

## How Much Syntax can You Fit into a Word? Late insertion and verbal agreement in Innu-aimûn<sup>1</sup>

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Data from complex sentences in Innu-aimûn (Algonquian) shows that substantial portions of the verbal morphology, including the valence markers, are selected based on properties of the syntactic environment. This finding supports a 'late insertion' model of the interaction between morphology and syntax. An account of the forces behind morpheme selection is developed, based on the idea that Innu-aimûn grammar requires that a morpheme containing a larger set of  $\phi$  features be chosen in place of less rich morphemes whenever a choice is grammatically possible.

### 1 Introduction

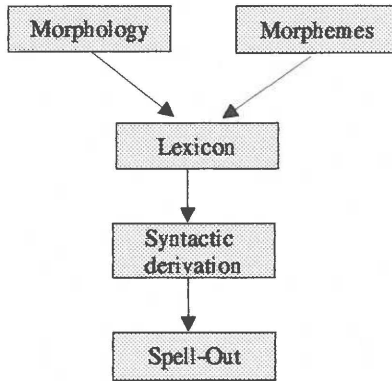
Within generative grammar, there are essentially two broad points of view on the question of the relationship between morphology and syntax. In one, the morphology provides lexical items to serve as syntactic atoms, and the properties of the lexical items then determine how they may be combined in the course of a syntactic derivation. This view appears as the Projection Principle (Stowell, 1981) of REST/Government-and-Binding theories or its equivalent in other lexicalist approaches to syntax. Valence-changing derivational morphology then determines the course of the subsequent syntactic derivation, by restricting what elements may be introduced into the phrase together with the verbal head. This general stance is taken to its logical extreme in analyses of polysynthetic languages like that of Jelinek (1984), or for Algonquian, Grafstein (1984), who maintain that thematic roles can be carried by morphemes internal to a complex predicate, so that the role of syntactic argumental noun phrases is entirely secondary, and largely redundant.

The alternative to this view is most clearly represented by the generative semantics theories of the late 1960s and early 1970s, in which the output of a syntactic derivation is interpreted by choosing the appropriate forms of words. This view is preserved to some extent in relational grammar and within core generative grammar it has been revived in recent years as the '*late insertion*' hypothesis in the Distributed Morphology models. Here, the form of a word, including any valence-changing morphology, is determined by what occurs in the syntactic derivation. In this class of theories, the lexicon filters the output of the syntax, rather than driving the syntax directly. The syntactic derivation proceeds independently of what may be available in lexicon, although it may ultimately 'crash' or 'converge' depending on whether the lexicon and the morphological component have the resources to interpret whatever the syntax throws its way.

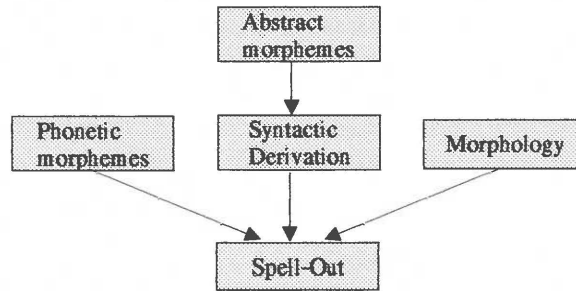
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(1)



*Lexicalist model*



*'Late insertion' model*

Both approaches provide coherent pictures of how the grammar may work, in our view (and as Marantz (1997) emphasizes). Sensible intermediate positions are also possible: derivational morphology might be supplied by the lexicon prior to the syntactic derivation, and inflectional morphology could then be added in a some later point. A choice between all these alternatives can only be made on empirical grounds.

In the domain of the functional categories and inflection, recent work in binding theory already appears to support the second approach, with word choice determined by the syntactic derivation. Arguments include those of Reinhart and Reuland (1991); Johns (1996); Taraldsen (1996); Burzio (1998); Fox (1999); Richards (1997); Authier (1999). Johns (1996), for example, shows that the 'anaphoric agreement' form of an Inuktitut verb is used in preference to the a simpler inflected form whenever the derivation permits this. A similar preference principle affects the choice between reflexive *sig* and simple pronoun forms in Icelandic (Taraldsen, 1996). In both cases, the choice between two forms is established on the basis of a set of principles defined on a syntactic configuration.

Our intention in this paper is to demonstrate that the same type of argument can be applied to the valence-marking derivational morphology in Algonquian verbs. We show that the choice of so-called valence-markers is determined on the basis of syntactic configurations which are not themselves involved with the predicate-argument relations between the components of a simple sentence. The upshot is that some substantial portions of derivational morphology cannot be included in the verb until the syntactic derivation has taken place (at least up to the local phase spell-out level), so that 'late insertion' must be taking place.

## 2 Understanding the person hierarchy

One of the phenomena for which Algonquian languages are renowned is the so-called *person hierarchy*: an apparent ranking of arguments within a clause following the pattern in (2).

- (2) *Person hierarchy*  
 2nd > 1st > 3rd > (obviative 3rd >) inanimate (3rd)

(The proximate/obviative distinction participates in the hierarchy, but in ways which do not affect the substance of our argument, so we will set this distinction aside to keep the complexity of the data under control.)

The hierarchy controls, among other things, which argument can be signalled by the presence of a preverbal clitic element when both 1st and 2nd persons are present, or which clitic is used for the 1st person inclusive forms. Thus, in (3a), the 2nd person subject clitic *tshi-* wins out over the 1st person object clitic *ni-*, and in (3b), the 2nd person feature beats out the 1st person feature in the morphological expression of the 1st inclusive subject.

- (3) a. *Tsh-uâpam-in.* vs. \**N-uâpam-in.*  
 2-see-2/1      1-see-2/1  
 'You see me.'

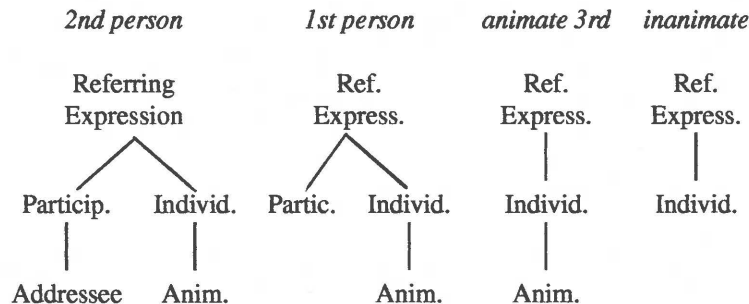
- b. *Tshi-petu-ânân.* vs. \**Ni-petu-ânân.*  
 2-hear-1<sub>INC</sub>/3      1-hear-1<sub>INC</sub>/3  
 ‘We (you and me) hear it’

The effect of the hierarchy is also seen in the choice between direct and inverse forms of *transitive animate* verbs, i.e. transitive verbs which have an animate object. Where the subject is more highly ranked by the hierarchy than the object, a direct form of the verb is used; otherwise, an inverse form is used.

The formal nature of the person hierarchy has been a matter of some dispute. Although its effects must be captured somehow in any account of Algonquian grammar, there is more than one way to try to do so. For example, Bloomfield (1962) and Perlmutter and Rhodes (1988) implement the hierarchy in the syntax: for them, it regulates the relative positions of subject and object in a syntactic representation, with subjects required to be more highly ranked than objects. We find Dahlstrom’s (1986) arguments against this approach compelling. And our own data also shows that an account of the hierarchy based on grammatical functions is not tenable, as you will see.<sup>2</sup>

The alternative is to treat the person hierarchy as something which regulates the morphology. Happily, recent work in the hierarchical organisation of morphological features by Bonet (1991), Noyer (1992), Harley (1994), Ritter (1997), Harley and Ritter (1999), Brittain (1999) and others suggests a way to do so. We begin with the idea that at least some morphological features are privative, and that the distinction between elements in the person hierarchy is as illustrated in (4), based on the feature structures in Ritter (1997).

(4) **Feature structures**



(We relabel Ritter’s Class node as Animate, simply as a matter of convenience.)

Given the distinctions in (4), the principle which governs the choice of clitics can be stated as *Maximize φ*.

(5) **Maximize φ**

When a choice between two morphological forms is possible, use the form which uses the maximal set of φ-features.

(We assume that *Maximize φ* belongs to a larger family of preference principles, including, for example, the Avoid Pronoun principle (Chomsky, 1981), and others.)

This principle governs a choice between two forms at some point in the derivation before lexical insertion is complete. It is incompatible with the strict lexicalist model, because if it applied before lexical items were introduced into the derivation, it would ensure that only the 2nd person forms of any inflected word could appear. With a late insertion model, however, we may view *Maximize φ* either as an interface condition, governing Spell-Out, or as a persistent constraint on the syntactic derivation, governing which features are preserved until the PF interface is reached.

In (3a) and (3b), the 2nd person clitic forms will then be required over the 1st person clitic forms because there are more φ-features in the former. The same principle will in fact ensure that 3rd person clitics give way to 1st person clitics in possessed nouns with 1st person exclusive (‘she and I’) subjects: (6).

<sup>2</sup>Déchaine and Reinholtz (1998) also appear to use the hierarchy as a means of filtering syntactic representations. Dahlstrom’s (1986) arguments have less force in this case, but the data discussed in section 3 below still indicates that no syntactic hierarchy is tenable.

- (6) a. *n-îshinân* vs. *\*u-îshinân*  
 1-place 3-place  
 'our place (mine and hers)'  
 b. *tsh-îshinân* vs. *\*n-îshinân*  
 2-place (INC) 1-place (INC)  
 'our place (yours and mine)'

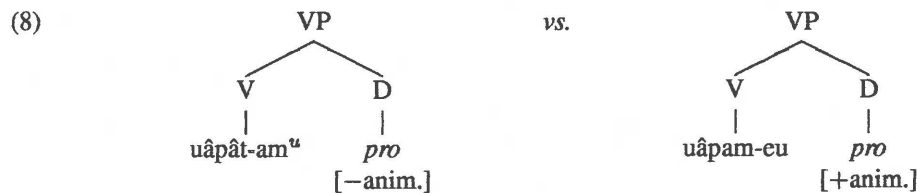
Now let us consider the way *Maximize  $\phi$*  interacts with the distinctions at the right edge of the person hierarchy, that is, with the difference between animate and inanimate arguments. Here the most interesting effects of the *Maximize  $\phi$*  are seen when we examine the morphology of transitive verbs with animate and inanimate objects.

In Algonquian languages, the transitivity of a verb is usually transparently reflected in both the derivational and the inflectional morphology. Transitive verbs are typically distinguished from intransitive verbs by the presence of valence-marking derivational suffixes. These valence-marking suffixes are themselves subject to a more fine-grained split based on the animacy features of the object. Transitive verbs may appear as either TI (transitive inanimate) or TA (transitive animate) forms, depending on the animacy features of a non-subject DP with which they agree. (Animacy in Algonquian is a gender feature, rather than a semantic notion.) The two forms differ in both inflectional morphology and derivational morphology, with TI forms often derived from a TA base. The difference between the two is illustrated for Innu-aimûn in (7).

- (7) a. *Uâpam-eu* (TA)  
 see-3/3  
 She sees her.  
 b. *Uâpât-am<sup>u</sup>* (TI)  
 see-3  
 She sees it.

In (7a), the stem *uâpam-* takes a 3rd person inflectional suffix which indicates that both subject and object are animate 3rd persons. In (7b), the derivational suffix *-t* is added to the TA stem to form a TI verb, which appears with the agreement suffix *am<sup>u</sup>* with 3rd person subjects. (The original *m* in the TA stem disappears by regular phonological rules.)

In lexicalist analyses, the difference between TA and TI forms has usually been treated as something akin to a selectional relation between a verb and its direct object, where the inflectional suffix morphology then reflects a typical object-agreement relationship between the verb and an argument in the proper syntactic position:



At the same time, the TA/TI derivational morphology will often determine the valency of the verb, since intransitive verbs generally have a different set of derivational suffixes. On lexicalist assumptions, this derivational morphology is responsible for 'projecting' syntactic structure, in the sense of the Projection Principle Stowell (1981); Chomsky (1981). The choice between a TA or a TI form in a given derivation is then simply a lexical choice, reflecting the meaning which the speaker intends to express.

The *Maximize  $\phi$*  principle allows an alternative interpretation of the relationship between TA and TI forms. Suppose we were to say that both TA and TI forms are compatible with animate objects, simply because in both cases, an animate object has sufficient  $\phi$  features to allow the verb to check and eliminate all of its own uninterpretable  $\phi$  features. (TA forms used with inanimate objects will necessarily crash the derivation.)

We would then expect both (9a) and (9b) to be grammatical, contrary to fact.

- (9) a. *N-uâpam-âu Pân.*  
 1-see-1/3 Paul  
 b. \**N-uâpât-en Pân.*  
 1-see-1 (TI) Paul  
 'I see Paul'

However, in this situation, there will always be a choice to make between the TA or TI form of the verb. And the choice can be resolved by *Maximize  $\phi$*  in favor of the TA form of the verb, so that TI forms will in fact appear only with inanimate objects. (We should point out that this treatment is very close to the analysis of TA/TI alternations put forward by Piggott (1989). Piggott attributes the choice of the TA over the TI form to a morphological Blocking Principle: a form of the Elsewhere Condition.<sup>3</sup> The *Maximize  $\phi$*  principle (combined with the feature structures in (4)) improves on Piggott's formulation in two respects: it provides an account of person hierarchy effects other than the TA/TI distinction, and it does not rely on a lexicalist treatment of argument structure alternations. The importance of the second point will become clear as we proceed.<sup>4</sup>

To illustrate the effect of *Maximize  $\phi$* , consider the contrasts in (10) and (11).

- (10) a. *Ni-mishku-âu ishkueu.*  
 1-find-1/3 woman  
 b. \**Ni-mishk-en ishkueu.*  
 1-find-1 woman  
 I found the woman.
- (11) a. \**Ni-mishku-âu mashinaikan.*  
 1-find-1/3 book  
 b. *Ni-mishk-en mashinaikan.*  
 1-find-1 book  
 I found the book.

In the grammatical (10a), the verb agrees in a full set of  $\phi$ -features with its object, *ishkueu*. In the unacceptable (10b), the sentence structure is fine, and the derivation converges, but the verb does not agree in all  $\phi$ -features with its object. Since full agreement is possible, (10a) is the preferred case, and (10b) is excluded.

The reverse situation obtains in (11). In (11a), the TA form *nimishkueu* bears a gender feature which cannot be checked against the features of the object *mashinaikan*, so the derivation crashes. There is no alternative to the (11b) example, so the TI form is permitted.

As in Piggott's analysis, the virtues of which we inherit, the analysis of the TA/TI distinction based on *Maximize  $\phi$*  allows us to make sense of some otherwise peculiar breakdowns in the relationship between verbal morphology and transitivity. It is well established in the Algonquianist literature that the relationship between semantic transitivity and morphological valence is not a one-to-one mapping. Instead, there exist a number of semantically transitive verbs which may contain no object agreement morphology, and no distinction between animate and inanimate objects: the so-called 'pseudo transitive' verbs. Some Algonquin examples (from Piggott) can be seen in (12)–(13).

- (12) a. *gimo:di jî:ma:n.* (Algonquin: Piggott (1989))  
 steal-3 canoe (inanimate)  
 'He steals a canoe.'

<sup>3</sup>Piggott's principle is given as:

- (15) A verb containing an unidentified y-argument may not assign its theta-role to an NP specified as [+animate] if it is related to a verb with an identified ([+animate]) y-argument.

As will be shown, the argument structure of TA/TI forms has nothing to do with the choice of one over the other, so Piggott's principle is insufficient.

<sup>4</sup>Anderson (1997) makes a similar suggestion in a stimulating treatment of Fox animacy constructions, to which we are indebted. He would not, we suspect, concur with the way we implement this idea in our particular theoretical matrix.

- b. *gimo:di miši:mîn*  
steal-3 apple (animate)  
'He steals an apple.'

In our view, the fact that no object agreement is found in such cases simply reflects a gap in the lexicon: these verbs are those for which no TA alternant exists, so that the *Maximize  $\phi$*  principle, which controls the choice between two lexical items, simply does not apply.

### 3 The 'Copy-to-Object' construction

Now that we have the basic idea in place, we turn to an argument that this idea is the right one. (We haven't made any real argument yet; we have shown only how *Maximize  $\phi$*  might work. Evidence that *Maximize  $\phi$*  is truly necessary comes from an examination of the so-called 'copy-to-object' construction, examples of which appear in (13)-(15).

- (13) a. *Ni-tshissenit-enân mûpishtuât Shûshepa Tshân mâk Mânî.*  
1-know-1pl visit Joseph John and Marie  
'We know that John and Mary visited Joseph.'
- b. *Ni-tshissenim-ânân-at mûpishtuât Shûshepa Tshân mâk Mânî.*  
1-know-1pl-3pl visit Joseph John and Marie  
'We know that John and Mary visited Joseph.'
- (14) a. *Ni-tshissît-en kâ-ûitshî-shk Pûn ûtâûa.*  
1-remember-1 prt-helped-3/2 Paul father  
b. *Tshi-tshissîtâ-tin kâ-ûitshî-shk Pûn ûtâûa.*  
2-remember-1/2 prt-helped-3/2 Paul father  
'I remember that Paul's father helped you.'
- (15) a. *Ni-tshissenit-en Pûn kâ-mûpishî-shk.*  
1-know-1 Paul prt-visited-3/2  
'I know that Paul visited you.'
- b. *Ni-tshissenim-âu Pûn kâ-mûpishî-shk.*  
1-know-1/3 Paul prt-visited-3/2  
'I know that Paul visited you.'

The significance of this construction for understanding Algonquian morpho-syntax has been clear since Frantz's (1978; 1980) early studies of the Blackfoot case. As Massam (1985) observes, this type of data provides us with structures in which the thematic relation between a verb and its complement can be distinguished from the agreement relation that a verb enters into. In this respect, copy-to-object is like English ECM.<sup>5</sup>

Copy-to-object has the following superficial characteristics: it occurs optionally when a matrix predicate takes a clausal complement. The matrix verb then agrees with an animate argument (null or overt) within the complement clause as if it were its object. If this optional agreement takes place, the target of agreement is interpreted as either a *wh*-operator, a focus, or a topic of the complement clause.<sup>6</sup> Thus, in

<sup>5</sup>As an aside, we should point out that copy-to-object agreement is important for other issues in Algonquian linguistics. As a sentence like (i) shows, matrix verbs can have inverse voice morphology triggered by a subject copy agreement pattern.

- (i) *Peter tsh-û tshissenim-ik<sup>u</sup> tshetshî mâ uâpamîtâkuenî kâmatshishinîshî.*  
Peter 2-want know-3/2inv if meet-2/3 jerk  
'Peter wants to know if you met the jerk.'

Such a pattern is difficult to reconcile with accounts of inverse morphology which are based directly on argument structure alternations.

<sup>6</sup>Other studies of the construction have found examples in which a non-argumental benefactive noun is used as a target of agreement. We have not managed to find such data in Innu-aimûn. Although it is not clear to us what the best analysis of such cases would look like, we do not consider them inherently problematic for our approach, especially given the general cross-linguistic thorniness of benefactives in syntactic analysis.

(13b), *Tshân mâk Mânî* is the topic of the complement clause and in (15b), an understood 2nd person is the topic of the complement clause.

First, some background. Most recent generative work on object agreement has started from the assumption that agreement proceeds hand-in-hand with Case assignment (checking). Case features are checked at the head of an A-chain, so it follows that agreement will typically target the head of an A-chain as well. In cases where agreement appears on a non-Case-checking head, such as a passive participle, for instance, this is understood to be the effect of an intermediate trace in an n-ary A-chain, the head of which is again in a Case-checking position. In recent years, this view can be traced back to Kayne's seminal work on French past and passive participle agreement (Kayne, 1989), although there are probably more distant antecedents.

Object agreement in Innu-aimûn has a different character. Although in the simplest cases, the target of agreement appears initially to occupy an A-position where Case might be checked by the agreeing verb (as in simple mono-clausal object agreement), agreement in Copy-to-Object may also target operator DPs which appear in an A-bar position, as well as non-operator DPs which already have Case checked by some other head. We will examine each type of agreement target in turn.

### 3.1 Operator targets of LDA

Beginning with the operator targets, we find that the matrix verb can target focus phrases and wh-phrases in a complement clause, both of which obligatorily raise to Spec-C in Innu-aimûn. In (16a-b), for example, the matrix verb agrees with the interrogative pronoun *auen* in the complement clause; in (16c), with the plural wh-phrase *tânîtât innûat*. In the examples in (17), agreement is with a focus *muk<sup>u</sup> Mânî*.

- (16) a. *Tshi-tshissenim-âu-â auen ka-pâpîtaka?*  
2-know-2/3-Q who is laughing  
'Do you know who is laughing?'
- b. *Nîn apû tshissîtâ-k auen uîeueshtât utshimâua utâpânnu.*  
I not remember-1/3 who fixed boss truck  
'I don't remember who fixed the boss's truck.'
- c. *Tshi-tshissenim-âuat-â tânitât innûat tshe-takushinit?*  
2-know-2/3pl-Q how many people fut-arrive  
'Do you know how many people are coming?'
- (17) a. *Ni-tshissîtu-âu Mânî muk<sup>u</sup> uîtshiepan Ânîua.*  
1-remember-1/3 Marie only helped Annie  
'I remember that only Marie helped Annie.'
- b. *\*Ni-tshissîtu-âu uîtshiepan Ânîua Mânî muk<sup>u</sup>.*  
1-remember-1/3 helped Annie Marie only
- c. *Ni-tshissîtu-âu muk<sup>u</sup> Mânî uâtshît.*  
1-remember-1/3 only Marie help-3/1  
'I remember that only Marie helped me.'

The position of these clause-initial operator phrases is fairly transparent. As both wh-phrases and focal phrases occupy Spec-CP, they cannot co-occur in a single clause, as seen in (18).

- (18) *?\*Auen uîtshiepan muk<sup>u</sup> Pâna?*  
who helped only Paul  
'Who helped only Paul'

For the same reason, multiple wh-questions are impossible in Innu-aimûn, as the (19)–(20) examples show.

- (19) a. *Auen uîtshiepan Pâna enîshutshîshikânit?*  
who helped Paul Tuesday  
'Who helped Paul on Tuesday?'

- b. \**Auen uítshiepan Pána tânite?*  
 who helped Paul when  
 ‘Who helped Paul when?’
- (20) a. \**Tshek<sup>u</sup> ishkuieu uátshiât auenua?*  
 which woman helped who  
 ‘Which woman helped whom?’
- b. \**Tshek<sup>u</sup> ishkuieu auenua uátshiât?*  
 which woman who helped

The data in (21) shows that it is possible to have both a focus and a wh-phrase in the same sentence, as long as they do not compete for the same syntactic position.

- (21) *Ánĭ muk<sup>u</sup> n-uítamû-â tshekuánnû kuet tshítúte-nitshĭ Mânĭua nete Mûniânĭt.*  
 Annie only 1-told-1/3 why go-3obv Marie that Montreal  
 ‘I told only Annie why Marie went to Montreal.’

The fact that matrix verb agreement can target operators in an A-bar position is sufficient to show that Copy-to-Object agreement in Innu-aimûn does not correspond to any Case-checking relation, or to the argumental syntax at all. Operator positions are not susceptible to Case-checking, or to hosting the heads of A-chains. Instead, Copy-to-Object agreement fits into the A-bar syntax—the class of syntactic operations which form operator-variable chains (among others), where the tail of the chain typically has an argumental role to play, but where the head has some other semantic function, often quantificational in nature.

### 3.2 The Topic Effect

Now consider the Copy-to-Object agreement which relates a matrix verb to a non-operator in the complement clause. Again it is necessary to distinguish the agreement relation in Copy-to-Object from the Case-related checking relation found in English ECM. In English ECM examples like (22), a special Case-checking relationship is possible between a matrix verb and the subject of a complement clause because the subject is not checked by a more local head.

- (22) We believe [ them to have visited Joseph ].

The Innu-aimûn Copy-to-Object data looks quite different. Consider the data in (23). There is no obvious justification for supposing that Case is checked on the subject in (23a) but not on the subject in (23b); the form of the complement clause is identical in both cases.

- (23) a. *Ni-tshissenit-enân mûpishtuât Shûshepa Tshân mâk Mânĭ.*  
 1-know(TI)-1pl visit Joseph John and Marie  
 ‘We know that John and Mary visited Joseph.’
- b. *Ni-tshissenim-ânân-at mûpishtuât Shûshepa Tshân mâk Mânĭ.*  
 1pl-know(TA)-1pl-3pl visit Joseph John and Marie  
 ‘We know that John and Mary visited Joseph.’

Similar conclusions can be drawn from examples like (24), where the matrix verb agrees with the embedded clause object, rather than with the subject.

- (24) a. *Mâ tshi-tshissenim-âu tshetshĭ matuet-uk Mânĭ.*  
 Q 2-know-2/3 if called-1/3 Marie  
 ‘Do you know if I called Marie?’
- b. *Mânĭ ni-tshissitâ-kâ nenua kâ-uítsh-iminitshĭ Pána útâutnâ.*  
 Marie 1-remembered-3/1 past-helped-3/1 Paul father  
 ‘Marie remembered that Paul’s father helped me.’

Copy-to-Object is unlike ECM in another respect. When agreement is with a non-operator, the target of agreement is always interpreted as the topic of the complement clause.



Topic-based Copy-to-Object is less constrained by word order than operator-based Copy-to-Object is. Unlike *wh*-phrases and foci, topics need not appear at the left periphery of the complement clause. Thus, in example (23b), the matrix verb agrees with the plural subject of the complement clause which is situated at the right periphery.

- (25) a. *Ni-tshissît-en kâ-ûitshî-shk Pân ûtâûa.*  
 1-remember-1 prt-helped-3/2 Paul father  
 b. *Tshi-tshissîtâ-tin kâ-ûitshî-shk Pân ûtâûa.*  
 2-remember-1/2 prt-helped-3/2 Paul father  
 'I remember that Paul's father helped you.'

Subject copy agreement cannot be with a topic which is too far away, though. Thus, a topic DP contained within a second embedded clause is inaccessible, as in (26), as is a topic DP contained inside another DP or a conjunction structure, as in (27) and (28).

- (26) \**Tshi-tshissîtâ-tin kâ-kuetshitshemu-iân tân ishpish tshi-pâpî.*  
 2-remember-1/2 past-ask-1 when 2-laughed  
 'I remember that I asked when you laughed.'
- (27) a. *Mishta ûitshiâushû tshi-tânish it-eu Shûshep.*  
 very helpful 2-daughter said-3/3 Joseph  
 'Joseph said that your daughter is very helpful.'  
 b. \**Mishta ûitshiâushû tshi-tânish tshit-it-ik<sup>u</sup> Shûshep.*  
 very helpful 2-daughter 2-said-3/2 (INV) Joseph  
 'Joseph said that your daughter is very helpful.'  
 (Good under the interpretation: 'Joseph said to you that your daughter is very helpful.')
- (28) a. *N-ûî tshissenit-en tân ishpish Pân mâk tshîn tshi-natshipetûtâu.*  
 1-want know-1 when Paul and you stopped  
 'I want to know when Paul and you stopped.'  
 b. \**N-ûî tshissenim-âu tân ishpish Pân mâk tshîn tshi-natshipetûtâu.*  
 1st-want know-3 when Paul and you stopped

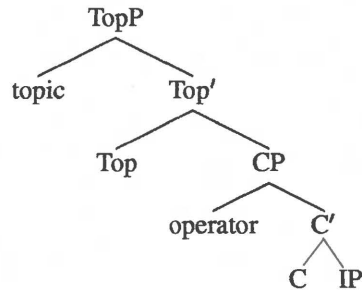
The free positioning of the topic extends still further. Topic phrases targeted in Copy-to-Object may optionally appear to the left of complementisers and *wh*-phrases, as illustrated in (29).

- (29) a. *Ni-tshissîtu-âu tshekuânnû kuet itûtet Mûniânit Mânî.*  
 1-remember-1/3 why go-3 Montreal Marie  
 b. *Ni-tshissîtu-âu Mânî tshekuânnû kuet itûtet Mûniânit.*  
 1-remember-1/3 Marie why go-3 Montreal  
 'I remember why Marie went to Montreal.'

This optional placement raises two questions: first, the question of what position a topic occupies when it appears to the left of C, and secondly, the question of how the optionality itself can best be characterised.

The first question is relatively easy. The topic appears to the left of C when it has moved there in the course of the derivation. The most likely landing site would be a specifier for a variant of CP which attracts topics: a Top(ic)P, appearing immediately above a lower CP.

(30)



This structure corresponds to what Hale (1987) and Kiparsky (1995) propose for Proto-Indo-European and proto-Germanic, respectively.

The structure of (29b) will then be (31).

(31) [<sub>VP</sub> V [<sub>TopP</sub> *Mânî* [<sub>CP</sub> *tshekuânnû kuet* [<sub>IP</sub> *itâtet Mûniânit* ]]]]

By analogy, we may suppose that clause-initial topics occupy a specifier position in TopP even when it is non-visible *pro*, or when no complementiser or operator is visible to their right. Then example (32) will have the structure (33), while (15b) will have the structure (34)

(32) *Mânî ni-tshissîtâ-kâ nenua kâ-ûitsh-iminitshî Pûna ûtâuînú.*  
Marie 2-remembered-2/1 this past-helped-3/1(INV) Paul father  
'Marie remembered that Paul's father helped me.'

(33) *Mânî ni-tshissîtâ-kâ* [<sub>TopP</sub> *pro*<sub>i</sub> [<sub>CP</sub> [<sub>IP</sub> *ne kâ-ûitsh-iminitshî t<sub>i</sub> Pûna utâuînú* ]]]]

(34) *Ni-tshissenim-âu* [<sub>TopP</sub> *Pûn<sub>i</sub>* [<sub>CP</sub> [<sub>IP</sub> *t<sub>i</sub> kâ-mûpishtâ-shk pro* ]]]]  
1-know-3 Paul prt-visited-3/2 you  
'I know that Paul visited you.'

We may suppose that Top checks a [+topic] feature on the argument it attracts, while C checks [+wh/+focus] features on its specifier. Furthermore, if Innu-aimûn topicalisation patterns with topicalisation in languages like Italian (Rizzi, 1995) or English (Safir, 1999), then we should expect 'vehicle change' to take place so that trace of the topic will be interpreted as a pronoun.

### 3.3 Topics *in situ*

The question of optionality is somewhat more delicate. We might entertain the idea that topics simply optionally remain *in situ* in Innu-aimûn, perhaps with a subsequent LF/covert movement into the specifier position of the Topic Phrase. Then the optionality in topic placement simply reflects a freedom in the point in the derivation where topic movement takes place: pre-Spell-Out or post-Spell-Out. We will not pursue this course, primarily because it is difficult to account for the locality constraints on Copy-to-Object agreement if we suppose that topics are simply left in place inside their clause until after Spell-Out.

In place of an LF-movement account, we will assume Pesetsky's (1998) theory of how chain Spell-Out takes place.<sup>7</sup> Based on some very complicated data from multiple-wh questions and antecedent-contained deletion, Pesetsky argues that some overt, pre-Spell-Out wh-movement is not reflected in the surface position of the wh-phrase, because the A-bar chain in question has its phonetic content pronounced at the position of the foot of the chain. In English (35), for example, where the object wh-phrase is pronounced in object position, Pesetsky shows that the syntactic structure must be (36), with the object wh-phrase in Spec-CP.

(35) a. Who has written what for Sarah?  
b. [<sub>CP</sub> *who<sub>i</sub>* [<sub>CP</sub> *what<sub>j</sub>* [<sub>IP</sub> *t<sub>i</sub> has written t<sub>j</sub> for Sarah* ]]]]

<sup>7</sup>Bobaljik (1995) and Fox and Nissenbaum (1999) provide additional arguments that covert movement should be interpreted in terms of chain Spell-Out.

Let us suppose that something similar is possible in Innu-aimûn topicalisation. Specifically, we suppose the right descriptive generalisation is the *Topic Spell-Out Rule*: (36).

(36) **Topic Spell-Out Rule**

A chain in which the head is a specifier for a Topic Phrase may be pronounced in the position of its foot.

Then the actual syntactic structure for example (23b) will be (37).

- (23b) *Ni-tshissenim-ânân-at mûpishtuât Shûshepa Tshân mâk Mânî.*  
 1pl-know-1pl-3pl visit Joseph John and Marie  
 ‘We know that John and Mary visited Joseph.’

- (37) *Ni-tshissenim-ânân-at* [<sub>TopP</sub> *Tshân mâk Mânî*; Top [<sub>IP</sub> *mûpishtuât Shûshepa t<sub>i</sub>* ]]

Although *Tshân mâk Mânî* is the specifier in TopP, it is pronounced inside the clause at the position of the trace.

Pronunciation of topic chains at the head—in clause-initial position—is in fact the marked option. It occurs only when the topic is checked by the matrix predicate. Thus, we do not find topics in front of operators in root clauses.

- (38) \**Mânîua auen mûpishtueu?*  
 Marie who visited  
 ‘Who visited Marie?’

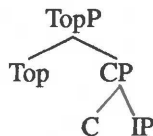
### 3.4 Phase theory

We still have to say something about the locality constraints on SC agreement. As already shown in (26), (27) and (28), agreement is blocked by a familiar set of islands: multiply embedded clauses and complex noun phrases. Some form of the subjacency condition is evidently active in Copy-to-Object. Suppose we adopt Phase theory and the Phase Impenetrability Condition (PIC) (Chomsky, pear, 1999): listed in (39).

- (39) a. *Phase theory*:  
 CP and vP are (strong) phases.  
 b. *Phase Impenetrability Condition (PIC)*:  
 Only the head and specifier of a (strong) phase are accessible to operations outside the phase.

The PIC constrains agreement, just as it constrains movement. The effect of the PIC for Copy-to-Object agreement will be that a matrix verb should be able to agree with a target in the specifier position of its CP complement, but not with anything more deeply embedded in the complement clause. Given the structure (40)—where both TopP and CP count as phases—only a specifier for TopP will be accessible for any operation in the matrix clause. Anything within CP will be inaccessible, including the contents of IP and any CP specifier.

- (40)



The PIC provides an immediate account of the pattern of SC-agreement when a complement clause contains both a preposed topic and a wh-phrase, as in (29b). Although agreement with an operator is otherwise optional, agreement in these cases can only be with the topic. This follows from the PIC because only the specifier of TopP will be accessible with the structure (31).

On the other hand, the fact that agreement is possible at all with operators is not automatic. If operators are contained within CP, then they should not be accessible to the matrix predicate. But we need

only suppose that operators themselves may raise to the specifier position of a TopP to accommodate the operator agreement cases. Thus, (16c) will have the structure (41) and (17a), the structure (42).

- (41) *Tshi-tshissenim-âuat-â* [<sub>TopP</sub> *tânitât* *innûat*<sub>i</sub> [<sub>CP</sub> *t*<sub>i</sub> C [<sub>IP</sub> *t*<sub>i</sub> *tshe-takushinit?* ]]]  
 2-know-2/3pl-Q how many people fut-arrive
- (42) *Ni-tshissîtu-âu* [<sub>TopP</sub> *Mânî* *muk*<sup>u</sup><sub>i</sub> [<sub>CP</sub> *t*<sub>i</sub> C [<sub>IP</sub> *t*<sub>i</sub> *uîtshiepan Ânîua.* ]]]  
 1-remember-1/3 Marie only helped Annie

(Topicalisation of operators from Spec-C to a higher position is attested in German imperatives (Reis and Rosengren, 1992).)

The idea that operators are topicalised when they serve as matrix agreement targets corresponds fairly well to the informal distinction which our informants make in the senses of the agreeing and non-agreeing forms.

### 3.5 Exceptions to the Topic Effect

Despite the fact that topics must agree with the matrix verb in the Copy-to-Object agreement examples, it is not the case that topics always agree with a matrix verb. Complement clause topics are also possible with non-agreeing matrix verbs when the right conditions obtain. When the matrix verb is an AI verb, which is to say a verb which has no TA alternant, then it cannot agree with anything in the complement clause. However, the lack of agreement does not mean that the complement clause has no topic.

- (43) a. *Ni-kuketshitemâ tshetshî mâ mûpishtûâkuenit ukâûûû Pân mâk Mânî.*  
 1-asked(AI) if visit-3pl mother Paul and Marie  
 'I asked if Paul and Marie visited their mother.'
- b. *Peter ni-kuetshim-â tshetshî mâ mûpishtûâkuenit Pân mâk Mânî ukâûûû .*  
 Peter 1-asked-1/3 if visit-3pl Paul and Marie mother  
 'I asked Peter if Paul and Marie visited their mother.'

In (43), either *Pân mâk Mânî* 'Paul and Marie' or *ukâûûû* 'their mother' can be understood as the topic of the complement clause. Similarly, in (44), where the matrix verb is a TA form with a goal argument, the complement clause can be understood as having either its *auen* or the object *Mânî* as the topic.

- (44) a. *Tshi-kuketshim-in auenua mûpishtâkupan Mânî.*  
 2-ask-2/1 who visited-3 Marie  
 b. *\*Tshi-kuketshim-âu auenua mûpishtâkupan Mânî.*  
 2-ask-2/3 who visited-3 Marie  
 'You asked me who visited Marie.'

## 4 Maximize Agree and the Topic Effect

The central problem raised by the Topic Effect is that topics are obligatorily associated with Copy-to-Object agreement sometimes while they are independent from Copy-to-Object agreement other times. This pattern is difficult to derive in any principled fashion from conventional constraints on movement. If movement of a topic DP to Spec-C is driven by features internal to its own clause, then the agreement features on a higher verb can have no effect on whether topicalisation occurs. On the other hand, if a topicalisation interpretation in a complement clause is possible only with a checking relationship with a matrix verb, then topicalisation should not be possible in contexts where that matrix verb is not available.

The *Maximize  $\phi$*  principle provides a solution. Let us suppose that topicalisation of DP in any clause is driven by the need to check a [+topic] feature on DP against a matching C, i.e., by the usual mechanisms. Then root clauses will permit topicalisation freely, as will embedded clauses in which a matrix verb is not available for Copy-to-Object agreement, as with the intransitive verb in (43a) and the ditransitive verb in (43b).

In none of these cases will we find any relationship between topicalisation and the morphology of a matrix verb, either because there is no matrix verb or because the matrix verb is unable to participate in

Copy-to-Object agreement in any case. The only time that *Maximize  $\phi$*  will have any effects on the derivation is when there is a choice to be made between a non-agreeing matrix TI verb and an agreeing matrix TA verb. The pertinent cases are in (45) and (46).

- (45) a. ... verb-TI [<sub>TopP</sub> [<sub>CP</sub> [<sub>TP</sub> ... DP ... ]]]  
 b. ... verb-TA [<sub>TopP</sub> [<sub>CP</sub> [<sub>TP</sub> ... DP ... ]]]
- (46) a. ... verb-TI [<sub>TopP</sub> topic [<sub>CP</sub> [<sub>TP</sub> ... DP ... ]]]  
 b. ... verb-TA [<sub>TopP</sub> topic [<sub>CP</sub> [<sub>TP</sub> ... DP ... ]]]

In (45), the only possible choice is (45a), since the matrix verb cannot check the DP inside the complement clause (due to the PIC). Choosing (45b) leads to a derivation crash, since the  $\phi$ -features of the matrix verb cannot be checked.

In (46), however, both choices lead to convergent derivations: the TI choice (45a) is convergent because the default agreement need not be checked; the TA choice (46b) is permitted because the matrix verb can check  $\phi$ -features on the topicalised DP. At this point, *Maximize  $\phi$*  can settle what the right choice must be by ruling in favor of the TA form in (46b).

## 5 Consequences

The small corner of the grammar in which Copy-to-Object operates shows that TA agreement reflects an A-bar operation and that *Maximize  $\phi$*  is necessary. That being established, we can now look at other areas of the grammar to see what other effects these findings might have. To begin with, it now looks like TA agreement in simple sentences might also be analysed as A-bar agreement, rather than as Case-related agreement.

- (47)  $\begin{array}{c} \text{A-bar} \\ \downarrow \\ \text{mueshtât -eu} \quad \text{pro} \\ \text{miss} \quad 3/3 \\ \text{'She misses him.'} \end{array}$

And in fact, the historical source of object agreement inflection with third person subject forms of the verb appear to support this reduction. As Goddard (1974, 1967) has shown, third person TA forms in the independent mode are derived from proto-Algonquian forms used to signal definiteness of the object. A distinct agreement pattern was apparently used with indefinite objects. If definite objects were required to raise to Spec-v, as plausibly occurs in modern Icelandic, for example, then we might suppose that the agreement morphology which appeared with indefinite objects was the more familiar Case-related variety of object agreement, and that agreement with definite objects reflected the features which trigger A-bar movement to Spec-v, which we may take to be A-bar features rather than Case features.

- (48) a.  $\begin{array}{c} \text{vP} \\ \swarrow \quad \searrow \\ \text{subj} \quad \text{v}' \\ \quad \quad \swarrow \quad \searrow \\ \quad \quad \text{v} \quad \text{VP} \\ \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad \text{V} \quad \text{obj} \end{array}$   
*indefinite agreement*
- b.  $\begin{array}{c} \text{vP} \\ \swarrow \quad \searrow \\ \text{obj} \quad \text{v}' \\ \quad \quad \swarrow \quad \searrow \\ \quad \quad \text{subj} \quad \text{v}' \\ \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad \text{v} \quad \text{VP} \\ \quad \quad \quad \quad \swarrow \quad \searrow \\ \quad \quad \quad \quad \text{V} \quad \text{t} \end{array}$   
*definite agreement*

The distinction between the two agreement patterns is neutralised in modern Innu-aimûn (and other central Algonquian languages). The simplest account of this development is that all morphological reflexes of the Case-related object agreement disappeared from the grammar so that only the A-bar agreement pattern remains active in the contemporary language.

Now let us return to the issue which we began with: the question of the relationship between morphology and syntax, and in particular, of the relationship between valence-marking derivational morphology and the syntactic derivation. If the analysis of Copy-to-Object-agreement in terms of the *Maximize  $\phi$*  principle is on the right track, then we now have an argument in favor of ‘late insertion’ of valence-marking suffixes in Innu-aimûn.

Take the verbal pair in (49) for example.

- (49) a. tshi-tshisseni-t-en ‘you know’ (TI)  
 b. tshi-tshisseni-m-âu ‘you know’ (TA)

The (49a) form will appear with inanimate objects and with clausal complements which have nothing in Spec-TopicP; the (49b) form will be allowed with animate objects and with complement clauses with topics. We now know that the choice between two forms—and between a *-t* suffix and an *-m* suffix—cannot be based on lexical semantics or on a selection relation between the verb and its object. Either form may appear as the matrix verb taking a clausal complement. Nor are the Case properties of the verb what counts in choosing between the TI and the TA form. What counts is whether the derivation happens to bring an animate noun close enough for the verb to enter into an A-bar checking relation with it. If there is an animate direct object, then it will naturally be close enough. Otherwise, if it so happens that a complement clause includes some DP which raises to Spec-CP, for reasons having nothing to do directly with the interpretation of the matrix verb, then the TA form will become possible, and will then be used. Otherwise, the TI form is used. In both cases, however, the matrix verb bears the same semantic relationship to the complement clause. The form of the verb does not follow from its meaning. Instead, it simply reflects the way the derivation has turned out to organize particular phrases within the larger structure.

This point deserves some emphasis, because it is easy to confuse the issue in question with a different set of questions of a more mechanical type. There is a familiar terminological distinction made in recent years between *feature checking* and *feature assignment*, where the two notions refer to the same type of grammatical relationship, but where the distinction marks a difference in how this relationship is situated in the derivation.

In Case theory, for example, a feature checking operation occurs when Case features are present in both a head and a local DP from the start of the derivation, and when they then match their Case feature. A feature assignment operation, in contrast, would be one in which the Case feature originates within a Case-marking head, and is then supplied to a local DP which lacks that feature. Both operations have the effect that Case features will be matched up between a head and a DP; they differ only in how this effect is ensured, and in how the failure of Case-assignment/checking affects the rest of the derivation. In a checking theory, a derivation will crash if the appropriate features are not checked and erased; in a feature-assignment theory, a derivation fails if the appropriate features are not present in a DP at the end of the derivation.

It may seem that the issues discussed here are parallel to the distinction between these views of how inflection is used by the syntax. After all, feature-assignment is a notion which involves ‘late insertion’ of inflectional features, while feature-checking implies that features are present at the beginning of a derivation—in the numeration, in Chomsky’s 1995 model.

But our concern in this paper has been a different one. When we characterise the difference in distribution between a TA and a TI verb form in terms of the *Maximize  $\phi$*  principle, we are saying that a choice is made between two otherwise legitimate forms of the verb. Both choices permit the derivation to converge, so that there is real motivation for ‘back-tracking’ on the basis of a crash at any point, or for cancelling a derivation to permit another one to proceed. Moreover, even if a backtracking option were permissible in principle, for the specific case of subject copy agreement, it is difficult to imagine how backtracking could actually be implemented. In order for backtracking to take place, it must be possible to establish a ‘competition set’ from which one derivation might be selected when another fails. But there is no competition set to choose from: the arguments of a single predicate are not what counts in subject copy, and no other alternative comes to mind. So the choice between TA and TI forms simply cannot be made at any early stage in the syntactic derivation. Instead, when the syntactic derivation is over, there remains a choice to be made on what would be the appropriate words to use to express the syntactic structure now formed.

Ultimately, then, the portions of the verb which have traditionally been analysed as valence-marking morphology must be reanalysed. Immediately, though, we have an argument for late

insertion of derivational morphology. It remains an open question to what extent this conclusion can be made more general.

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