
all three features animacy only	subjects (DPs) incorporated objects (NPs)	yes yes	yes yes
number, animacy	II conjunct clitics (φPs)	yes	no
obviation, animacy	secondary objects (φPs)	no	yes

5. Prediction 2: The syntactic function of number

The second prediction concerns the syntactic function of number marking, which, under our analysis, is associated with the DP layer in Meskwaki and the ϕP layer in Blackfoot, as shown in (17).

- (17) a. Meskwaki: [$_{DP}$ number [$_{\phi P}$ obviation [$_{nP}$ animacy]]]
 - b. Blackfoot: [DP obviation [$_{\phi P}$ number [$_{nP}$ animacy]]]

We assume that the syntactic function of D is to form arguments from predicates (cf. Longobardi 1994, Stowell 1989), and that in some systems number marking can fulfill this function (e.g., Persian, Ghomeshi 2003). Moreover, we predict that, because number marking is associated with DP in Meskwaki, number marking should pattern as D to form argument expressions in this language. In Blackfoot, however, we predict that number marking will not pattern as D.

Relevant to this discussion is the historical development of nominal number inflection in Algonquian. The Proto-Algonquian number suffix appears to have originated through the bleaching of a suffixal definite article (Goddard 2007), which presumably had the category D. The resulting number suffix continues to be associated with D in Meskwaki. Argument expressions must be marked for number but do not require dedicated determiners, as shown in (18).

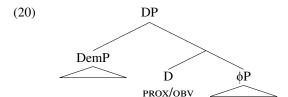
(18) Meskwaki argument expressions

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penêw-a 'a turkey' (PROX.SG)
penêw-ani 'a turkey' (OBV.SG)
penêw-aki 'turkeys' (PROX.PL)
penêw-ahi 'turkeys' (OBV.PL)
*penêw 'turkey' (no number marking, not a possible argument expression)
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In contrast, number marking is not sufficient to form argument expressions in Blackfoot: a demonstrative is required, as shown in (19). This indicates that number does not perform the function of D in Blackfoot.

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(19) Nitohkóónoayi *(omiksi) póósiks.
nit-ohkoono-a-yi om-iksi poos-iksi
1-find.ta-dir-pl dem-pl cat-pl
'I found those cats.'
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To our knowledge, Blackfoot is the only Algonquian language with this distribution. Demonstratives are optional in the other Algonquian languages. The requirement for a demonstrative in Blackfoot raises the question of exactly what functions as D in Blackfoot. Our answer is that, although demonstratives are required to form arguments, they are not themselves D. The morphosyntactic complexity of demonstratives suggests that they are not D heads. According to the structures in (17), obviation is associated with D in Blackfoot. Notably, whenever a noun is proximate or obviative marked, it requires a demonstrative determiner. Based on this, we conclude that obviation marking licenses demonstratives in Spec, DP (cf. Bliss 2013; Bliss & Wiltschko 2014), as schematized in (20).



In summary, whereas number marking functions to form arguments from predicates in Meskwaki, the same cannot be said for Blackfoot. Rather, in Blackfoot, a demonstrative determiner, licensed by proximate or obviative morphology, is required. These patterns are summarized in (21).

(21) Summary: Argument expressions

	Meskwaki	Blackfoot
Bare N	no	no
$N-\{sg/pl\}$	yes	no
$Dem + N-\{PROX/OBV\}$	yes	yes

The inventory of argument expressions in the two languages is consistent with our proposal that number marking is associated with the DP layer in Meskwaki but with the ϕ P layer in Blackfoot.

6. Prediction 3: Other syncretisms

In this section, we consider a third prediction of our proposal, namely the possibility of other patterns of syncretism in the two systems. Our proposal is that there is an interaction between patterns of syncretism and scope relations: if contrast A is neutralized in the context of contrast B, then A scopes over B. Thus far, we have applied this algorithm to the different patterns of neutralization of the proximate/obviative contrast. In languages like Meskwaki, obviation is neutralized in the context of animacy, and thus scopes over animacy, but in languages like Blackfoot, obviation is neutralized in the context of animacy and number, and thus scopes over both animacy and number. This yields the structures in (22), repeated from (17).

(22) a. Meskwaki: [$_{DP}$ number [$_{\phi P}$ obviation [$_{nP}$ animacy]]]

b. Blackfoot: $[DP obviation [_{\phi P} number [_{nP} animacy]]]$

Here, we turn to a different syncretism predicted by these structures. In a Meskwaki-type system, number scopes over obviation. Our model thus predicts the possibility of number syncretisms conditioned by obviation. This prediction is borne out in Plains Cree.

In Plains Cree, as in Meskwaki, obviation is neutralized in the inflection of inanimate nouns (but not in the inflection of animate plural nouns, unlike in Blackfoot). The parallel patterning of nominal inflection in Meskwaki and Plains Cree is shown in (23).

(23) a. Meskwaki: obviation neutralized on inanimates only

	Animate (3)		Inanimate (0)	
	PROX	OBV	PROX OBV	
SG	-a	-ani	- <i>i</i>	
PL	-aki	-ahi	-ani	

b. Plains Cree: obviation neutralized on inanimates only

	Animate (3)		Inanimate (0)	
	PROX	OBV	PROX OBV	
SG	-Ø	-a	-Ø	
PL	-ak	-a	-a	

Unlike Meskwaki, however, Plains Cree shows an additional syncretism: the number contrast is neutralized in the inflection of animate obviative nouns, as highlighted in (24).⁴

(24) Plains Cree: number neutralized on animate obviatives

	Animate (3)		Inanimate (0)	
	PROX	OBV	PROX OBV	
SG	-Ø	-a	-Ø -a	
PL	-ak	-u		

It is interesting to compare the Plains Cree pattern in (24) with that of Blackfoot, repeated in (25). Animate nouns in the two languages show opposite syncretism patterns. Whereas Blackfoot neutralizes obviation on plural animates, Plains Cree neutralizes plural on obviative animates.

(25) Blackfoot: obviation neutralized on plural animates

	Animate (3)		Inanimate (0)	
	PROX OBV		PROX	OBV
SG	-wa -yi		-yi	
PL	-iksi		-istsi	

Under our model, the difference between Plains Cree and Blackfoot follows from the different scopal relations in (22). In Plains Cree, number scopes over obviation, so it is possible for a number contrast to be neutralized in the presence of obviation. In Blackfoot, the scope of number and obviation is the opposite of that in Plains Cree, which causes the syncretism pattern to be opposite as well.

Importantly, the number syncretism in (24) is not restricted to Plains Cree. Rather, languages with the Meskwaki-type obviation syncretism show a pervasive tendency to develop the Cree-type number syncretism. Languages from all three branches of the Algonquian family exhibit both syncretisms, as summarized in (26).

(26) Central Algonquian: Cree, Ojibwe, Menominee (but not Meskwaki, Shawnee, Miami-Illinois)
Eastern Algonquian: Delaware and Massachusett (but not Passamaquoddy and Penobscot)
Plains Algonquian: Cheyenne (but not Arapaho)

The distribution of the number syncretism indicates that it must have been innovated on at least three separate occasions, once in each branch of the family. Under our analysis, this recurrence is not a coincidence: it reflects the scope relations in these systems, in which number scopes over obviation, which in turn scopes over animacy. We propose that these scope relations were inherited from Proto-Algonquian, which has the same inflectional patterns as Meskwaki. Blackfoot, on the other hand, innovated the opposite scope pattern, which is also evidenced in certain noun classes in Mi'kmaq (Proulx 1978). The development of an innovative scope pattern in Blackfoot and Mi'kmaq is consistent with the fact that these are considered to be the two most divergent Algonquian languages (e.g. Goddard 2007).

7. Conclusions

In summary, we have argued that patterns of syncretism can reveal syntactic scope relations. Specifically, we have proposed the following algorithm: If contrast A is neutralized in the context of contrast B, then A scopes over B. We have applied this algorithm to the Algonquian languages, which exhibit two different patterns of obviation syncretisms, one in which obviation is neutralized in the context of animacy and one in which obviation is neutralized in the context of both animacy and number. Using the algorithm, this generates two different structures: one in which obviation scopes over animacy only and one in which obviation scopes over animacy and number. These structures are given in (27).

⁴ Although the same exponent (-*a*) is used for animate obviative and inanimate plural, this is not in fact an animacy syncretism, as evidenced by the agreement morphology. Rather, this type of syncretism is referred to as a polarity syncretism (cf. Baerman et al. 2005), and it is pervasive throughout Algonquian (cf. Bliss & Oxford 2014). An analysis of Algonquian polarity syncretisms is pending.

- (27) a. Meskwaki: [DP number [$_{\phi}$ P obviation [$_{nP}$ animacy]]]
 - b. Blackfoot: $[DP obviation [\phi P number [nP animacy]]]$

We have shown that these structures yield a number of correct predictions about the differences in the morphosyntactic properties of nominal expressions in the two systems, as summarized in (28).

(28) Summary of morphosyntactic patterns

Predictions	Meskwaki-type	Blackfoot-type
Content of φP Syntax of number Other syncretisms	$\begin{aligned} & \text{obviation, animacy} \\ & \text{number} = D \\ & \text{number syncretism conditioned by obviation} \end{aligned}$	$\begin{array}{l} \text{number, animacy} \\ \text{number} \neq D \\ \text{no number syncretism} \end{array}$

As a final remark, we note that our proposed algorithm permits another logical possibility for the structural organization of features, namely one in which multiple features are realized on the same head (e.g., portmanteau number/obviation in Meskwaki). However, while such a configuration may account for some of the patterns observed here, it fails to provide the elegant account of the number syncretism that is enabled by the structures in (27).

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