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Campana, Mark

(Citation)
神戸言語学論叢,2:1-35

(Issue Date)
2000-05

(Resource Type)
departmental bulletin paper

(Version)
Version of Record

(JaLCDOI)
https://doi.org/10.24546/81001545

(URL)
https://hdl.handle.net/20.500.14094/81001545

Directionality and Pronoun-binding in Algonquian*

Mark Campana

Kobe University

1.0 Introduction

This paper concerns directionality in Algonquian, a phenomenon in which special morphemes indicate the flow of action from one participant to another in a transitive clause. Often these participants (NP's) are covert, signalled only by agreement on the verb. Since the position of the agreement morphemes does not change, directionality markers become necessary to indicate which NP's function as subject and direct object in the sentence. The NP's in question also conform to a hierarchy among persons. For example, a second person subject might perform an action on a first person object ('You hit me') using one directionality marker, but the opposite ('I hit you') requires a different one. These are the kinds of facts we attempt to account for here in terms of the Minimalist Program. The underlying assumption is that hierachical effects are amenable to a syntactic analysis.

1.1 Directionality

Passamaquoddy-Maliseet (henceforth PM) is a Algonquian language spoken along the border between Maine and New Brunswick. Typologically it is a polysynthetic language, which is to say it has no basic word order and verbs are fully-specified for agreement with core arguments, as well as other morphemes. One of these is the so-called 'theme-sign', which indicates the direction of transitivity. In relation of this, subjects and direct objects are constrained by the following generalization:[1]

(1) The Person Hierarchy

"A subject ranked higher than an object on the scale 2 > 1 > 3 > 3'
takes a direct theme-sign; lower ranking entails an inverse one'

The Person Hierachy states that any given subject/object combination is associated with special morphology, a direct or inverse theme-sign. The following shows examples of the direct TS in the Independent order (used mainly for declarative sentences):[2]

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* Many thanks to the participants and organizers of WSCLA and the University of Hawai'i, as well as members of the linguistics community at Kobe University. Robert Leavitt and David Francis provided immeasurable help with Passamaquoddy-Maliseet, Julie Brittain cheerful encouragement from afar. All errors and omissions are my own.

(2) Direct forms (OBJ=SG)

a. n-kikah-**a**	b. (k-)kikah-**a**
1-heal-DIR	2-heal-DIR
'I heal him'	'You heal him'
c. '-kikah(-**a**)-al	d. (k-)kikih-**i**
3-heal-DIR-SG/OBV	2-heal-DIR
'He heals him'	'You [SG] heal me'

As can be seen in (2), PM words undergo significant phonological modification: the second person prefix [k-] deletes in (2b, d), as does the theme-sign in (2c). The stem vowel in (2d) undergoes a change due to umlaut. There is no biological gender in PM , so (2a) could just as easily mean 'I heal her'. Obviation is overtly (and obligatorily) marked in this example (cf. below).

Different theme-signs are used in (2) depending on the person of the object. In (2a-c) the object is third person, whereas in (2d) it it a first person. In Algonquian linguistics, first and second persons are referred to as 'local', third persons as 'non-local'. We adopt these terms here. Most of the agreement paradigms in PM make this distinction, and it plays a crucial role in the analysis to follow. The same pattern emerges with another set of theme-signs, the inverse:

(3) Inverse forms (OBJ=SG)

a. n-kikoh-**oq**	b. (k-)kikoh-**oq**
1-heal-INV	2-heal-INV
'He heals me'	'He heals you'
c. '-kikuh-**uk**-ul	d. (k-)kikuh-**ul**
3-heal-INV-SG/OBV	2-heal-INV
'He heals him'	'I heal you [SG]'

Here again the stem vowel exhibits some modification, and the second person prefix is deleted before a homorganic consonant (3b,d). The theme-signs take various forms in (3), with the local TS standing out; all are systematically distinct from those in (2), however. The sentences in (3) are the exact opposite of those in (2); this reveals the basic function of directionality in Algonquian. Crucially, only one form is correct for any given combination; the opposite choice results in illformedness:

(4) Unattested forms

a. *n-kikah-**a**	b. *kikah-**a**	
1-heal-DIR	2-heal-DIR	
'He heals me'	'He heals you'	[DIR]
c. *n-kikoh-**oq**	d. *kikoh-**oq**	
1-heal-INV	2-heal-INV	
'I heal him'	'You heal him'	[INV]

Direct and inverse theme-signs are incompatible with the meanings given above. This paper is explicity concerned with the source of ungrammaticality in the unattested PM sentences.

1.2 Obviation

One of the special characteristics of Algonquian languages is the systematic way in which NP's are tracked in a discourse through overt morphology on nouns and verbs. In the literature of Algonquian linguistics, this is known as obviation marking. Reference is made to proximate NP's—closer to the speaker's point of view—vs obviatives, those further away. Proximates are morphologically unmarked. In addition, some NP's are marked as 'further still'.

Although obviation marking is generally understood as an optional choice of discourse, certain syntactic environments require it. One such case involves transitive sentences in which both participants are animate. When the theme-sign is direct, the subject will be proximate and the object obviative; when the theme-sign is inverse, the opposite relation holds. Under these circumstances, both NP's cannot be proximate (cf. Grafstein 1984 for a discussion of obligatory obviation in Ojibwa):

(5) Obligatory obviation (transitive sentence)

a. Máli '-koéslom-a-**l** wasîs-**ol**
M. 3-love.TA-DIR/3-OBV child-OBV
'Mary loves the child' [DO=OBV]

b. *Máli 'kosélomak wasîsok 0 [DO=PROX]

If the subject is already obviative—for example, if it refers to an NP in the discourse that already has obviative marking— the object will be marked as 'further obviative' (direct TS). The opposite obtains when the TS is inverse.

A second case of obligatory obviation can be observed within possessed NP's. If the possessor (invariably animate) is proximate, the possessed noun must be marked as obviative—otherwise, ungrammaticality results. The follow example illustrates the situation in PM (from Leavitt 1996:7-8):

(6) Obligatory obviation (possessed NP)

a. Piyel w-itap-iyil
P. 3-friend-OBV/SG
'Peter's friend' [head noun=OBV]

b. *Piyel witap [head noun=PROX]

As before, if the possessed NP is already obviative (for reasons pertaining to discourse), the head noun must be marked as further obviative, etc.

Since obligatory obviation is linked to directionality, one of the goals of this paper is to offer a systematic account of it. In so doing, possessed nominals (6) will also be addressed.

Quite plausibly, these facts are best analyzed under a Binding theoretic approach, with its built-in guarantee of disjoint reference (Principle B). It seems, in other words, that forcing an NP to be obviative in the presence of a proximate is the same as requiring a pronoun to be disjoint from a ccommanding NP in the same domain. This of course entails making some assumptions about underlying structure. The proximate NP's in (5-6), for example, would have to c-command the obviatives. In fact, a reasonable account of obviation in terms of c-command is one of the strongest arguments in favor of positing a configurational underlying structure for Algonquian languages. Still, Principle B (which relies on c-command) only applies to pronouns. A deeper understanding of Algonquian phrase structure is thus needed before a binding-theoretic approach can be implemented.

2.0 The Algonquian verbal complex

In this section we focus on various morphemes of the verbal complex. At the level of the stem, evidence points to an underlying ergativity in Algonquian, which will play a larger role in the analysis of directionality. Agreement morphology, on the other hand, helps determine the nature of underlying grammatical relations. Superficially, agreement is quite complicated in Algonquian languages, there being several 'orders' or macro-paradigms. Within any given order though, the form and position of agreement morphemes is fairly consistent. The major orders are the Independent, Conjunct and Imperative. Roughly speaking, the Independent corresponds to the indicative mode in Indo-european languages, the Conjunct to the subjunctive. This paper is chiefly concerned with the Independent order.[3]

2.1 Gender selection & ergativity

Algonquian verbs are assembled from an inventory of roots called initials, medials and finals -roughly corresponding to adverbial, nominal and verbal semantic elements. Finals are in turn classified as animate intransitive (AI), inanimate intransitive (II), transitive inanimate (TI) and transitive animate (TA). Animacy is a reflection of grammatical gender: most living things are naturally animate, but in the PM world-view so are cars, and other unexpected objects. A verb with a TA final will select an object having animate features, while an AI verb will select an animate subject. With regard to subcategorization of roots and gender selection, Algonquian languages can be termed as ergative.

2.2 Subject agreement

Both subjects and direct objects find expression in the Algonquian verbal complex. The pattern of subject agreement is different in the two main orders, Conjunct and Independent. In addition, it can also vary depending on the valency of the verb stem. Here we concentrate subject agreement in transitive sentences.

2.2.1 Independent order

In the Independent order, subject agreement is signalled by person prefixes, as well as suffixes that cross-reference person and number (only transitive verbs have a third person pre-

fix; intransitives are unmarked). The following paradigms highlight agreement with transitive subjects, that is, the 'higher' of the two arguments on the Person Hierarchy:

(7) Non-local subject agreement (Independent order)

	OBJ=3S	OBJ=3P
1S	**n**-tuwikh-a	**n**-tuwikh-ak
2S	**k**-tuwikh-a	**k**-tuwikh-ak
3S	'-tuwikh-al	'-tuwikh-a
1P/EX	**n**-tuwikh(-a)-**an**	**n**-tuwikh-a-[**o**]**nn**-uk
1P/IN	**k**-tuwikh(-a)-**an**	**k**-tuwikh-a-[**o**]**nn**-uk
2P	**k**-tuwikh-a-**wa**	**k**-tuwikh-a-**wa**-k
3P	'-tuwikh-a-**wa**-l	'-tuwikh-a-**wa**

('I draw him/them', 'You draw him/them', etc.)

(8) Local subject agreement (Independent order)

	OBJ=1S	OBJ=1P
2S	**k**-tuwikh-i	**k**-tuwikh-i-**pon**
2P	**k**-tuwikh-i-**pa**	**k**-tuwikh-i-**pon** (same as above)

('You draw me', 'You draw us', etc.)

As indicated in (7), the prefix [n-] signals a first person subject, [k-] a second person, ['-] a third. Suffixes are absent (or null) when the subject is singular, but when it is plural, a split-pattern emerges between first- and 'non-first' persons. Together with a second person prefix, a first person suffix includes the addressee. A slightly different pattern accompanies local forms (8).

2.2.2 The Conjunct order

Prefixes are absent from the Conjunct order, but subject person and number features are still expressed through suffixation. Examples are given below (subject agreement in boldface):

(9) Non-local subject agreement (Conjunct order)

	OBJ=3S	OBJ=3P
1S	ewikh-**uk**	ewikh-**uk**-ik
2S	ewikh-**ot**	ewikh-**oc**-it
3S	ewikh-**at**	ewikh-**ac**-i
1P/N	ewikh-**ek**	ewikh-**ek**-ik

1P/X	ewikh-**oq**	ewikh-**oq**-ik
2P	ewikh-**eq**	ewikh-**eq**-ik
3P	ewikh-**ahti**(t)	ewikh-**ahti**(ci)

('...when I draw him/them', '...when you draw him/them', etc.)

(10) Local subject agreement (Conjunct order)

	OBJ=1S	OBJ=1P
2S	ewikh-**iy**-in	ewikh-**iy**-ek
2P	ewikh-**iy**-eq	ewikh-**iy**-ek (same as above)

('...when you draw me', '...when you draw us', etc.)

A cursory glance at (9) reveals that—*pace* minor variations owing to the immediate phonetic environment—each person/number combination is uniquely realized in the Conjunct order. In (10), one suffix signals the second person subject, but the following suffix contains information pertinent to both local arguments. In fact, it is not clear whether the local agreement morphology can be broken into two separate suffixes as indicated in (10).

2.3 Object agreement

Object agreement in PM is also expressed by means of suffixation, but appears in two separate places, or 'slots' of the verbal complex. One slot is adjacent to the verb stem ('inner agreement'); the other is stem-final ('outer agreement'). Other morphomes may intervene between the two object agreement slots (here only subject agreement morphemes will be considered).

2.3.1 Inner agreement

Theme-signs can be construed as person markers in Algonquian. There are two forms for each theme-sign (direct and inverse), depending on whether the subject/object combination is local or not. In a non-local combination (e.g., 'He hit her' or 'She hit me'), the theme-sign is invariably third person. Basic examples are given below (theme-signs in boldface):

(11) Inner object agreement (non-local)

a. n-tokom-**a**	b. '-tokom-**a**-l
1-hit-DIR-SG	3-hit-DIR-SG/OBV
'I hit him'	'He hit him [OBV]'
c. n-tokom-**oq**	d. '-tokom-**ok**-ul
1-hit-INV	3-hit-INV-SG/OBV
'He hit me'	'He [OBV] hit him'

The forms in (11a-b) contain direct theme-signs, those in (11c-d) have inverse. All of them mark one argument (the lower one on the Person Hierarchy) as third person.

Local relations involve combinations of first and second persons. Local theme-signs (direct or inverse) thus mark one argument (the lower one on the Person Hierarchy) as non-third person:

(12) Local object person-marking (direct/inverse)

a. k-tokom-**i**-pa
2-hit-DIR-PL
'You [PL] hit me' [DIR]

b. k-tokom-**ol**-pa
2-hit-INV-PL
'I hit you [PL]' [INV]

As in many other languages, reflexives in Algonquian are necessarily intransitive. Consequently, combinations like 'You hit youself' do not include a theme-sign. Arguably then, both direct and inverse local morphemes could be markers of first person, since these are always lower on the Person Hierarchy. For the time being, however, we will maintain the third/non-third distinction, since it is established in other paradigms (cf. Section four for further discussion).

2.3.2 Outer agreement

Theme-signs are instances of object agreement, more specifically of person. In addition, objects may be marked for number, obviation and 'absentivity'—a reflection of the perceived absence of the object on the part of the speaker. The suffixes appear at the rightmost periphery of the verbal complex, separated from inner object agreement by subject suffixes in transitive contexts.[4] In the following sentences, each of these features is highlighted:

(13) Outer object agreement (number)

a. ntokom-a-$\bar{}$ 'I hit him'
b. ntokom-a-**(a)k** 'I hit them'

c. ktokom-i-**pa** 'You (pl) hit me'
d. ktokom-i-**pon** 'You (pl) hit us'

The singular marker of third person (object) agreement has been represented as a null morpheme in (13a); in (13b) the third person plural marker is phonologically reduced next to an identical themesign vowel. The object agreement suffixes in (13c-d) are portmanteau forms that encode both subject and object person, as well as number features. Given the distinction between local and non-local forms in PM, the underlying feature [±3] can be seen as relevent, along with [±plural].

(14) Outer object agreement (obviation)

a. Ntokom-a-(a)n 'We hit them'

b. 'tokom-aw-**al** 'They hit [someone else]'

Only third person NP's are marked for obviation in Algonquian languages (i.e. there are no local forms). The proximate (null) NP 'them in (14a) is unmarked, although it too could be represented by a zero morpheme. The obviative suffix in (14b) appears to the right of the plural subject marker.

(15) Outer object agreement (absentivity)

'tolipha-**l**	'He carries it [OBV]'	[-ABS]
'tolipha-**kol**	'He carries it [ABS/OBV]'	[+ABS]

The absentative null object in (15b) is indicated by special morphology which sometimes interacts with number and obviation; other wise it is of little consequence and will not be discussed further.

The 'problem' of morpheme order

All of the out agreement forms above appear in the Independent order with direct theme-signs. The same suffixes appear with inverse theme-signs, as well as their expected counterparts in the Conjunct order. The challenge for linguistic theory posed by subject and object agreement is in their 'split' nature and distribution: subjects of transitive clauses in the Independent order are indicated by person prefixes, as well as number (and sometimes person) suffixes. Objects of transitive clauses are cross-referenced by one set of suffixes close to the stem, as well as by another on the right periphery; the former encodes person features, the latter number/obviation. The means of representing these agreement categories in underlying structure is far from obvious, as is the process of inflection generally. These issues will be taken up in later sections. For the time being, however, we will assume that the subject suffixes and theme-signs reflect the loci of agreement in PM.

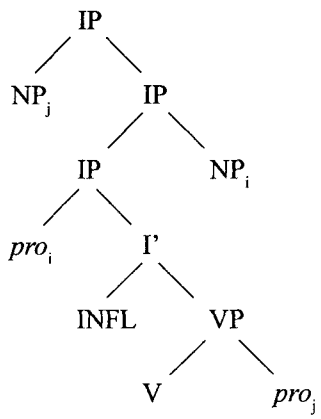
3.0 Theory

3.1 Polysynthesis

Passamaquoddy-Maliseet has been described as a polysynthetic language. Roughly speaking, this means that sentential constituents (pronominal arguments, adverbs, etc.) find expression in the verbal complex itself. Further properties of polysynthetic languages include free word order, discontinuous expressions, productive incorporation, and a lack of well-defined embedding structures. PM meets all of these criteria (cf. Baker (1996) for a fuller description of the consequences of these assumptions in polysynthetic languages).

According to Baker's (1996) theory of polysynthesis, Case is assigned to agreement morphemes in the verbal complex, rather than to NP's in the sentence proper. When lexical NP's do occur, they take the form of adjuncts, as in the following tree structure:

(16) Polysynthesis (Underlying structure)



e.g. Nit [msiw kehsuhkomiksit] '-pocitahk-an ['-putuwosuwin-um nisu kosona aqamok]
then all tribe 3-send-3.pl 3-councillor-pl two or more
"Then every tribe sent them, their councillors, two or more" (RL'96:57)

The canonical argument positions in (16) are assumed to contain null pronouns. These in turn are co-indexed with the adjunct NP's, such that the latter may receive a theta-role.

In earlier versions of Minimalist theory, inflection (=INFL) is assumed to be composed of separate projections of tense and agreement (AGR.S & AGR.O).[5] Moreover, since arguments bear features that must be checked, the null pronominals in (16) will ultimately appear in the specifier position of AGR.S & AGR.O, where checking takes place. Given their nature as 'silent categories', however, it is not clear whether VP contains null pronouns at some level, or if thetaroles (like Case-features) are assigned directly to agreement morphemes. The latter view has been advocated by Jelinek (1984).

3.1.1 Polysynthesis in the Minimalist Program

According to Baker, Case is assigned to agreement in the verbal complex, so it cannot be assigned again. This is why only null pronominals appear inside VP. It remains to see how this idea can be expressed in the Minimalist Program, where NP's are checked for Case, rather than having it assigned to them directly.

Suppose that in a polysynxhetic language, neither verbs nor TNS are specified for Case features (V-features). Consequently, NP arguments cannot be checked for Case in SPEC, AGR.S or AGR.O, as in the Minimalist Program. This holds regardless of whether the argument in question is lexical or null. The theory provides for other licensing mechanisms, however. For example, null pronominals can be licensed through control, or identification with another nominal element. In English, the identifier of a null pronominal (PRO) is invariably another NP. In languages with rich inflection, however, agreement alone can identify an empty pronoun (*pro*). Generally speaking, Algonquian languages have rich inflection. It follows then that NP arguments can be licensed if they take the form of null pronominals and are identified by agreement in SPEC, AGR.S or AGR.O.

Lexical NP's, on the other hand, cannot be licensed by Case (no matching features are available), nor can they be identified with a controller —an option only afforded to null elements. Consequently, they are relagated to adjunct status, and only share a theta-role with a null pronominal in SPEC, AGR.S or AGR.O. Baker's insights can thus find expression with the Minimalist Program, but only when supported by a slightly different set of assumptions, most notably control, or Identification Theory. Originally formulated by Huang (1984), this will be discussed in detail below.

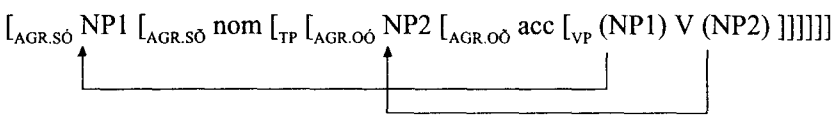
The further question of whether NP arguments originate in VP or are assigned internally is largely irrelevant; the most important aspect of polysynthesis considered here is that they appear in SPEC, AGR.S and AGR.O at LF, where feature-checking takes place. As pronouns, these NP's are subject to the Binding Theory. Since they are null, their contents must also be identified. Huang (1984) has proposed a theory of identification which will be outlined in Section four. On the other hand, lexcial NP's outside the core sentence structure are governed by a different set of principles, and are not subject to the constraints of sentential syntax. Following Baker (1996), we assume they are co-indexed with arguments by convention.

3.2 Ergativity & Case Theory

Ergativity is inextricably linked to Case and agreement in most current theories of linguistics. In purely descriptive terms, the NP's that are selected for animacy features in PM -transitive objects and intransitive subjects- can be referred to as absolutive (ABS). Transitive subjects, on the other hand, may be considered ergative (ERG). Whether or not these NP's reflect Case-marking is another story, however, one that we explore here. For the record, ergative/absolutive systems are rare among the world's languages, in contrast to the nominative/accusative ones. In the latter type, both transitive and intransitive subjects are marked the same (NOM), and transitive objects differently (ACC). Japanese and English are typical NOM/ACC languages.

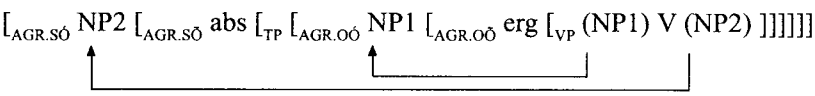
In the Minimalist Program, NP's are inflected from the beginning of a derivation, their features subsequently checked via movement to a functional category. Feature-checking must take place by LF, if not before. Verbs generally also move through separate projections of tense and agreement in the course of derivation to check-off features of their own. The following diagram illustrates feature-driven movement, where the outermost projection of agreement represents the site of subject feature-checking (AGR.S), the innermost that of objects (AGR.O) in a NOM/ACC language:[6]

(17) Feature-checking (NOM/ACC system)



In an ergative-absolutive language, intransitive subjects and transitive objects are checked for features by AGR.S, transitive subjects by AGR.O. The following diagrams represents this state of affairs:[7]

(18) Feature-checking (ERG/ABS system)



A comparison of (17-18) reveals that AGR.S is systematically active, regardless of language-type. Cross-linguistically, this functional category is also usually less marked with overt morphology. AGR.O represents the opposite in both language-types: it is largely dormant in intransitive sentences, active in transitives. Moreover, this category tend to be more obviously marked with overt morphology (ERG or ACC).

Formal feature checking

In addition to the basic mechanisms discussed above, we follow Chomsky (1995) in assuming that checking may involve formal features only, and not always referential ones. Prior to Spell-out, feature-movement involves both feature types, as when the NP subject of an English sentence moves to SPEC, AGR.S. Departing slightly from Chomsky, however, we will argue that strictly formal feature-checking does not involve head-movement. Instead, we propose that formal features can only be checked in a specifier-head configuration. In effect then, they take on the character of a null pronoun (*pro*), subject to appropriate principles and conditions of Universal Grammar.

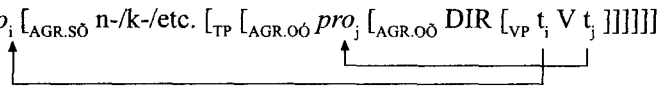
3.3 Case-checking and directionality

The features of direct arguments are checked by AGR.S and AGR.O.[8] In English, canonical subjects are checked for Case in the specifier of an AGR.S projection, objects in the specifier of AGR.O. Crucially, SPEC, AGR.S is higher than SPEC, AGR.O in the tree, as evidenced by the subject-initial property of most English sentences. The result of Case-checking is a crossing path pattern, typical of languages in which all subjects (transitive & intransitive) are checked for Case by the higher AGR.S.

3.3.1 Direct theme-signs

Algonquian languages in general (and PM in particular) are no different in their Case-checking requirements, if the goal of the Minimalist program (or any theory of generative linguistics) is to prove that such principles are universal. Let us assume that with direct themesigns (for reasons which will become clear), the canonical subject moves to the SPEC, AGR.S, the object to the SPEC, AGR.O:

(19) Case-checking (NOM/ACC)



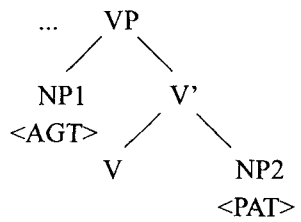
The only substantial difference between English and PM is that the former allows lexical NP's to appear in VP (prior to Case-movement), whereas the latter does not. As pointed out in 3.1 above, lexical NP's (when they appear at all) are generated outside the core sentence and receive their interpretation through coindexing.

In the Independent order (used mainly for matrix sentences), the crossing path pattern is confirmed by the presence of person morphology in initial position, that is, a prefix that cross-references the subject.[9] When the direct theme-sign is chosen then, direct arguments appear in (more or less) the same configuration at LF as they do at S-structure: the canonical subject ccommands the object.

3.3.2 Inverse theme-signs

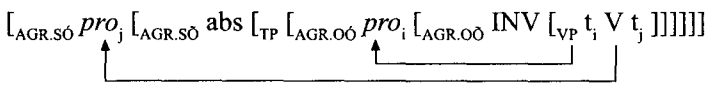
There is nothing semantically incongruous about first persons acting on second persons, third persons on first- or second persons, or further discourse referents (obviatives) acting on those closer to the speaker's viewpoint (proximates). Nevertheless, these combinations are associated with inverse theme-signs in Algonquian. Initially at least, they may be represented in the same way as their counterparts in any other language, where canonical subjects (Agents) asymmetrically c-command direct objects (Theme/Patients) within VP:

(20) VP-internal structure (typical theta-roles)



The difference between derivations of direct and inverse theme-signs must therefore involve Casechecking. Given that both arguments in a transitive construction are theta-marked directly (i.e. neither are oblique), and that the same functional catgories are responsible for checking them, it follows that canonical subjects move to the specifier of AGR.O, objects to the SPEC, AGR.S:

(21) Case-checking (ERG/ABS)



The movement of direct arguments to their Case-checking positions in (21) depicts a nested path pattern, typically associated with ergative languages (Campana 1992, Murasugi 1992). We refer to this an ERG/ABS pattern.

As before, evidence that this approach is on the right track can be adduced from 'mixed' combinations, e.g. where third person subjects act on first- or second person objects (Francis & Leavitt 1993):

(22) Inverse ('mixed' forms)

a. n-kikuh-uk-un-(n)uk
1-heal-INV-1PL-3PL
'They heal us' [OBJ=1]

b. k-uley-aq-ø
2-treat.well-INV-3SG
'He treats you well' [OBJ=2]

In the Independent order, first and second persons are signalled by the same distinctive prefixes as with the direct theme-sign, indicating their association with the higher AGR.S category. Third person (canonical) subjects, on the other hand, may trigger stem-final number agreement, otherwise identified with AGR.O. Similar conditions govern strictly local, as well as third person combinations. Thus we find that, while Case-checking is NOM/ACC with a direct theme-sign, it is ERG/ABS with an inverse one.

3.4 The structure of the Person Hierarchy

Based on the distribution of agreement, we conclude that PM (and Algonquian generally) employs two Case-checking strategies, resulting in both crossing and nested path patterns. Canonical subjects and direct objects originate in VP, a true reflection of their thematic character. After Case-checking, however, a different kind of asymmetry emerges, one in which a first or second person always c-commands a third, regardless of canonical grammatical function:

(23) Uniform c-command

a. $[_{AGR.SÓ}$ *pro-1/2*$_i$ $[_{AGR.SÕ}$ n-/k- $[_{TP}$ $[_{AGR.OÓ}$ *pro-3*$_j$ $[_{AGR.OÕ}$ **dir** $[_{VP}$ t_i V t_j]]]]]]

b. $[_{AGR.SÓ}$ *pro-1/2*$_j$ $[_{AGR.SÕ}$ n-/k- $[_{TP}$ $[_{AGR.OÓ}$ *pro-3*$_i$ $[_{AGR.OÕ}$ **inv** $[_{VP}$ t_i V t_j]]]]]]

As expected, the same conditions hold for combinations of strictly local and third person forms. The net result is that the Person Hierarchy (2 > 1 > 3 > 3') can be expressed by means of pure syntactic structure:

(24) The Person Hierarchy (1) reduces to c-command at LF

This in turn implies that a syntactic explanation for it may be offered. In the following section, we propose just that, focussing attention on unattested LF combinations.

4.0 Analysis

In this section, we examine the the Person Hierarchy in light of c-command, and propose a Binding-theoretic account of the cases where a lower-ranked NP would c-command a higher one. Specifically, we attempt to answer the question of why a first person pronoun cannot c-command a second person at LF, or what prohibits an obviative NP from c-commanding a proximate. The answers, we argue, lie in the feature-specification of agreement itself, and its ability (or lack thereof) to identify a null pronoun in the SPEC, AGR.O.

Binding Theory implicated

Binding theory is composed several core assumptions. First, it addresses the possible interpretation of anaphors, pronouns and R-expressions. According to the theories of polysynthesis and feature-checking adopted so far, pronouns appear in the underlying structure of every PM sentence, hence their well-formedness will be determined by Binding Theory. Second, the domain in which pronouns receive their interpretion in BT roughly corresponds to CP and NP—the very categories that exhibit obligatory obviation in Algonquian languages (cf. Section 5.3). Here too it seems that BT plays a role. Finally, binding itself is defined in terms of hierarchical structure (c-command), which we have shown results from movement to set positions made visible by agreement morphemes. All these factors strongly implicate the Binding Theory as a means of ruling out the unattested cases of subject/object interpretation. One more aspect of the situation needs to be elaborated, however— the fact that the pronouns in question are null, as opposed to lexical. We thus adopt a particular version of Binding Theory that takes this into account, that of Huang (1984).

4.1 On the identification of empty categories (Huang 1984)

Because PM is a polysynthetic language, direct arguments take the form of empty categories (*pro*), while lexical NP's are relegated to adjoined positions outside core sentence structure. Huang (1984) has proposed that all empty categories—including null pronouns— need to be identified by some other element in order to receive their interpretation. The following principle captures this basic insight:[10]

(25) Generalized Control Rule (GDR)
Co-index an empty pronominal with the closest nominal element

'Nominal elements' include NP's and agreement. For a language such as English, the only possible identifier of a null pronoun in subject position is NP; this is because agreement by itself is not strong enough:

(26) Identification of subjects (English)

a. Monica$_i$ promised Bill$_j$ [PRO$_i$ to come]	[ID=NP]
b. Monica$_i$ induced Bill$_j$ [PRO$_j$ to come]	[ID=NP]
c. *[pro$_i$ [AGR$_i$ came]]	[*ID=AGR]

Non-subject positions, on the other hand, cannot tolerate empty pronouns in English:

(27) Identification of non-subjects (English)

a. *Linda$_i$ taped the conversation with *pro*$_i$	[ID=NP]
b. *The guards$_i$ AGR$_i$ saw *pro*$_i$	[ID=AGR]

When an empty category is identified, it is co-indexed with its identifier, which turns out to be the subject NP in (27a-b) above. This in turn leads to ungrammaticality, according to the following rules and definitions:[11]

(28) Disjoint Reference Rule (DJR)

A pronoun must be free in the relevant domain

(29) Closest nominal elements (Huang 1984: 552-3)

- A is closer to B than C if A c-commands B but C does not, *or*
  (where both A and C c-command B)
- A but not C occurs within the same clause as B, *or*
- A is separated from B by fewer clause boundaries than C
  (where clause=VP, or any maximal projection of INFL)

According to (29), the subject NP is construed as the closest potential identifier in (27a-b). Consequently, the null object pronoun becomes co-indexed with it, leading to a violation of the DJR. Note that ungrammaticality would result even if agreement were selected as the closest identifier, since it is also co-indexed with the subject by convention.

For a language like Spanish, agreement is apparently strong enough to identify the subject of a tensed clause. While poorly defined in the literature, 'strong' seems to imply a critical mass of person/number distinctions, often encoded in the morphology. Languages like Chinese, Japanese, and Korean have no overt agreement at all. For them Huang proposes that some empty categories may be variables instead of pronouns, linked to discourse topics (from Huang,1984: 539/23):

(30) Identification (Chinese)

a. Zhangsan$_i$ zhidao [e$_i$ mei banfa shuifu Lisi]
   Z. know EC not method persuade L.
   'Zhangsan$_i$ knows that [he$_i$] cannot persuade Lisi' [EC=subj]

b. *Zhangsan$_i$ zhidao [Lisi mei banfa shuifu e$_i$]
Z. know Lisi not method persuade EC
'Zhangsan$_i$ knows that Lisi cannot persuade [him$_i$]' [EC=obj]

Sentence (30a) involves an empty category in embedded subject position, which can be identified by the matrix subject; in this respect, it may be considered as a pronominal. In (30b), however, the empty category is an embedded object, and while it can refer to *Zhangsan* (as it could to any NP in the discourse), *Zhangsan* cannot be its antecedent. In other words, the empty category in (30b) behaves more like an R-expression or variable, which cannot be bound under any circumstances (Principle C).

PM as a discourse language

It is not clear whether Algonquian languages are discourse-oriented or not. On one hand, they are fairly rich in agreement, which would seem to argue against it. On the other, lexical NP adjuncts are sensitive to discourse-level obviation. Conceivably then, null arguments would be variables rather than pronouns. Nevertheless, the subject-object asymmetry shown in (30) is lacking in PM (from R. Leavitt, D. Francis, pc):

(31) Co-reference, embedded subject (PM)
a. Can '-kosicihtun [eli skat e$_i$ kisi qecimul-ahq Maliwol]
John 3-know/TI that not EC can ask-DIR Mary/OBV
'John$_i$ knows that (he$_{i/*j}$) can't ask Mary' [EC=subject]
b. Can '-kosicihtun [eli skat e$_i$ kisi qecimul-ihq Maliwol]
John 3-know/TI that not EC can ask-INV Mary/OBV
'John$_i$ knows that Mary can't ask (him$_{i/*j}$)' [EC=object]

In both cases, there is a strong preference for the empty category of the embedded clause to be coreferential with the matrix subject.[12] For the time being then, it is probably safe to assume that direct arguments in this language (as in other Algonquian languages) are pronominal, and that their interpretation does not depend on co-indexation with a discourse referent.[13]

As principles of Universal Grammar, the GCR and DJR are instrumental in determining the well-formedness of null pronominals in PM, particularly in their Case-checking positions. At LF (where binding relations are assumed to hold) a null pronoun in the SPEC, AGR.S will ccommand a pronoun in the SPEC, AGR.O, but not conversely. The possibility exists then, that the former could 'misidentify' the latter, if it were determined as the closest potential nominal element. Under such circumstances, the sentence would be ruled out by the DJR (Principle B).[14]

If agreement were determined as the closest nominal element, it could also bind a null pronominal in the SPEC, AGR.O. In underlying structure, object agreement features c-command the specifier from within the AGR.O projection, and subject agreement features do so from without. Given minimal assumptions of c-command, either set of features could play a pivital role in identification. Technically closer, object agreement would normally serve this function. But agreement itself can be broken down into different subparts of person, number and obviation- and any given morpheme seldom reflects all of them. It is therefore justifiable to

ask whether partial specification is sufficient for the purposes of identification, and what the consequences would be if it is not. Suppose, for example, that object agreement is specified for person but not for obviation; does this open the way for obviation features of a c-commanding nominal element to play a role in interpretation? Would person features alone block the application of the GCR? These are some of the questions that attempt to answer here. Ultimately though, the issue depends on the supposition that agreement isn't a monolithic category, and that certain features carry more weight than others.

4.2 Lexical and morphosyntactic features

The discussion that follows assumes elements of the theory of Distributed Morphology outlined in Halle & Marantz (1993). In it, functional categories (AGR.S, AGR.O) are characterized as projections of abstract, or morphosyntactic features which participate in syntactic operations. Feature-checking constitutes one such operation, movement between head positions another. Our claim here is that morphosyntactic features also underlie the identification of empty categories at LF.

Syntactic processes operate independently of some vocabulary items, which can be inserted just prior to PF. These include certain affixes, known as 'pieces of inflection', and bear their own lexical features. The mapping of affixes onto nodes specified for morphosyntactic features is subject to a non-distinctness condition.

In the spirit of economy, it is natural to assume that languages make use of the smallest number of morphosyntactic features possible. For example, it may not be necessary to posit three separate features for three different persons in a language when only two will do. Moreover, if number is a binary relation, positing separate features for [±singular] and [±plural] would be superfluous. Given our understanding of the purpose and nature of features, it seems the fewer there are, the better. On the other hand, distinct morphemes may warrant their own unique *lexical* features. PM has three person prefixes, for instance, each one associated with a different person. Under these circumstances, positing the lexical features [+1], [+2] and [+3] would be justified.

The strength of features is another issue that plays a role in syntax. In the Minimalist Program, strong features are visible at PF, and must be checked-off prior to Spell-out; usually, this is accompanied by overt movement. Weak features, on the other hand, are not visible —and -given the Last resort Principle— must not be checked until LF. Feature-strength also plays a role in the identification of empty categories. According to Huang, subject agreement features are strong enough to identify a null pronoun in Spanish, but not in English. The former is perhaps best characterized by a wealth of positively-specified underlying (morphosyntactic) features, the latter by a lack of them. In what follows we adopt a similar position, equating the strength of agreement with positive feature-specification. Strong agreement is capable of identifying a null pronominal, as well as preventing any other element from identifying it. Conversely, negative features are considered weak, and cannot identify an empty category or block identification by another potential nominal element.

4.2.1 Subject agreement prefixes

In the Independent order, transitive verbs in PM are characterized by three person prefixes, repeated here:

(32) Subject person prefixes (Independent order)

FIRST	**n**-kikahak	'I heal them'
	n-kikahannuk	'We [EX] heal them'
SECOND	**k**-(k)ikahak	'You [SG] heal them'
	k-(k)ikahannuk	'We [IN] heal them'
	k-(k)ikahawak	'You [PL] heal them'
	k-(k)ikihi	'You [SG] heal me'
	k-(k)ikihipa	'You [PL] heal me'
	k-(k)ikihipon	'You [SG/PL] heal us'
THIRD	**'**-kikaha	'He heals them [OBV]'
	'-kikahawa	'They heal them [OBV]'

The prefixes in (32) are maximally distinct with respect to person features. As lexical entities, they are fully-specified as [+1], [+2] and [+3], respectively. Underlyingly, however, we assume the morphosyntactic features to be [±1] and [±3]. This is to say that when AGR.S hosts a first person pronoun, the features responsible for identifying it will be [+1,-3]. In similar fashion, a second person pronoun can only be associated with [-1,-3], a third person by [-1,+3]. At the time of Spell-out, a [+2] prefix may be inserted onto a [-1,-3] node without violating any principle of nondistinctness. Note, moreover, that a [+2] prefix can be inserted onto a node that is specified as [+1,-3] without violating non-distinctness, as with the first person inclusive forms.

4.2.2 Subject agreement suffixes

Subject suffixes in the Independent order do not distinguish between three persons. The basic pattern can be adduced from the following:

(33) Subject suffixes (Independent order)

nt'hin-**én**	'We [EX] have it'
kt'hin-**én**	'We [IN] have it'
ktihîn-**iya**	'You [PL] have it'
'tíhîn-**iya**	'They have it'

The agreement suffixes in (33) co-occur with plural subjects and singular (inanimate) objects; there is no corresponding suffix for singular subjects within this paradigm. As indicated, only two suffixes cross-reference three persons. The suffix -iya is used with both second and third persons, so logically it would be lexically-specified as [-1]. The suffix -én always indicates a

first person sosiect, so it can be characterized as [+1]. When -<u>én</u> co-occurs with a [+2] prefix, the addressee is included in the use of 'we'. The lexical contrast shown in (33) corresponds directly to underlying morphosyntactic features, and helps to motivate the proposal that only [±1] and [±3] are relevant to the syntax of PM.

A priori, the number-specification of the two suffixes could be either [-sing] or [+plural]. As there are no corresponding singular suffixes, however, they will be considered [+plural], in keeping with the convention that overt/covert contrasts are expressed by positive/negative features, respectively. Number does not participate in the identification of empty categories in Algonquian.

Unike subject suffixes in the Independent order, those in the Conjunct appear to exhibit the maximal number of person/number distinctions. Consider the following data:

(34) <u>Subject suffixes</u> (Conjunct order)

a. DIRECT, NON-LOCAL (TS cannot be isolated)

ewikh-**uk**	'...when I draw him'
ewikh-**ot**	'...when you [SG] draw him'
ewikh-**at**	'...when he draws him [OBV]'
ewikh-**ek**	'...when we [IN] draw him'
ewikh-**oq**	'...when we [EX] draw him'
ewikh-**eq**	'...when you [PL] draw him'
ewikh-**ahti**	'...when they draw him [OBV]'

b. DIRECT, LOCAL (TS can be isolated)

ewikh-iy-**in**	'...when you [SG] draw me'
ewikh-iy-**eq**	'...when you [PL] draw me'
ewikh-iy-**ek**	'...when you [SG/PL] draw us'

c. INVERSE, NON-LOCAL (TS can be isolated in forms with local objects)

ewikh-**it**	'when he draws me'
ewikh-**usk**	'when he draws you [SG]'
ewikh-**t/-cil**	'when he [OBV] draws him'
ewikh-ulin-**ot**	'when he draws us [IN]'
ewikh-ulin-**oq**	'when he draws us [EX]'
ewikh-ulin-**aq**	'when he draws you [PL]'
ewikh-ukuhti-**t**	'when he [OBV] draws them'
ewikh-ukuhtit-**cil**	

d. INVERSE, LOCAL (TS can be isolated)

ewikh-hul-**(an)**	'...when I draw you [SG]'
ewikh-hul-**eq**	'...when I draw you [PL]'
ewikh-hul-**ek**	'...when we draw you [SG/PL]'

The suffixes in (34a) and some of those in (34c) undergo phonological merger with the theme-sign (i.e. the theme-sign cannot be isolated). Still, we assume they are distinct before this process takes effect. The uniqueness of the suffixes with respect to each other allows us to characterize them in terms of three (lexical) person features, as well as [±inclusive] and [±plural]. Crucially, however, the morphosyntactic features which underlie them are assumed to be the same as before, that is, [±1] and [±3]. A suffix bearing the features [+2, -plural], for example, may thus be inserted onto a node specified as [-1,-3] without violating non-distinctness.

4.2.3 Inner object suffixes

Consider once again the object agreement paradigms discussed earlier. This is comprised of two parts, an 'inner' morpheme closer to the verb stem, and an 'outer' one at the right-periphery of the verbal complex. Inner object agreement (isomorphic with the theme-sign) is highlighted here:

(35) Inner object agreement (Independent order)

DIRECT, NON-LOCAL	
ntuwikh-**a**	'I draw him'
ktuwikh-**a**	'You [SG] draw him'
'tuwikh-**a**-l	'He draws him [OBV]'
ntuwikh(-**a**)-an	'We [EX] draw him'
ktuwikh(-**a**)-an	'We [EX] draw him'
ktuwikh-**a**-wa	'You [PL] draw him'
'tuwikh-**a**-wa-l	'They draw him [OBV]'
DIRECT, LOCAL	
k-tuwikh-**i**	'You [SG] draw me'
k-tuwikh-**i**-pa	'You [PL] draw me'
k-tuwikh-**i**-pon	'You [SG/PL] draw us'
INVERSE, NON-LOCAL	
ntuwikh-**oq**	'He draws me'
ktuwikh-**oq**	'He draws you [SG]'
'tuwikh-**uk**-ul	'He [OBV] draws him'
ntuwikh-**uk**-un	'He draws us [EX]'
ktuwikh-**uk**-un	'He draws us [IN]'
ktuwikh-**uku**-wa	'He draws you [PL]'
'tuwikh-**uku**-wa-l	'He [OBV] draws them'
INVERSE, LOCAL	
ktuwikh-**ul**	'You [SG] draw me'

ktuwikh-**ul**-pa	'You [PL] draw me'
ktuwikh-**ul**-pon	'You [SG/PL] draw us'

From these data it is obvious that lexical, as well as morphosyntactic properties can be characterized in terms of [±1], [±3]. Lexically, non-local object suffixes (-a, -ok/-uk) are [-1,+3], while local ones (-i/-ul) are [+1,-3]. Underlyingly, the feature-specification of AGR.O might be [±1, ±3], just like AGR.S. Algonquian makes a distinction between local ([-3]) and non-local ([±3]) objects, however, whereas subjects are treated uniformly. How can this asymmetry be captured? First note that [-3] requires further specification (as first or second person) in a way that [+3] does not. From this it follows that [±1] entails [-3]. In order to express these differences, it is necessary to separate the features [±1] and [±3], such that AGR.O will be specified for one set, but not the other.

In the Conjunct order, separate morphemes for inner object agreement are much harder to distinguish (cf. 34 above). Nevertheless, nothing leads us to suppose that they are different from their Independent counterparts: lexically-specified as [±1,±3]; morphosyntactically as [±1] (local) or [±3] (non-local).

4.2.4 Outer object suffixes

Outer object suffixes can only be distinguished for third persons; features of first person objects combine with subject suffixes in local forms (inverse and direct). With third person objects, number, obviation and/or absentitivity are apparent:

(36) Outer object agreement

OBVIATION ([±obv])

'tokoma-**l**	'He hit him [OBV]'	[DIR]
'tokomok-**ul**	'He [OBV] hit him'	[INV]

NUMBER ([±plural])

ntọkoma	'I hit him [SG]'	[-LOC]
ntokoma-**k**	'I hit them [PL]'	[-LOC]
ktokomi-**pa**	'You [PL] hit me'	[+LOC]
ktokomi-**pon**	'You [SG/PL] hit us'	[+LOC]

ABSENTIVITY ([±absent])

'tolipha-**l**	'He carries it [OBV]'	[-ABS]
'tolipha-**kol**	'He carries it [ABS/OBV]'	[+ABS]

Each of the distinctions in (36) is binary, so it follows that the features underlying them would be [±obviative], [±plural] and [±absentative]. The latter two do not register on the Person Hierar-

chy in any obvious way, hence (it will be argued) do not participate in Identification. The feature [±obv] is important though, and the locus of outer object agreement will be specified for it.

To summarize, PM inflection invloves two sets of features, lexical and morphosyntactic. The former are considered properties of the affixes themselves, the latter as the heads of AGR.S and AGR.O. Subject prefixes are lexically-specified as [+1], [+2], and [+3], but the syntactic nodes onto which they map are only characterized in terms of [±1] and [±3]. Subject suffixes in the Independent order are specified by two lexical person features which correspond directly to underlying ones. Conjunct subject suffixes make more person/number distinctions than their Independent counterparts, but share the same set of underlying features. Inner object suffixes (theme-signs) carry the lexical person features [±1,±3], but here AGR.O is somewhat underspecified, selecting [±1] *or* [±3]. Outer object suffixes are specified for obviation, number and/or absentativity. Of these, only [±obviative] is syntactically relevant.

The morphosyntactic features underlying agreement in PM play a crucial role in the identification of empty categories (*pro*) in SPEC, AGR.S and AGR.O. Generally speaking, subject (AGR.S) agreement is 'richer' than object (AGR.) agreement, the former making use of both [±1] and [±3], the latter either [±1] or [±3]. At this point we may ask whether subject prefixes, as well as suffixes map to the same underlying node in the Independent order, and if inner as well as outer object suffixes do the same. Although there is only one AGR.S and AGR.O projection, commonly-held assumptions of X-bar theory allow for two positions each, specifier and head. For the time being then, we will assume that this accounts for the split distribution of subject and object agreement in Algonquian languages. Although we have already claimed that the SPEC, AGR.S and AGR.O host null pronominals in LF (if not before), the insertion of lexical morphemes takes place at Spell-out, hence does not interfere with the feature-checking mechanism (cf. Halle & Marantz (1993) for a detailed account of lexical insertion).

4.3 Identification & binding

To be well-formed, empty categories in the SPEC, AGR.S and AGR.O must be identified. According to Huang (1984), the identifer of an empty category is the nearest nominal element, NP or agreement. With respect to the latter, we concentrate on which particular features are responsible for identification. The morphosyntactic feature-specification of AGR.O is somewhat poorer than that of AGR.S, and a pronoun in the specifier of this category is situated between two agreement heads. The potential for 'mis-identification' is therefore greatest here. Our discussion centers on cases where the 'wrong' theme-sign is selected for various subject/object combinations.

4.3.1 Obviation

Consider first an unattested case in which an obviative pronoun occupies the SPEC, AGR.S and a proximate one appears in SPEC, AGR.O:

(37) Ungrammatical cases of obviation (*3'=>3)

$[_{AGR.S\acute{O}}\ [pro_i]\ [_{AGR.S\check{O}}\ [+obv]_i \ldots\ [_{AGR.O\acute{O}}\ [pro]\ [_{AGR.O\check{O}}\ [-obv] \ldots$

DIR: *'kikahal* *He [OBV] heals him
INV: *'kikuhukal* *He heals him [OBV]

(37) corresponds to sentences with an unttested interpretations: that is, with a direct TS and an obviative canonical subject (Agent), or an inverse TS and a canonical object (Theme). In both case, an empty pronoun appears in AGR.S, specified by the morphosyntactic features [-1], [+3] and [+obv]. We assume these features are sufficient to identify the pronoun (but cf. below). At the same time, another empty pronoun appears in AGR.O, specified for [-1], [+3] and [-obv]. The only difference is that AGR.S is [+obv] and AGR.O is [-obv]. Suppose now that negatives are too weak to participate in identification. If so, it means that the [+obv] feature specification of AGR.S will be determined as the nearest identifier of the the lower pronoun *in terms of obviation.* Moreover, since the subject pronoun is also identified by [+obv] and c-commands the lower one, the two will end up being bound, in violation of the DJR.

This brief scenario rests on three assumptions. First, that obviation corresponds to a positive morphosyntactic feature-value. In Algonquian, obviative morphology takes the form of verbal and nominal suffixation, so it reasonable to posit a [+obv] feature. In contrast, proximate NP's are not associated with any special morphology: they are only proximate by virtue of their lack of special forms. There is thus no basis for positing a morphosyntactic feature [±prox].

Second, the identification of empty pronouns is not an 'all or nothing' affair. The fact that an empty pronoun in AGR.O is associated with [+3] is not sufficient to prevent it from being identified by a non-person feature, in this case [+obv]. This process is straightforward in the example just cited, where obviation and person clearly belong to different grammatical categories. In other cases, however, we see that even person features can operate independently of each other.

Finally, negative values are inherently 'weak' and cannot identify an empty category for that feature (obviative, first person, etc.). Moreover, a negatively-specified nominal element cannot prevent another (positively-specified) one from 'misidentifying' a null pronoun. Positive values, on the other hand, can successfully identify an empty category, and effectively block misidentification by another nominal element for that feature. The grammatical counterpart to (37) is (38):

(38) Grammatical cases of obviation (3 =>3')

$[_{AGR.S\acute{O}}\ [pro_i]\ [_{AGR.S\check{O}}\ [-obv]_i \ldots\ [_{AGR.O\acute{O}}\ [pro]\ [_{AGR.O\check{O}}\ [+obv] \ldots$

DIR: *'kikahal* 'He heals him [OBV]'
INV: *'kikuhukal* 'He [OBV] heals him'

In (38), the morphosyntactic features underlying AGR.S and AGR.O are [-obv] and [+obv], respectively, as opposed to (37) where they are reversed. Note that the corresponding sentences are the same- that is, only their interpretations are different. Crucially, the pronoun in the SPEC,

AGR.O can be identified by [+obv]. The pronoun in AGR.S, on the other hand, will be interpreted as proximate by default.

4.3.2 Mixed forms (local, non-local)

Consider next the impossibility of third persons c-commanding first or second person pronouns at LF:

(39) Ungrammatical cases of mixed forms (*3=>1,2)

$[_{AGR.SÓ}\ [pro_i]\ [_{AGR.SÕ}\ [-1,+3]_i \ldots\ [_{AGR.OÓ}\ [pro_i]\ [_{AGR.OÕ}\ [-3] \ldots$

DIR: *nkikaha*	*She heals me
kikaha	*She heals you [SG]
INV: *nkikohoq*	*I heal her
kikohoq	*You [SG] heal her

The interpretations in (39) correspond to sentences where either the canonical subject is in AGR.S (the object in AGR.O) and the TS is direct, or the subject is in AGR.O (the object in AGR.S) and the TS is inverse. As indicated, the morphosyntactic feature [+3] in AGR.S identifies both empty pronouns, the negatively-specified AGR.O being unable to perform this function. As a result, a binding theory violation will result. Crucially, AGR.O is not specified for [+1] in the case of first person objects; this feature is reserved for strictly local combinations. Thus there is no positive value to prevent identification from without.

In the opposite scenario—that is, when a first or second person c-commands a third person pronoun—the interpretations are grammatical. The underlying structure and its corresponding sentences (the same as those above) are given here:

(40) Grammatical cases of mixed forms (1, 2 => 3)

$[_{AGR.SÓ}\ [pro_i]\ [_{AGR.SÕ}\ [\pm1,-3]_i \ldots\ [_{AGR.OÓ}\ [pro_j]\ [_{AGR.OÕ}\ [+3]_j \ldots$

DIR: *nkikaha*	'I heal her'
kikaha	'You [SG] heal her'
INV: *nkikohoq*	'She heals me'
kikohoq	'She heals you [SG]'

In (40) the morphosyntactic features [±1,-3] (depending on first or second person) can at best identify the pronoun in the SPEC, AGR.S. Similar to the case of proximates, we assume that unidentified ([-1,-3]) pronouns are interpreted as second person by default. The positive feature specification of AGR.O identifies the pronoun there, as well as prevents [+1] (in case the c-commanding NP is a first person) from misidentifying the empty category and leading to a binding violation.

*4.3.3 Local forms (*1 => 2)*

Finally, consider the case in which a first person in SPEC, AGR.S c-commands a second person pronoun in the SPEC, AGR.O:

(41) Ungrammatical cases of local forms (*1 => 2)

$[_{AGR.S\acute{O}}\ [pro_i]\ [_{AGR.S\tilde{O}}\ [+1,-3]_i \ldots\ [_{AGR.O\acute{O}}\ [pro_i]\ [_{AGR.O\tilde{O}}\ [-1] \ldots$

DIR:	*k(k)ikihi*	*I heal you [SG]
	k(k)ikihipon	*We heal you [PL]
INV:	*k(k)ikuhul*	*You [SG] heal me
	k(k)ikuhulpon	*You [PL] heal us

(41) depicts unattested interpretations of sentences where the canonical subject is in AGR.S and the theme-sign is direct, or where it is in AGR.O and the theme-sign is inverse. Underlyingly, the pronoun in SPEC, AGR.O is associated with the morphosyntactic feature [-1] which is incapable of identifying anything. As a result, the [+1] feature of AGR.S identifies this category, along with the pronoun in its own specifier position. The two pronominals are thus co-indexed and the latter bound, in violation of the DJR. The opposite scenario in which the positive ([+1]) feature is in AGR.O (the negative in AGR.S) proceeds along the the same lines sketched out above. This accounts for one more segment of the Person Hierarchy.

To sum up, we have suggested that PM offers its own clues as to which features play a role in syntax: person features [±1] and [±3], as well as [±obv]. The very fact that obligatory instances of obviation exist implies that Binding considerations are involved in the grammar of PM, as well as other Algonquian languages. The presence of negative (weak) features can lead to Binding Theory violations if another NP with positive (strong) features is determined to be the closest identifier of an empty pronoun. Together with the theory of feature-checking proposed in Section three, the effects of the Person Hierarchy in PM *inter alia* can now be explained in purely syntactic terms.

5.0 Consequences

In this section, we examine some of the consequences of the binding-theoretic approach developed for the Person Hierarchy. Section 5.1 sketches a plausible scenario of head movement in PM that accounts for the split distribution of agreement morphemes. Transitive constructions which seem to lack one kind of agreement or another are discussed in 5.2. The analysis of sentential obviation is carried over to NP's in Section 5.3.

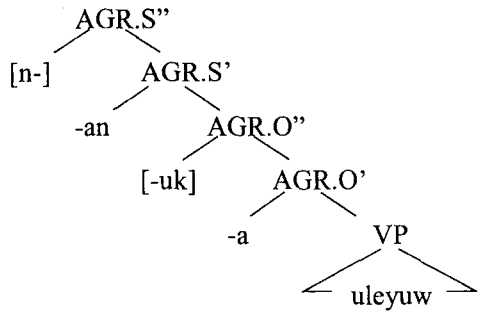
5.1 Agreement morpheme order

PM in particular (and Algonquian languages in general) pose a challenge for the treatment of agreement within the MP. There it is assumed that morphemes (or abstract features representing them) are associated with separate projections of AGR.S and AGR.O. In transitive sentences, however, subject and object agreeement can appear in two different places of the verbal complex. Subject agreement is split between prefixes and suffixes in the Independent order, while object suffixes regularly surface on either side of subject agreement. If morpheme order reflects underlying relations, how can these dual instantiations of agreement be analyzed?

Guided by the Minimalist Program, we propose to exploit both functional categories AGR.S and AGR.O and their dual (specifier and head) positions. Each grammatical relation corre-

sponds to a single underlying category with inflectional material 'at either end'. This is shown in the diagram below:

(42) Agreement in underlying structure (*nuleyuwanuk,* 'We treat them well')



Subject prefixes appear in SPEC, AGR.S, while subject suffixes (Person/Number) serve as the head of this category. Theme-signs constitute the head of AGR.O, and Number/Obviation suffixes are in specifier position. Verb movement proceeds through the functional head projections, and two of the agreement morphemes (subject prefix and object Number/Obviation suffix) cliticize post-syntactically. Of course, null pronominals and inflectional affixes cannot both occupy the SPEC, AGR.S and AGR.O. Only at PF are the features of these categories realized as overt agreement morphemes; at LF, direct arguments move to AGR.S and AGR.O for feature-checking as proposed above.

This account of morpheme order intersects with polysynthesis in Baker's (1996) sense. The latter is consistent with the idea that core sentential space is primarily taken up by bound morphemes, as in (42). Note also that the morphemes which co-exist in each agreement category represent different types of features: subject prefixes encode Person, subject suffixes (mostly) Number. At the same time the SPEC, AGR.O is associated with Number/Obviation features, while the head is strictly Person. In the Minimalist Program, it is generally understood that specifier-head agreement involves like features, rather than opposite ones. Nevertheless, it is equally plausible that formal feature-checking can have exactly that appearance, given late insertion and the mediation of null pronominals, as suggested in Section three.

5.2 Other transitive expressions

Up to now, the analysis of pronoun-binding has addressed sentences that are unambiguously transitive, with verbs displaying both subject and object agreement. Still, there are other bivalent constructions in PM where agreement is deficient, hence it may be worthwhile to consider them as well. These are the pseudotransitive (AI+O) and indefinite subject (ISC) constructions.

5.2.1 The AI+O construction

One mixed transitive/intransitive verb form is the AI+O (or 'pseudo-transitive'). In light of the assumptions made here, it is worth examining the constructions in which they appear.

AI+O verbs share properties of both transitive and intransitives. As the name suggests, they select animacy features of the subject, a characteristic of intransitive stems. Unlike other AI verbs, however, AI+O verbs take the third-person subject prefix, which must be taken as a sign of underlying transitivity. Verbs in the AI+O construction take a relative mood ending, the purpose of which (according to Leavitt 1996:34) is to enable further suffixation. This morpheme is marked in bold below:[15]

(43) Pseudotransitives (AI+O morpheme in bold)

a. tehsaq-opu
on.top.of-sit/AI
'He sits on top' [AI; no AGR]

b.'-tehsaq-op-**in**
3-on.top.of-sit/AI-**RM**
'He sits on top of it' [object=INAM]

c. '-tehsaq-op-**in**-ol
3-on.top.of-sit/AI-**RM**-OBV
'He sits on top of her/them' [object=OBV]

d. k-tehsaq-op-**in**-iya-k
2-on.top.of-sit/AI-**RM**-2PL-3PL
3-sit.on.top-'You sit on top of them' [object=PLURAL]

Although AI+O verbs take an object, it is not readily apparent that this is a direct argument of the stem; according to Leavitt (1996), its relationship with the subject (Actor) is either 'personal' or 'spatial'. Crucially, the object of an AI+O verb can be marked with Number or Obviation agreement (43c-d); at present it is not known whether obviation is obligatory.

AI+O constructions have no overt person marking (theme-signs), but first- and second-persons are not allowed as objects. Finally, AI+O verbs cannot be used with indefinite objects; under these circumstances, speakers use a corresponding AI form (RL 1996:35):

(44) Indefinite objects (*AI+O)

a. *nt-ali-khahs-**in** keq
1-vaguely-search-**RM** something [*AI+O]
ntalikhahs keq
both: 'I'm looking around for something' [AI]

b. *'t-ali-khahs-**in**-ol wen-il
3-vaguely-search-**RM**-OBV someone-OBV [*AI+O]
alikhahsu wenil
both: 'He's looking around for someoneÕ [AI]

One way of accounting for the mixed properties of AI+O forms would be to say that basically intransitive stems become transitive in the course of derivation. While roughly accurate, such a view ignores a subtle design-feature of Algonquian -namely, the way in which verb

stems are assembled from initial, medial and final roots in the morphosyntax. The central question revolves around the origin of the object in the AI+O construction.

Consider a sentence in which the object has a spacial relationship with the Actor-subject. As the gloss suggests, 'it' in (43b) could be the object of *tehsaq* ('on top of'), the initial root of the verb stem. In Campana (1999) it was argued that initial roots -as well as finals- were potential theta-role assigners. If this turns out to be the case in (43b-d), at least we have an idea of where the object comes from.

At an abstract level -one that is not necessarily appropriate for Algonquian- the AI+O construction could be cast in terms of preposition-incorporation (PI). Initially, a verb like 'sit' would take a PP complement, which in turn comprised a head and oblique object. The head (P) would then incorporate to V, resulting in advancement of the oblique to the status of a direct argument. Such processes conceivably appear in English 'reanalysis' : *George Washington slept in this bed => This bed was slept in (by GW).* The problem only between verbs and their direct objects (Baker 1988). It is not clear that the spatial location 'on top of' has this relationship to 'sit' in (43) (or that 'in NP' can be properly related to 'sleep'). Moreover, initials in Algonquian more often than not correspond to adverbial phrases in other languages, which are even more nebulously connected to verbs than spatial PP's- and yet they too enter into AI+O constructions. In short, it appears that an incorporation analysis of AI+O verbs is untenable.

While syntactic incorporation may not be appropriate, nothing prevents an object from being freely generated, so long as its formal and referential features can be fully-licensed. One could assume that verb-stems are assembled in the lexicon, for instance, with the theta-assigning capability of the whole built-up from its subparts. Alternatively, stem-formation might take place post-syntactically, with certain caveats regarding phrase structure (cf. Campana 1999 for details).[16] In either case the object of the AI+O construction would be able to receive a theta-role from the initial root *tehsaq* ('on top o').

The formal features of the object in the AI+O construction are then checked in SPEC, AGR.O. The fact that Number/Obviation agreement is possible suggests that AGR.O is active in underlying structure. Even though this category has no overt head (theme-sign), it may be understood as being [+3], thereby disallowing local objects. The definiteness restriction on objects in the AI+O construction (44) also implies a specifier-head relation: in many languages, structural Case-marking is the only way to signal this property of NP's. Finally we predict that obviation is obligatory when the object is animate. This prediction has yet to be confirmed.

In conclusion, the AI+O construction fits in nicely with the proposals advocated here. The intransitive properties of the stem derive from the final root, while the object originates as a relation selected by the initial. AGR.O is available for feature-checking, giving rise to the transitive properties. AI+O constructions involving 'personal' expressions can be handled in much the same way as 'spatial' ones.

5.2.2 The Indefinite Subject Conctruction (ISC)

Another marginally transitive sentence-type in Algonguian is the Indefinite Subject Construction (ISC). Typical examples from PM are given here (Francis & Leavitt 1992):

(45) Indefinite subject construction (PM)

a. wehk.asi
use.II
'Someone uses it'; 'It is used' [TI]

b. k-(t)-uwikh-uk
2-EC-draw/TA-INV
'Someone draws you'; 'You are drawn' [TA]

(45a) is indistinguishable from an II verb (cf. the stem-final element) and is of little interest. (45b) represents a TA verb, with a second-person prefix and an inverse theme-sign. Leavitt (1996:37) refers to indefinite subject sentences as passive.

ISC verbs with third-person subjects lack prefixes, and objects are not marked for obviation. It is not known whether obviative suffixes are prohibited or unnecessary. The distribution of theme-signs is also limited in the ISC. Consider the following paradigm in the Independent order:

(46) ISC agreement (TS in boldface)

	SING. OBJ	PLURAL OBJ
1	n-tokom-**ok**	n-tokom-**ok**-epon (EX)
		k-tokom-**ok**-epon (IN)
2	k-tokom-**ok**	k-tokom-**ok**-epa
3	tokom-**a**	tokom-**a**-

e.g. 'Someone hits me', 'Someone hits you, etc.

(46) represents all the IS forms for this verb. Unlike transitive constructions with definite subjects, there are no full paradigms for inverse and direct forms. An inverse theme-sign always and only appears when the canonical object is a first- or second person; a direct one is used when the canonical object is a third person. In our theory, both theme-signs are specified as [+3].[17]

Given the existence of an indefinite NP in underlying structure, it is not surprising that the theme-signs have the distribution shown in (46). An indefinite NP is inherently [+3], so when coupled with first- or second person pronouns the latter must always c-command the former. Movement of canonical objects to AGR.S is signalled by the inverse theme-sign. When two third persons are involved, the object moves to AGR.O, as evidenced by the direct theme-sign.

Although the lack of a person prefix is initially puzzling, it may simply be that this morpheme entails definiteness. One may rightly ask why obviation is not obligatory in this context either, since indefinite pronouns are surely animate. Perhaps the two relations are sufficiently differentiated by the feature [±definite], thus allowing obviation but not requiring it. This would also explain why canonical objects are not used with the inverse: a [+def] feature in AGR.S would end up binding a [-def] pronoun in the SPEC, AGR.O. In short, IS constructions are not much different from regular transitives with repect to the Person Hierarchy.

5.3 Obviation revisited

In Section four an analysis was developed which showed how obviative NP's could not ccommand proximate ones at LF. At that time, however, no account was offered for why two animate NP's cannot both be proximate within the same sentence. Moreover, the discussion

centered only around clauses, remaining silent on the matter of obviation within NP's. The two issues will be taken up here.

5.3.1 Animacy

The fact of the matter is that unmarked (proximate) NP's cannot cooccur in a transitive sentence if both arguments are animate, or in a possessive construction with an animate head. Since possessors are inherently animate in Algonquian, these two cases can be collapsed into the following statement:

(47) Obligatory obviation (trigger)
Unmarked NP's cannot both be animate in a bivalent construction

This restriction does not hold if one of the NP's is obviative, if one is inanimate, or if the construction is monvalent (intransitive or unpossessed). Possessive constructions will be dealt with in the following section.

Let us assume that animacy (a psi-feature) is encoded by the feature [±inanimate].[18] If an object in the SPEC, AGR.O is specified as [-inanimate] (='animate'), it cannot be identifed: negative features are incapable of performing this function. Moroever, a negative feature cannot 'protect' the pronoun in AGR.O from being identified from the next-closest nominal element. If AGR.S is also specified as [-inanimate], it cannot identify the pronoun in its specifier position either, let alone the one in AGR.O. It follows that the pronouns must be assigned a default feature, in this case [-inanimate]; as a result, the latter will be bound and the construction ruled out.

If the pronoun in SPEC, AGR.S is specified as [+inanimate], it would transfer its positive feature to the null pronominal in AGR.O, binding it as well. However, inanimates are prohibited from appearing in subject position by a language-specific constraint (the same restriction disallows inanimates from functioning as possessors- cf. below). If the pronoun in SPEC, AGR.O is specified as [+inanimate], it may be identified with regard to that feature, and feature transfer from AGR.S will be blocked. If the pronouns in both SPEC, AGR.S and AGR.O are specified as [inanimate], further differentiation must apply to block ungrammatical binding. Under these conditions, AGR.O must be specified as [+obv], or if AGR.S is already specified for this feature, 'further obviation' .

5.3.2 Obviation in NP's

The binding-theoretic approach sketched out above correctly accounts for cases of obligatory obviation in clauses. Other cases (4b) involve the interaction of animate possessors and the nouns they modify. In order to account for these within the same framework, the projection of every noun must also contain a null pronoun that can in turn be bound by a c-commanding possessor. In this section we propose such a structure.

Nouns in PM (and other Algonquian languages) are inflected for Number/Obviation, and if they are possessed, 'subject' agreement (boldface):

(48) Possessor agreement (from Leavitt 1996:26)

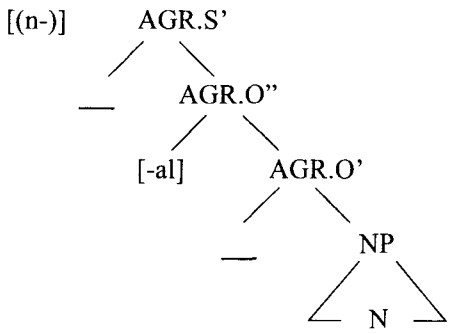
	SG	PL
1	**n**-túsˊ	**n**-túsó-**n**
		k-túsó-**n**
2	**k**-túsˊ	**k**-túsu-**wa**
3	‘túso-l	**‘**-túsu-**wa**-l

(e.g. ‘my daughter, your daughter, etc.’)

Clearly, agreement inside the NP is reminiscent ofagreement inside of clauses, where Person marking correponds to AGR.S, and Number/Obviation marking to AGR.O. For practical reasons, we continue to use the same labels for NP structure. The understanding is, however, that two functional categories are involved regardless of their classification. Let us first assume that the structure underlying NP’s is as follows:

(49) NP structure

... AGR.S”



The specifier positions of AGR.S and AGR.O are filled with Person prefixes and Number/Obviation suffixes, exactly as in clauses. If the NP is not possessed, the SPEC, AGR.S may be absent. AGR.O is always specified for Number and Obviation, however, regardless of whether these features are overtly realized.

At LF, the SPEC, AGR.S and AGR.O host null pronouns. Unlike the situation in clauses, however, the erstwhile pronoun in SPEC, AGR.O is not moved there from some other position. Instead, it must be considered as a manifestion of psi-features originating in head position (for this reason, AGR.O might be better understood as DP).

As in clauses, the pronouns in AGR.S and AGR.O are subject to interpretation, and if the latter is not sufficiently differentiated it will be misidentified by the former: if the pronoun in AGR.S is specified as [-inanimate], the one in AGR.O must be either [+inanimate] or obviative. If, on the other hand, the pronoun in AGR.O is both proximate and animate, the default (‘weak’) interpretation will ensure its being bound, in violation of the DJR.

What accounts for morpheme order in the nominal complex? The D-features of the head noun also need to be checked-off and eliminated by LF. Since AGR.O is the locus of functional D-features, N must raise at least this far. The fact that it also precedes Number/Obviation marking in SPEC, AGR.O entails that it raise even higher, e.g. to AGR.S -regardless of the precence of a possessor. Following a proposal made by Watanabe (1993), we may assume that checking between heads (here N and AGR.O/DET) results in the creation of another (abstract) feature [+F], which must in turn be licensed by a higher functional category- in this case AGR.S. Since N precedes Number/Obviation marking in SPEC, AGR.O, it goes without saying that this process takes place early in the derivation, i.e. prior to phonetic Spell-Out.

To summarize, we have shown that NP has a structure quite similar to that of clauses. Both involve two functional categories which accommodate the same morphemes and their distribution. Both provide a means of analyzing the effects of animacy and obviation. This is not surprising, since NP's and clauses often exhibit similar properties cross-linguistically. The structure in (49) has correlates in other languages: cf. English *Bill['s] gift to Monica* vs *Bill give[s] to Monica*). Nevertheless, there is a crucial difference between obviation in clauses vs NP's: in the former, only third person (AGR.S) subjects force it, while in the latter it can be triggered by first and second persons. Perhaps this has to do with the difference between AGR.O and DP. The former is overtly specified as third person by means of a theme-sign, rendering differentiation with the subject unnecessary; the latter, while *inherently* third person, is not indicated as such by means of special morphology. This remains a tropic of further investigation.

6.0 Summary & conclusion

In this paper, we have argued that the effects of the Person Hierarchy in PM can be formally derived through the interaction of syntactic ergativity and the Binding Theory. The former holds that both categories responsible for feature-checking (AGR.S and AGR.O) are available for either argument of a transitive verb. Based on the evidence of person prefixes in the Independent order, one NP (the canonical subject or direct object) will move to the SPEC, AGR.S as determined by the theme-sign. When the them-sign is direct, the subject moves to this position and the object moves to AGR.O; when it is inverse, the opposite situation obtains.

Because PM is a polysynthetic language, only null pronominals are involved in feature-checking operations. Lexical NP's—appositional in character—are formally analyzed as sentential adjuncts. As a result of the movement operations, local pronouns (first- and second-persons) always end up c-commanding non-local ones, regardless of which theme-sign is selected. Similarly, second-person pronouns always c-command first-persons, and proximate third-persons always c-command obviatives. The net effect of these relations is that the Person Hierarchy can be cast purely in terms of c-command.

Ungrammatical combinations of subject & direct object were analyzed as Binding Theory violations. First, it was shown that null pronominals are subject to a process of identification, through which features of a c-commanding nominal element can be transmitted. When a pronoun in the SPEC, AGR.O is identified by a such an element, identity results, leading to a

violation of the DJR (Principle B). The relevant features are assumed to be language-specific, based on overt distinctions found in the agreement paradigms.

Various other structures were considered in which obviation plays a role. The syntax of NP's was shown to be quite similar to that of transitive clauses, where animate phrases must be differentiated through obviation. Both the AI+O and IS constructions were found to be essentially transitive, exhibiting most of the effects of feature-binding.

Various proposals have been advanced in the past to account for hierarchical effects in transitive sentences, often within functional or typological frameworks (cf. Silverstein 1976, Heath 1998). Along such lines, direct (1=>3) forms in Algonquian might reflect a 'topic-first' pattern, and thus be seen as favored by native speakers. This would entail that the inverse (1=>3) is somehow 'marked', in spite of being morphologically equivalent. In the account provided here, neither option is favored over the other, and direct/inverse patterns arise from formal considerations relating to properties of the arguments themselves.

Explanations based on markedness can also be constructed for strictly local or non-local combinations. To some, the supremacy of second person on the PH might reflect a feature of Algonquian culture ('deference to addressee', for example), or even a universal attribute. Still, other languages sometimes show the opposite, e.g. by favoring the first-person over the second. The account of the Person Hierarchy offered here abstracts away from pragmatic and/or semantic explantions, and looks instead to morphological pattterns for underlying clues. More likely than not, a similar strategy is open to the language learner, and thus more readily meets the goals of linguistic theory.

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[1] Algonquian languages were once widely spoken from the Atlantic Ocean to the Rocky Mountains in the area of what is now the U.S.-Canadian border. At this point in history (1998), the numbers of first language speakers are dwindling and Algonquian unilinguals are almost unheard-of. PM is no exception. Nevertheless, there are enough speakers around and material in the literature (cf. Bloomfield, Hockett, etc.) to know more-or-less what's going on.

[2] Abbreviations used in this paper are as follows: AI=animate intransitive, II=intransitive inanimate, TA=transitive animate, TI-transitive inanimate; DIR=direct (theme-sign), INV=inverse (theme-sign), LOC=local/locative, TS=theme-sign; OBV=obviative, PROX=proximate; CON=conjunct order, IND=independent order; UNM=unmarked; SG=singular, PL=plural; IN inclusive (includes the listener), EX=exclusive (excludes the listener); 1=first person, 2=second person, 3=third person.

[3] Cf. Sherwood (1986) for a detailed discussion of orders and their functions in PM, and Campana (1996) for some theoretical analysis.

[4] Other morphemes may also intervene; we do not consider these here, however.

[5] Currently, AGR.S and AGR.O have been replaced by Tense and vP for the purposes of feature-checking (the latter only available in transitive contexts). Due to the richness of agreement in Algonquiant, however, we find concrete projections to be appropriate.

[6] Throughout this paper, reference will be made to canonical subjects & direct objects. The former are represented in diagrams as NP1, and are assumed to originate in the specifier of VP. The latter (NP2) originate as sisters to the verb.

[7] Cf. Campana (1992), and Murasugi (1992) for details of Case-checking in ergative languages. Orthodox Minimalist thinking holds that movement of NP2 to AGR.S crosses too many specifier positions, hence cannot occur. We ignore this problem here.

[8] Whether these categories are agreement or not is immaterial; in any case is it is the relative position of direct arguments that matters most.

[9] Whether these prefixes are themselves pronoun-clitics that move to AGR.S from inside VP or represent agreement heads is irrelevant for present purposes; cf. Campana (1994) for some discussion.

[10] The one exception is PRO, which—if left unidentified—receives an arbitrary interpretation. Cases of this sort do not play a significant role in the analysis here (but cf. 5.2.2).

[11] (28) is the same as Principle B of Binding theory in Chomsky's (1981) system: 'Pronouns must be free in their governing category'. Since government has been replaced by other constructs in the Minimalist Program, we interpret 'governing category' as 'relevant domain'.

[12] The embedded verb in (31b) is marked for inverse, which—on the analysis presented here—makes the empty category an LF subject, in the specifier position of the embedded AGR.S. For this reason it could be argued that (31a-b) are not equivalent to the Chinese (30a-b). Clearly, further information is needed to certify that PM is unlike Chinese with regard to the binding of empty objects.

[13] According to Baker (1996), just the opposite is true—that is, the discourse referents adjoined to the sentence depend on the Case- and theta-marked pronominals in the SPEC, AGR.S and AGR.O for their interpretation.

[14] Speas (1990) has claimed that empty categories such as *pro* cannot themselves serve as identifiers. Nevertheless, the conditions which lead to this conclusion (in Navaho) can be construed in such a way as to permit identification in some cases, while disallowing it in others.

[15] When the construction itself is in the relative mood, Number/Obviation marking of the object is suppressed.

[16] The former view implies that complex forms are learned as units, and that word formation does not allow for innovation.

[17] 'Object' corresponds to passive subject in Leavitt's terminology. The claim that ISC morphology exhibits directionality has, to my knowledge, not been made before. While there are minor differences between these theme-signs and those used with definite subjects (cf. ***n-tokomoq***, 'He ([+def]) hits me'), their shape is fairly similar, and any differences can probably be attributed to the feature [±def].

[18] The choice of [±animate] vs [±inanimate] is not as obvious as the one between [±prox] vs [±obv], but we ignore this problem for the time being.