Varieties of INFL: TENSE, LOCATION, and PERSON

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1. Introduction

The languages of the world differ in many obvious ways. But at the same time, they are also strikingly similar. Trying to understand this tension between language diversity and identity is one the most fruitful research agendas of modern linguistic theory. Our research into two languages indigenous to North America has allowed us to gain some new insight into this problem, specifically as it pertains to the nature of functional categories. Within the Chomskyan tradition, it is often taken for granted that Universal Grammar (UG) makes available a set of functional categories with fixed content. For example, adapting Pollock's influential 1991 proposal, it is widely held that the head of the clause is a category—formerly known as INFL—which is universally associated with marking for tense. But, it has often been observed that many languages appear to lack tense marking. Thus, we find ourselves rediscovering the core observation of the American structuralists (Boas, Sapir, and Bloomfield): languages appear to differ in the categories they obligatorily need to express. We wish to show in this paper that languages do indeed differ in their categorial inventories, but at the same time we argue that this variation is constrained by a universally determined hierarchy of functional positions. That is, after careful examination of Halkomelem (Salish) and Blackfoot (Algonquian), we conclude that each of these languages appears to use different functional categories (LOCATION and PERSON, respectively), but that these categories can be analyzed as instantiating the same universal category as TENSE, namely INFL.[1] To make this case, we introduce the Parametric Substantiation Hypothesis, according to which functional categories are not uniquely associated with the same substantive content (section 2). In section 3 we argue that in Halkomelem LOCATION substantiates INFL, and in section 4 we argue that in Blackfoot PERSON substantiates INFL. We conclude in section 5 that the Parametric Substantiation Hypothesis is empirically more adequate than alternative Principles and Parameters based approaches (including the cartographic one) as an explanation for the tension between language variation and language universals.

2. Parametric substantiation as an alternative to cartography

In accordance with the theme of this book, we start with a discussion of how the problem of language-specific categorial inventories presents itself within the cartographic approach (section 2.1). We point out a problem and proceed to introduce our proposal, the Parametric Substantiation Hypothesis (section 2.2). Assuming that the substantive content of INFL is not universally fixed, it is necessary to use formal diagnostics that are independent of content to identify INFL. In section 2.3, we introduce the diagnostics we have used in this research.

2.1. A problem with the cartographic approach

In English, as in many other Indo-European languages, all finite clauses display an obligatory contrast in TENSE. That is, English finite verbs are marked as [+past] by means of a suffix (*-ed*) or an auxiliary verb (*was*) as illustrated in (1), or they are marked as [-past] (i.e., present) by means of a third person singular agreement suffix (*-s*), or a different form of the auxiliary (*is*), as illustrated in (2).

(1) a. He walk**ed**. [+past]
b. He **was** walking. [+past]

(2) a. He walk**s**. [past]
b. He **is** walking. [-past]

It is well-known, however, that not all languages display such an obligatory contrast in TENSE. For example, in Halkomelem Salish, tense marking is not required (Wiltschko 2003). Instead, finite clauses display an obligatory contrast in LOCATION.[2] This contrast is invariably expressed by means of locative auxiliaries: *li* marks a [+distal] specification as shown in (3), while *i* marks a [-distal] (i.e., proximate) specification as shown in (4).[3]

(3) lí qw'eyílex tú-tl'ò [+distal]
AUX dance he
'He is/was dancing (there).'

(4) í qw'eyílex tú-tl'ò [-distal]
AUX dance he
'He is/was dancing (here).'

Thus, an obligatory contrast in TENSE is not a language universal. But given the data above, we might hypothesize that the presence of an obligatory contrast of *some* sort is in fact a language universal. If this is correct, then the *substantive content* of the obligatory contrast is subject to parametric variation: while in English the content of the contrast is TENSE, in Halkomelem it is LOCATION. This preliminary generalization defines an interesting research agenda: How can we account for this variation in the content of the obligatory contrast?

Within the framework of cartography (Cinque 1999), the answer to this question is restricted by certain assumptions regarding the nature of UG on the one hand, and parametric variation on the other. Specifically, within this framework it is assumed that UG provides a template of functional positions with fixed syntactico-semantic content. As an illustration, consider a partial representation of a clausal structure:

(5) … [$_{\text{FINP}}$ FIN … [$_{\text{TNSP}}$ TENSE … [$_{\text{ASPP}}$ ASPECT …]]]

The positions shown in (5) are assumed to be universally available, universally organized in a hierarchical fashion, and universally associated with the same content. Accordingly, language variation is viewed as a matter of determining whether a given position is available for external or internal Merge, and whether it is overtly filled.

Within this framework, how can we account for the variation in the content of the obligatory contrast observed in English and Halkomelem? We would have to assume that both TENSE and LOCATION are part of the universal template of fixed positions. LOCATION has not yet been introduced into this universal template and thus it is not immediately obvious whether it would be situated above or below TENSE. For the purpose of illustration, let us assume that LOCATION is generated below TENSE, as illustrated in (6). We could then assume that TENSE, but not LOCATION, is available for Merge in English, while the reverse is true in Halkomelem, that is, LOCATION but not TENSE is available for Merge.

(6) [$_{\text{TENSE}}$ TENSE … [$_{\text{LOC}}$ LOC …]]]
English: [+/-past] –
Halkomelem: – [+/-distal]

The main goal of this paper is to argue that the cartographic approach to variation in the content of obligatory contrasts misses the essential characteristics of this type of variation. Specifically, we will show that TENSE in English and LOCATION in Halkomelem (as well as PERSON in Blackfoot) are functionally equivalent, formally identical, and in complementary distribution. We therefore propose an

alternative approach, namely the Parametric Substantiation Hypothesis.

2.2. The Parametric Substantiation Hypothesis

In line with the cartographic approach, we assume that UG provides a template of fixed functional positions. We depart from cartography, however, in proposing that these positions are only associated with abstract core functions rather than with fixed substantive content such as TENSE or LOCATION. We refer to this as the Parametric Substantiation Hypothesis:

(7) *The Parametric Substantiation Hypothesis:*
The substantive content of a given functional category is subject to parametric variation, constrained only by the universally determined core function of that category.

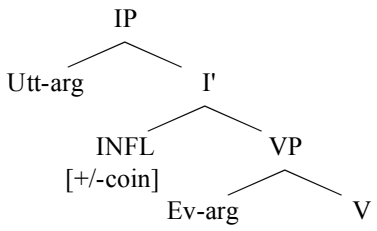
Thus, the precise substantive content is not universally fixed. For the case at hand, we therefore make use of the original label for the head hosting TENSE, namely INFL. We thus assume that UG provides the structure in (8).

(8) $[_{CP}$ COMP … $[_{IP}$ INFL … $[_{AspP}$ ASPECT …]]]

We will demonstrate that the choice of substantive content has far-reaching consequences that we can only begin to explore in this paper.

Within the framework of the Parametric Substantiation Hypothesis, we propose to account for the difference between English and Halkomelem in the following way. Abstracting away from the contribution of aspect, we assume that the universal core function of INFL is to anchor the reported eventuality (Ev) to the utterance (Utt) (Enç 1987). Specifically, we analyze INFL as a predicate of coincidence (+/-coin) (in the spirit of Hale 1986 and Demirdache and Uribe-Etxebarria 1997, 2000) which orders the eventuality encoded by the VP with respect to the utterance encoded in SpecIP.[4] As illustrated in (9), ordering proceeds via the relevant arguments in VP and IP. We assume that UG makes available participant and spatio-temporal arguments in SpecVP and in SpecIP (as in Demirdache and Uribe-Etxebarria 1997).

(9)



We further propose that the substantive content of INFL varies: in English it is TENSE, in Halkomelem it is LOCATION, and in Blackfoot it is PERSON, resulting in different varieties of the category INFL (10). We represent these different subcategories as $INFL_{TENSE}$, $INFL_{LOCATION}$, and $INFL_{PERSON}$. We assume that concepts that are not mapped onto a functional head in a given language are still available and can be optionally merged as modifiers.

(10)

	$[_C$ COMP … $[_I$	INFL …	… $[_v$ v]]]
English:		TENSE:	[+/-past]
Halkomelem:		LOCATION:	[+/-distal]
Blackfoot		PERSON:	[+/-local]

The substantive content of INFL determines the precise content of both the utterance argument

and the event argument. Thus, in a TENSE-based language, temporal arguments are ordered, while in a LOCATION-based language spatial arguments are ordered, and finally in a PERSON-based language, participant arguments are ordered. (See Ritter and Wiltschko, in preparation, for a more detailed discussion.) In sum, we propose that languages differ substantially in the way eventualities are ordered relative to the utterance: English orders times, Halkomelem orders locations, and Blackfoot orders participants.

The purpose of this paper is to motivate the Parametric Substantiation Hypothesis on the basis of a detailed contrastive investigation of English, Halkomelem, and Blackfoot. Before we can proceed, however, we need to establish how to identify the category INFL in any given language.

2.3. Formal diagnostics for INFL

In the context of the present research, there is a methodological issue arising. Once we abandon the assumption that each functional category is universally associated with distinct substantive content, we cannot use meaning as one of the criteria for category membership. But then, how do we know whether a given linguistic object (LO) maps onto a functional category, and if it does, which one it is? If a given LO expresses the concept of *time*, how do we know whether or not it maps onto a functional category TENSE? Since the universalist framework adopted here generally assumes that the substantive content is fixed, this question does not arise in the same way, and thus this methodological issue is never addressed. This contrasts with earlier structuralist traditions that had precise criteria and procedures for identifying grammatical categories. In this section we introduce some diagnostics for identifying INFL.

The Parametric Substantiation Hypothesis assumes that functional material can be merged either as a head or as a modifier. Accordingly, to identify INFL we need diagnostics that distinguish between heads and modifiers. This can be achieved as follows. First, heads differ from modifiers in whether or not they are *unique*: while heads are unique, modifiers are recursive. Another related property is that of *obligatoriness*: while heads are obligatory, modifiers are optional.

The obligatoriness of heads has two immediate consequences. On the one hand, syntactic obligatoriness allows for LOs to remain semantically empty, that is, they can function as *expletive* placeholders. This contrasts with optional modifiers, which never remain uninterpreted (i.e., there are no expletive modifiers). Consequently, we expect that elements instantiating INFL may—in certain environments—lack substantive content. On the other hand, syntactic obligatoriness also allows for *silent* LOs. That is, it is also a general property of syntactically obligatory LOs that they can remain uninterpreted at PF (i.e., without phonetic content) in certain well-defined contexts. Again, this contrasts with optional modifiers, which are never silent (i.e., there are no phonetically empty modifiers).

In addition to criteria that distinguish between heads and modifiers, we also need some formal diagnostics that set INFL apart from other functional heads. Here we follow standard practice and assume that a defining property of INFL is its ability to enter into a local relation with a particular functional head, namely COMP. In particular, INFL may undergo head-movement to COMP, and COMP may select for a particular instantiation of INFL (i.e., finite or non-finite).

In section 3 we demonstrate that Halkomelem $\text{INFL}_{\text{LOCATION}}$, as opposed to $\text{INFL}_{\text{TENSE}}$, satisfies the formal criteria for INFL. And in section 4 we establish that Blackfoot $\text{INFL}_{\text{PERSON}}$ satisfies the formal criteria for INFL. The fact that $\text{INFL}_{\text{TENSE}}$, $\text{INFL}_{\text{LOCATION}}$, and $\text{INFL}_{\text{PERSON}}$ are in complementary distribution at least across the three languages under investigation provides evidence for the Parametric Substantiation Hypothesis as opposed to the cartographic approach to language universals and variation. We discuss the implications of these findings in section 5.

3. LOCATION as an alternative to TENSE

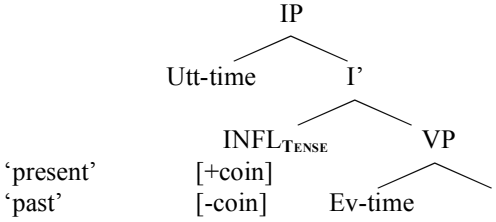
To motivate the Parametric Substantiation Hypothesis, we start with a discussion of Halkomelem. We first show that $\text{INFL}_{\text{TENSE}}$ and $\text{INFL}_{\text{LOCATION}}$ are functionally equivalent: they both serve to anchor the eventuality to the utterance. We then show that $\text{INFL}_{\text{TENSE}}$ in English and $\text{INFL}_{\text{LOCATION}}$ in Halkomelem are

formally identical in that they both satisfy the formal criteria for INFL laid out in section 2.3. Next we briefly show that temporal marking in Halkomelem does not satisfy the formal diagnostics for INFL. We conclude this section with a discussion of what can and what cannot serve as the substantive content of INFL.

3.1. Functional equivalence

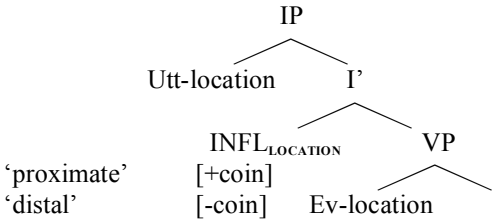
As stated in section 2.2, we assume that the core function of INFL is to anchor the reported eventuality to the utterance. Depending on the substantive content of INFL in a given language, anchoring proceeds in different ways. In English, INFL is substantiated by TENSE, and thus if $INFL_{TENSE}$ asserts that the event time coincides with the utterance time ([+coin]), the result is a *present tense* interpretation. In contrast, if $INFL_{TENSE}$ asserts that the event time does not coincide with the utterance time ([-coin]), the result is a *past tense* interpretation. This is schematized in (11) (cf. Demirdache and Uribe-Etxebarria 1997, 2000).[5]

(11) *English: TENSE substantiates INFL*



The situation is different in a language such as Halkomelem where INFL is substantiated by LOCATION. In such a language, $INFL_{LOCATION}$ does not assert *when* relative to the utterance the eventuality took place, but rather *where* relative to the utterance the eventuality took place. Thus, in such a language, [+coin] asserts that the event location coincides with the utterance location, resulting in a *proximate location* interpretation, while [-coin] asserts that the event location does not coincide with the utterance location, resulting in a *distal location* interpretation as shown in (12).

(12) *Halkomelem: LOCATION substantiates INFL*



This analysis of Halkomelem captures the insight of two different traditional descriptions of the locative auxiliaries, which we analyze as occupying $INFL_{LOCATION}$. On the one hand, Suttles (2004:35) states that "[t]he choice between *ʔi* and *niʔ* depends on the location of the speaker relative to whatever the predicate refers to."[6] On the other hand, Galloway (1993:359) states that "[t]he choice between *í* and *lí* is governed by considerations having to do with the location of the eventuality. In particular, locative auxiliaries encode the semantic opposition of emplacement ('here' …) and displacement ('there' …)". While Suttles' description focuses on the location of the speaker, Galloway's description focuses on the location of the eventuality.[7] According to the analysis sketched in (12), the auxiliaries in $INFL_{LOCATION}$ order the event location relative to the utterance location (i.e., speaker location), just as $INFL_{TENSE}$ orders the event time relative to the utterance time.

Note in passing that location marking can have an indirect effect on the temporal interpretation of the clause. In the context of first (and second) person subjects, the use of the distal auxiliary will result in

a past interpretation. Consider for example the sentences in (13) and their translations. The sentence in (13a) cannot receive a present time interpretation because the speaker cannot be in one location participating in the speech act and at the same time be elsewhere participating in the helping event; however, the speaker could have been at a distinct (distal) location at a time prior to the utterance time.[8] In contrast, a present time interpretation is possible in (13b), due to the use of a proximate auxiliary.[9]

(13) a. ni cən ćéćəw-ət
AUX 1SG help-TRANS
'I was helping him.'

b. ʔi cən ćéćəw-ət
AUX 1SG help-TRANS
'I'm helping him.' (Suttles 2004: 35)

Thus, if INFL is not substantiated by TENSE but instead by LOCATION, it can nevertheless have temporal effects. This much establishes that $INFL_{LOCATION}$ in Halkomelem is functionally equivalent to $INFL_{TENSE}$ in English, consistent with the Parametric Substantiation Hypothesis.

3.2. Formal identity

We now turn our attention to the formal properties of $INFL_{TENSE}$ and $INFL_{LOCATION}$. We demonstrate that they are formally identical, supporting our claim that the two are different instantiations of the same core category, namely INFL. Specifically, we use the following diagnostics developed in section 2.3:

(14) *Formal diagnostics for INFL:*
i) uniqueness
ii) lack of substantive semantic content (expletiveness)
iii) movement to COMP
iv) lack of phonetic content (silence)
v) obligatoriness

3.2.1. Uniqueness of tense and location marking

It is well-known that tense marking in English is unique. That is, every clause can only be marked for tense once. So even though tense marking can occur on either the main verb (15a) or an auxiliary (15b), in the presence of an auxiliary, tense has to be marked on the auxiliary alone and cannot simultaneously be marked on both the main verb and the auxiliary (15c).[10]

(15) a. He walked.
b. He did walk.
c. *He did walked**.**

We observe a similar pattern in Halkomelem, where INFL is substantiated by LOCATION, which in turn is expressed by the locative auxiliaries *i* and *li*.[11] Crucially, only one instance of these auxiliaries is permitted in Halkomelem, suggesting that location marking is indeed unique.

(16) a. li/i chexw t'ilem
AUX 2SG sing
'You sang (here/there).

b. *li chexw i t'ilem[12]
AUX 2SG AUX sing

c. *li i chexw t'ilem
AUX AUX 2SG sing

d. *li chexw li t'ilem
AUX 2SG AUX sing

e. *li li chexw t'ilem
AUX AUX 2SG sing

Note further that both *i* and *li* can in fact occur twice in the same clause. However, if they do, the two instances of *i* or *li* are not both auxiliaries, but rather the second instance functions as the main predicate of the clause (meaning *to be here* or *to be there*, respectively). This is illustrated by the data in (17).

(17) a. *i i*
AUX be.here
'He's here.'

b. *li li*
AUX be.there
'He's there.'

Similar facts obtain in English where *do*, *have,* and *be* can function both as an auxiliary (occupying $INFL_{TENSE}$) and as a main verb (occupying V), and consequently can occur twice in a single clause, as shown in (18).

(18) a. He didn't do it.
b. He has had a cat before.
c. He is being silly again.

This establishes that $INFL_{LOCATION}$, like $INFL_{TENSE}$, is unique. However, nothing prohibits the LOs occurring in INFL from occurring elsewhere in the clause (for example, as main verbs).

3.2.2. Absence of substantive semantic content in TENSE and LOCATION

Another formal diagnostic for heads (as opposed to modifiers) is the possibility of being interpreted without substantive semantic content in certain syntactically defined environments. Consider, for example, English past tense morphology. In the context of conditionals, it is used without necessarily inducing a past time interpretation. This is shown in (19a) where past tense morphology on the auxiliary co-occurs with an adverb of temporal presence (*now*). This co-occurrence of past tense morphology and a present time adverb is only possible, however, in the context of conditionals. In indicative clauses this co-occurrence results in ill-formedness, as in (19b). In this case, present tense morphology must be used, as in (19c).

(19) a. If I had a car now, I'd give you a ride.
b. *I had a car now.
c. I have a car now.

Similar facts hold in Halkomelem, where yes/no questions are formed by means of the locative auxiliary *li* and an optional suffix *–a*. In this context the distal force is lost. The examples in (20) show that the auxiliary *li* can be used to ask a question about an individual who is at the utterance location at the utterance time.[13] In (20a), for example, *li* is used to ask a question about the addressee, who is at the utterance location; and in (20b), *li* is used to ask a question about a third person who is also at the utterance location.

(20) a. li(-á) chexw ítet teléwe
AUX-Q 2SG sleep you
'Are you sleeping?'

b. li(-a) ítet tútl'ò
AUX-Q sleep 3INDEP
'Is he sleeping?' (about someone in the same room)

As noted in section 3.2.1, two locative auxiliaries cannot co-occur in the same clause in Halkomelem. This is the case even if one functions as a question marker while the other indicates spatial location of the eventuality. (See also note 12.) In the next subsection, we argue that *li* undergoes movement from $INFL_{LOCATION}$ to COMP in yes/no questions. Thus, both past tense morphology in English and distal locative auxiliaries in Halkomelem can lose their substantive content in certain well-defined environments.

3.2.3. TENSE and LOCATION can undergo head movement to COMP

One of the diagnostics that specifically targets INFL (as opposed to simply determining head-status) is that of movement to COMP. That is, since INFL is the head immediately below COMP, we expect direct interactions between these two heads, and this is precisely what we find. In both English and Halkomelem, material that usually occupies INFL (tense and location marking, respectively) may be displaced to COMP in certain syntactically defined environments.

In English root questions the tensed auxiliary occurs in a position linearly preceding the subject, as shown in (21).

(21) Did he walk?

Subject-auxiliary inversion of this kind has been analyzed as the result of $INFL_{TENSE}$ moving into COMP, as illustrated in (22). [14]

(22) $[_{CP}$ did $[_{IP}$ he ~~did~~ walk]]

A similar effect can be observed in Halkomelem yes/no questions, which are optionally marked with a suffix *-a* attached to the first element in the clause.

(23) a. li-á t'ílem
AUX-Q sing
'Is he singing/Did he sing?'

b. ew-á li-s yéthes-t-òlè-m
NEG-Q AUX-3S tell-TRANS-2SG.O-PASS
'Weren't you folks told?' (Galloway 1993:186)

As shown in (23a), the auxiliary can host the question marker in the absence of a higher LO, such as

negation (see Wiltschko 2002 for evidence that negation in Halkomelem is higher than INFL).

We assume that the Halkomelem question marker occupies COMP. If so, then the example in (23a) can be analyzed as involving $INFL_{LOCATION}$ to COMP movement, as illustrated in (24).

(24) $[_{CP}$ li-á $[_{IP}$ ~~li~~ $[_{VP}$ t'ilem]

In sum, in both English and Halkomelem we find evidence that the material occupying INFL (tense and location marking, respectively) can move to COMP in the context of question formation.

3.2.4. Absence of phonetic content in TENSE and LOCATION

The next property we discuss is zero-marking. If a given syntactic position is obligatory, its presence does not entail phonetic content. As such, we expect that INFL can be occupied by a phonetically empty marker. Here we show that both tense marking in English and location marking in Halkomelem display this property.

In English, present tense is not marked overtly in most contexts. The only exception to this generalization is in the context of a third person singular subject, where there is an overt agreement marker that is restricted to present tense and thus is often considered to constitute tense marking. All other verb forms, however, are not overtly marked in the present tense. We assume that all these forms are actually marked with a zero tense exponent, that is, an LO without phonetic content, as shown in (25).

(25) a. I walk-$\varnothing_{present}$
b. You walk-$\varnothing_{present}$
c. He walk-$s_{present}$
d. We walk-$\varnothing_{present}$
e. You walk-$\varnothing_{present}$
f. They walk-$\varnothing_{present}$

Location marking in Halkomelem is also possible with a phonetically empty LO. Consider the example in (26), which appears to lack a locative auxiliary.

(26) tsel qw'eyílex
1SG.S dance
'I was dancing.'

The absence of a locative auxiliary in (26) may be analyzed in one of two ways. Either this structure lacks a locative auxiliary, as schematized in (27a), or else there is a locative auxiliary which lacks phonetic content, as in (27b).

(27)	a.	–	tsel	qw'eyílex	→ no locative auxiliary
	b.	$\varnothing_{aux}$	tsel	qw'eyilex	→ locative auxiliary without phonetic content[15]

In light of the present discussion, the choice between the two alternative analyses illustrated in (27) is not trivial. If (27a) were correct, then we would be forced to conclude that location marking is not obligatory. Such a conclusion would undermine the claim that LOCATION substantiates INFL in Halkomelem, because one of the diagnostics for INFL is obligatoriness (see section 2.3). In order to show that the presence of location marking is indeed obligatory, it becomes crucial to demonstrate that (26) contains location marking despite appearances to the contrary. But how do we decide between the two analyses shown in (27)? In what follows we discuss three arguments for the presence of a phonetically empty auxiliary in such examples.

The first argument stems from the temporal interpretation associated with examples such as (26), in which the clitic precedes the verb (henceforth CLITIC-VERB order).[16] As observed in Galloway (1993:175), the CLITIC-VERB order tends to result in a past interpretation. This effect receives a straightforward explanation if we assume the presence of a phonetically empty [+distal] auxiliary in $INFL_{LOCATION}$.[17] Recall that the overt [+distal] auxiliary triggers a past interpretation with first or second person subjects because the speech act participants (speaker and addressee) cannot be talking at the utterance location and at the same time be participating in an event elsewhere (see section 3.1). Under this analysis, the past interpretation of the CLITIC-VERB order reduces to the same effect as the past interpretation of the [+distal] auxiliary in the context of first or second person clitics:[18] the CLITIC-VERB order is formally identical to sentences with the [+distal] auxiliary *li,* as illustrated in (28):

(28) a. $[\varnothing]_{+distal}$ tsel qw'eyilex → past
b. $[li]_{+distal}$ tsel qw'eyílex → past

In contrast, if we assume that the CLITIC-VERB order in (26) lacks a locative auxiliary (as in (27a)), then the past interpretation remains to be explained. We wish to show here that this is not at all a trivial task because Halkomelem is a *tenseless* language (see Wiltschko 2003, and section 3.3 for discussion). The past interpretation of a sentence with a [+distal] auxiliary is not encoded as such in the grammar; instead, it arises due to world-knowledge. But if the CLITIC-VERB order does not contain a [+distal] auxiliary, then this explanation is not available. Instead we would have to assume that the absence of an auxiliary results in a past interpretation. But this assumption does not adequately capture the facts either, as will become clear in our second argument in favour of the presence of a phonetically empty auxiliary.

Upriver Halkomelem has another construction that lacks an overt locative auxiliary. It differs from the one in (26) in that the order of the verb and the clitic is reversed (henceforth VERB-CLITIC order). Crucially, this construction is interpreted as referring to a future eventuality (see Bar-el et al. 2003 for a detailed discussion of this construction) or, when used with a second person subject, as an imperative.

(29) a. álhtel-tsel
eat-1SG.S
'I'm going to eat.' (Bar-el et al. 2003: ex. 2d)

b. t'ílem-chexw (Upriver Halkomelem)
sing-2SG.S
'You sing.'
Speaker's comment: "You are asking somebody to sing." (Bar-el et al. 2003: ex. 8)

This semantic effect appears to be categorical in the sense that it cannot be overridden by the presence of a temporal adverbial, as shown in (30).

(30) *álhtel-tsel kwi chelá:qelh (Upriver Halkomelem)
eat-1SG.S DET yesterday (Bar-el et al. 2003: ex.15)

We have now seen that a difference in order is associated with a difference in temporal interpretation, as summarized below:

(31) a. CLITIC-VERB → past
b. VERB-CLITIC → future

From this pattern we can immediately conclude that the absence of a locative auxiliary is not always associated with a past interpretation. This means that the past interpretation of the CLITIC-VERB

order is still unaccounted for under the assumption that there is no locative auxiliary. In addition, we wish to show that the pattern illustrated in (31) further helps us to decide between the two analyses for the CLITIC-VERB order (i.e., whether or not there is a phonetically empty auxiliary present). Consider first how we can account for this pattern given the assumption that the CLITIC-VERB order contains a phonetically empty [+distal] auxiliary, as illustrated in (32a). Suppose that the VERB-CLITIC order is derived via head-movement of V-to-INFL as illustrated in (32b).

(32) a. $[\varnothing]_{+distal}$ CLITIC VERB → past
b. VERB CLITIC ~~VERB~~ → future

The analysis in (32) leaves us with two questions: i) what triggers movement of the verb to $INFL_{LOCATION}$, and ii) why does this construction receive a future interpretation? The first question receives a straightforward answer if we assume that $INFL_{LOCATION}$ must be filled. A locative auxiliary (with or without phonetic content) can satisfy this requirement, as we have seen above. If no locative auxiliary is available, then $INFL_{LOCATION}$ can be filled via head-movement of the verb. Thus, V-movement in (32b) can be analyzed as a result of the familiar requirement that INFL must be filled.

As for the second question raised by the pattern illustrated in (32), we argue that the future interpretation associated with (32b) is a consequence of the fact that $INFL_{LOCATION}$ is filled by an LO which lacks substantive content. V-movement serves to fill $INFL_{LOCATION}$, but, unlike locative auxiliaries, V lacks a [±distal] specification. Consequently, $INFL_{LOCATION}$ in (32b) fails to specify whether or not the event location coincides with the utterance location. We propose that in this context the eventuality denoted by the predicate cannot be located in the actual world, and that this is precisely what is required in order to talk about future eventualities: Future eventualities cannot be located in the actual world since they have not yet occurred. Under this analysis, a future interpretation can arise even in the absence of a functional category $INFL_{TENSE}$, contrary to recent claims in the literature that future always involves both a modal component and interpretable content (e.g., [±past, ±future]) in $INFL_{TENSE}$ (see for example Abusch 1988, Matthewson 2006). However, there is independent evidence that a future interpretation is possible even in the absence of interpretable content in $INFL_{TENSE}$. For example, infinitives, which are often analyzed as untensed (Wurmbrand 2002), can receive a relative future interpretation as illustrated in (1):

(33) Leo decided a week ago [to go to the party (yesterday)]. (Wurmbrand 2006:3, ex. 4b)

The fact that in a TENSE-based language like English, untensed clauses can receive a future interpretation demonstrates that the availability of a future interpretation does not imply the presence of interpretable tense features; and given the Parametric Substantiation Hypothesis, the availability of a future interpretation does not imply the presence of a functional category $INFL_{TENSE}$ (see Ritter and Wiltschko, in preparation, for more detailed discussion).

If our account of the future interpretation as arising in the absence of anchoring is on the right track, then we have indirect support for the claim that there is a phonetically empty auxiliary present in the CLITIC-VERB order, as shown in (32a). Note that on the alternative view, namely that the CLITIC-VERB order lacks a locative auxiliary, the pattern in (31) remains unaccounted for. In particular, on this view, the contrast between VERB-CLITIC and CLITIC-VERB order cannot be reduced to the absence or presence of an auxiliary, respectively.

A final argument for the presence of an empty locative auxiliary in the CLITIC-VERB construction stems from the patterning of subject clitics across the different dialects of Halkomelem (and across the Salish languages in general). The Salish subject clitics typically pattern as second-position clitics (see Davis 2000 for a detailed discussion of the cross-Salish patterns). But this second-position requirement appears to be violated by the CLITIC-VERB order unless we assume that the initial clitic is in fact preceded by a phonetically empty auxiliary.[19] This conclusion is supported by the fact that in the closely related Downriver and Island dialects of Halkomelem, overt auxiliaries are obligatory. Thus, under the present

analysis the possibility for the CLITIC-VERB order in Upriver Halkomelem is due to the innovation of a phonetically empty auxiliary.[20]

In sum, we have argued that Upriver Halkomelem has a phonetically empty auxiliary that appears to be the silent counterpart of the [+distal] auxiliary *li*. This analysis allows us to understand the temporal interpretations associated with three superficially distinct constructions, summarized below:

(34)	a.	$li_{+distal}$	CLITIC	VERB	→ past
	b.	$[\varnothing]_{+distal}$	CLITIC	VERB	→ past
	c.	VERB	CLITIC	~~VERB~~	→ future

The CLITIC-VERB order (34b) is analyzed as being identical to sentences with the [+distal] locative auxiliary (*li*; (34a)) while the VERB-CLITIC order arises in the absence of a locative auxiliary, which leads to V-to-INFL movement (34c). The temporal effects associated with each construction also fall out from this analysis. The future interpretation of (34c) arises because without a locative auxiliary, the reported eventuality cannot be located in the actual world.

The past interpretation of (34a,b) is analyzed as a matter of world knowledge: speaker and addressee cannot simultaneously be at the utterance location and at a distinct event location.[21] This analysis makes a prediction regarding the temporal interpretation of sentences with third person subjects. Since third person participants need not be at the utterance location, they can participate in an eventuality that occurs simultaneously with the utterance but at a distinct location. Consequently, we expect that with third person subjects, a sentence with a [+distal] locative auxiliary can receive a present and a past interpretation. This prediction is borne out:

(35)	li	álhtel	te	swíyeqe
	AUX	eat	DET	man
	'The man is eating.'			
	'The man was eating.'			

Observe that in (35) the third person subject is not marked by means of a (second-position) subject clitic (this is a general property across the Salish family). Thus, in the absence of a locative auxiliary, we cannot tell whether the verb has moved; such sentences should be compatible with a present, past, or future interpretation.[22] This is indeed the case, as shown in (36):

(36)	álhtel	te	swíyeqe
	eat	DET	man
	'The man is eating.'		
	'The man was eating.'		
	'The man will be eating.'		

We take the interaction between linear order and temporal interpretation discussed in this subsection as evidence for the existence of an empty locative auxiliary, which meets the expectation that $INFL_{LOCATION}$ need not be associated with overt phonetic content. We can now show that $INFL_{LOCATION}$ in Halkomelem is obligatory, just as $INFL_{TENSE}$ is in English.

3.2.5. Obligatoriness of TENSE and LOCATION

In languages where TENSE substantiates INFL, specification for [±past] is obligatory in tensed clauses, as shown in (37):

(37) *He walk**.**

In section 3.2.4 we saw that in Halkomelem INFL must be filled by an LO that is specified for [± distal] in *located* clauses, and that otherwise it is filled by an element that lacks this substantive content. Since there is an empty auxiliary available, the effect of obligatory LOCATION cannot be directly observed, but must be deduced from the different interpretations associated with contrasting word orders. We now discuss another indirect piece of evidence for the obligatoriness of LOCATION in Halkomelem. This evidence has to do with contexts in which specification for [±distal] is obligatorily absent from INFL, that is, in clauses which are *unlocated*: We show that these are precisely the contexts in which specification for [±past] is obligatorily absent from INFL in English, that is, *untensed* clauses. We argue that this is not a coincidence but instead follows from the Parametric Substantiation Hypothesis: Since both $INFL_{LOCATION}$ and $INFL_{TENSE}$ are instances of the same category INFL, it follows that the absence of substantive content, whether temporal or spatial, should give rise to similar effects.

Consider first English: there are two constructions that are obligatorily untensed: (at least some) infinitives (Wurmbrand 2003) and imperatives (Zanuttini 1991). Neither of these constructions situates an eventuality on a time-line: While infinitives denote a set of eventualities, imperatives encode the requirement for an eventuality to occur. It is precisely in such environments that specification for [±past] is ruled out, as shown in (38) and (39).[23]

(38) *Infinitive:*
a. He wants to walk.
b. *He wants to walked.

(39) *Imperative:*
a. Walk!
b. *Walked!

Strikingly, we also find this effect in Halkomelem, but not with respect to tense marking, rather with location marking. Locative auxiliaries are ruled out in the same contexts as tense marking in English. We start with a discussion of imperatives, which are optionally formed with a dedicated suffix (*-lha*). Crucially, regardless of whether the imperative suffix is present, locative auxiliaries are categorically ruled out in this environment. Consequently, in the presence of an imperative suffix, the locative auxiliary results in ill-formedness (40), while in the absence of the suffix, the imperative interpretation is not available (41) but instead the sentence is interpreted as a yes/no question.

(40) a. qw'eyílex-lha
dance-IMP
'Dance!'

b. *lí qw'eyílex-lha
AUX dance-IMP

(41) a. qw'eyílex chexw
dance 2SG.S
'You dance!'

b. lí chexw qw'eyílex
AUX 2SG.S dance
≠ 'You dance!'
= 'Did you dance/Are you dancing/Do you dance?'

Next we turn to infinitival environments. Observe that Halkomelem does not have specific infinitival forms. Rather, clauses that are translated as infinitives are nominalized clauses that contain

subject agreement (in the form of possessive morphology), as shown in (42).

(42) l-stl'í kw'-el-s qw'eyílex
1SG.POSS-want DET-1SG.POSS-NOM dance
'I want *to dance.*'

Crucially, in this context, location marking is impossible. That is, if a locative auxiliary is added to the embedded clause in (42), the interpretation is fundamentally different. It must be translated as a finite (*when*) clause and cannot be translated as an infinitival clause.

(43) l-stl'í kw'-el-s lí qw'eyílex [24]
1SG.POSS-want DET-1SG.POSS-NOM AUX dance
'I like it *when I used to dance.*'
≠ 'I want to dance.'

This phenomenon can be observed with all predicates that would require a non-finite complement in English, and thus is fully productive. We have included one more example in (44). It shows that in the absence of an auxiliary, the embedded clause is readily translated as an infinitive, but in the presence of a locative auxiliary the result is necessarily finite:

(44) a. lhq'éllexw-es tl' Strangkw-s t'ílem-s
know-3S DET.OBL Strang DET-NOM sing-3POSS
'Strang knows *how to sing.*'

b. lhq'éllexw-es tl' Strang kw-s lí-s t'ít'elem
know-3S DET.OBL Strang DET-NOM AUX-3POSS sing.CONT
'Strang knows *that he used to sing.*'
≠ 'Strang knows *how to sing.*'

We have now shown that Halkomelem does not allow for location marking in precisely the same contexts where English does not allow for tense marking: with imperatives and infinitives.[25]

3.3. Complementarity

Up to this point we have seen that in Halkomelem location marking displays formal properties identical to those of tense marking in English. We take this to indicate that $INFL_{LOCATION}$ and $INFL_{TENSE}$ are instances of the same abstract functional category, namely INFL. If so, we expect tense and location marking to be in complementary distribution. Specifically, we expect that a TENSE-based language does not have obligatory location marking, and conversely, that a LOCATION-based language does not have obligatory tense marking of the type found in English. Rather, if notions related to time are expressed in Halkomelem, and similarly, if notions related to location are expressed in English, we expect them to display different formal properties—specifically, we expect them to function as optional modifiers. This prediction is borne out.

In English, a TENSE-based language, locational modifiers can always be added but are never obligatory.[26]

(45) a. I was dancing (here/there/on the dance floor).
b. He was dancing (here/there/on the dance floor).

In Halkomelem, a LOCATION-based language, temporal marking is not obligatory. Instead, unmarked forms are "the catch all tense, used to indicate present action (which must be continuing as the speaker

speaks—continuative aspect), habitual action (which may be spread over past, present, and future), momentaneous action (which the speaker is about to perform—noncontinuative aspect), and past action (historical present in narratives, legends, etc.)" (Galloway 1993:315).

The sentences in (46) illustrate this property: temporally unmarked clauses can receive either a present or a past interpretation (see Wiltschko 2003 for a detailed discussion).

(46) a. í qw'eyílex tú-tl'ò
AUX dance he
He is/was dancing (here).'

b. lí qw'eyílex tú-tl'ò
AUX dance he
'He is/was dancing (there).'

This suggests that in the absence of temporal marking, a Halkomelem clause is truly unmarked regarding the time of the eventuality relative to the utterance. This is in stark contrast to English, where what looks like the absence of marking is really an instance of a zero-marked present tense (which receives a habitual interpretation in the context of an eventive verb):

(47) I dance.

Further evidence to the effect that Halkomelem clauses without temporal marking are in fact truly unmarked (rather than zero-marked for a specific temporal interpretation) stems from the fact that an unmarked clause is compatible with a temporal adverb of present or past time, as illustrated in (48).

(48) a. xwmékwàth-et-es túthl'ò teló wayél
kiss-TRANS-3S DET-3 this day
'He kissed her today.'

b. tsel álhtel wáyeles
1SG.S eat tomorrow
'I'll eat tomorrow.'

c. tsel í:mex tseláqelh
1SG.S walk yesterday
'I was walking yesterday.'

For reasons of space we cannot discuss further evidence for the absence of a functional category TENSE in Halkomelem (see Wiltschko 2003 for a detailed discussion; but see Matthewson 2006 for a different view).

3.4. Interim conclusion

We have now shown evidence to the effect that $INFL_{TENSE}$ in English and $INFL_{LOCATION}$ in Halkomelem are varieties of the same category. Specifically, we have shown that the two categories have identical formal properties as summarized in Table 1: both are uniquely marked; both may lack content; both may remain semantically or phonetically empty (i.e., expletive or silent); both may undergo head-movement to C; and both are obligatory.

Substantive content of INFL	**English: $INFL_{TENSE}$**	**Halkomelem: $INFL_{LOCATION}$**
is unique	yes	yes
may lack content	yes	yes
may move to C	yes	yes
may have silent exponent	yes	yes
is obligatory	yes	yes

Table 1: Formal properties of INFL

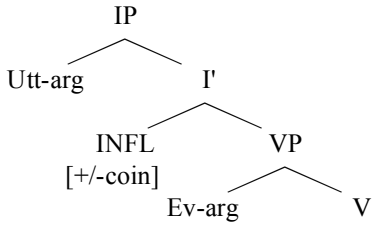
We have also shown that the $INFL_{TENSE}$ and $INFL_{LOCATION}$ are functionally equivalent: both relate the eventuality to the utterance. $INFL_{TENSE}$ asserts *when* the reported eventuality took place relative to the utterance *time*, while $INFL_{LOCATION}$ asserts *where* the reported eventuality took place relative to the utterance *location*.

From this we conclude that $INFL_{TENSE}$ and $INFL_{LOCATION}$ are really instances of the same category. Given that complementarity is a criterion for identity, this conclusion is supported by the fact that $INFL_{TENSE}$ and $INFL_{LOCATION}$ are in complementary distribution. Thus, we propose that INFL is a universal category, which can be substantiated by either TENSE or LOCATION:

(49) INFL = {TENSE, LOCATION}

This much supports the Parametric Substantiation Hypothesis. But it also raises the following question: If INFL can be substantiated by either TENSE or LOCATION, are there any other categories that can substantiate INFL? In other words, are there any restrictions on the substantive content of INFL, and if so, what are these restrictions? To answer this question it is useful to consider again the core function of INFL, as shown in (9), repeated here as (50).

(50)



Given that the core function of INFL is to relate the eventuality to the utterance, it follows that whatever content substantiates INFL must be able to fulfill this function. Specifically, it must be able to relate the eventuality to the utterance. Only deictic categories, which are interpreted relative to the extralinguistic context of the utterance, have this property. Thus it follows that the substantive content of INFL must be deictic. Both TENSE and LOCATION fulfill this criterion: they are among the deictic categories. But if this characterization of the substantive content of INFL is correct, we predict that cross-linguistically INFL will not be restricted to being substantiated by either TENSE or LOCATION; rather, any deictic category should be possible. For example, we predict that PERSON, another deictic category, can also substantiate INFL.

(51) INFL = {TENSE, LOCATION, PERSON}

In what follows, we show that this prediction is indeed borne out, though a word of caution is in order. While the translation from a TENSE-based system to a LOCATION-based system is relatively straightforward, the translation to a PERSON-based system is more complicated. While we believe that we have thus far gathered evidence to make the case, we also acknowledge that more research needs to be

done to fully understand this system.

4. PERSON as an alternative to TENSE

We argue that in Blackfoot (Algonquian), INFL is substantiated by PERSON. Consequently, in this system, anchoring proceeds via participants: it asserts *who* relative to the utterance *participants* participated in the eventuality. In section 4.1, we show that the category PERSON (like the other deictic categories) can serve to anchor the reported eventuality to the utterance. As such, it is functionally equivalent to TENSE and LOCATION. We also show that tense marking in Blackfoot does not meet the criterial properties of INFL. In section 4.2, we show that person marking displays the formal characteristics we have used to diagnose INFL. Due to the fact that person marking is also found in TENSE, LOCATION, and PERSON languages in the form of *agreement,* we also demonstrate that as $\text{INFL}_{\text{PERSON}}$ is essentially different from person agreement.

In addition, $\text{INFL}_{\text{PERSON}}$ differs from both $\text{INFL}_{\text{TENSE}}$ and $\text{INFL}_{\text{LOCATION}}$ in the kinds of arguments that are ordered. We assume that the utterance takes place over one time span and in one location, and thus that there is only one utterance time and only one utterance location to be ordered relative to the event time or location. However, there are two utterance participants, the speaker and the addressee. Thus, $\text{INFL}_{\text{PERSON}}$ has a more complex argument structure than either $\text{INFL}_{\text{TENSE}}$ or $\text{INFL}_{\text{LOCATION}}$. We discuss this issue in section 4.3.

4.1. PERSON substantiates INFL in Blackfoot

We argue that in Blackfoot, PERSON substantiates INFL. Consequently, we analyze person marking in Blackfoot as the formal and functional equivalent of tense marking in English and location marking in Halkomelem. Specifically, we argue that the person prefixes of Blackfoot represent the substantive content of INFL in this language:

(52) a. nitsikákomimmawa nitána
nit-iik-wákomimm-a-wa n-itan-wa
1-very-love(TA)-DIR-3SG 1-daughter-3SG
'I love my daughter.' (Frantz 1991:51, ex. a)

b. kitsikákomimmawa nitána
kit-iik-wákomimm-a-wa n-itan-wa
2- very -love(TA)-DIR-3SG 1-daughter-PROX
'You love my daughter.' (Frantz 1991:51, ex. c)

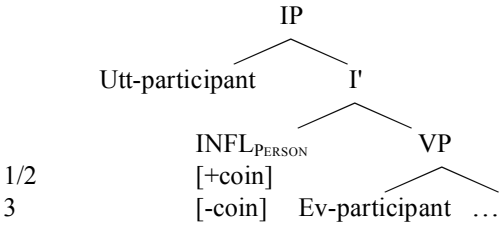
c. otsikákomimmoka nohkówa otáni[27]
ot-iik-wákomimm-ok-wa n-ohkó-wa w-itan-yi
3- very -love(TA)-INV-3SG 1-son-3SG 3-daughter-OBV
'Her daughter loves my son.' (Frantz 1991:56, ex. k)

4.1.1. Functional equivalence

We propose that person marking serves to anchor the eventuality to the utterance in Blackfoot, and therefore anchoring proceeds via participants, rather than times or locations. Thus, the substantive content of $\text{INFL}_{\text{PERSON}}$ asserts *who* relative to the utterance *participants* participated in the eventuality. The person prefixes specify whether or not an eventuality participant coincides with one of the utterance participants. Thus, first and second person prefixes assert that the relevant eventuality participant coincides with an utterance participant:[28] *nit-* indicates coincidence with the speaker, while *kit-* indicates coincidence with

the addressee. In contrast, the third person prefix (*ot-*), asserts that the relevant eventuality participant does not coincide with an utterance participant.

(53) *Blackfoot: PERSON substantiates INFL*



According to (53), Blackfoot person marking is the functional equivalent of tense marking in English.

4.1.2 Complementarity

If PERSON does indeed substantiate INFL in Blackfoot, then the Parametric Substantiation Hypothesis predicts that Blackfoot should not have tense marking of the kind found in English, because INFL$_{TENSE}$ and INFL$_{PERSON}$ are predicted to be in complementary distribution. This prediction is indeed borne out. In Blackfoot, just like in Halkomelem, a clause that is unmarked for tense can be interpreted as either reporting a past or a present eventuality:[29]

(54) kit-ána aasáí'ni-wa
2-daughter cry-3SG
'Your daughter cried.' (Frantz 1991:36, ex. v)
OR 'Your daughter is crying.'

Thus, Blackfoot appears to lack an inflectional tense system. A similar conclusion is reached by Uhlenbeck, who states that "this language possesses neither a true tense system, nor a true aspect system" (1938:133). In particular, there is no (dedicated) *past* tense marker which contrasts with a *present* tense marker, which we take to be the hallmark of an inflectional tense system.

The absence of a functional head INFL$_{TENSE}$ further predicts that all properties that are tied to the specific substantive content of this head should be absent as well (in contrast to the properties of INFL that are independent of the substantive content). Structural case fits this description: it has been argued to be a direct consequence of TENSE (see for example Pesetsky and Torrego 2001 for the claim that case *is* TENSE on D). If so, we predict that Blackfoot should lack the effects of structural case. This prediction is borne out, as argued by Ritter and Rosen (2005). The evidence discussed there includes absence of morphological case, absence of case-motivated A-movement, and absence of A-binding. We thus conclude that Blackfoot lacks a syntactic category INFL$_{TENSE}$, in line with the Parametric Substantiation Hypothesis.[30]

4.2. Formal identity, or How to distinguish INFL-PERSON from person agreement

We now turn to empirical evidence to the effect that person marking displays the diagnostic characteristics of INFL.

4.2.1 Obligatoriness

As noted above, we analyze the Blackfoot person prefixes as expressing the substantive content of INFL in this language. Thus, we predict that these person prefixes should be obligatory in the Blackfoot counterparts of English tensed clauses and Halkomelem located clauses. In this section, we argue that this

is indeed the case. Blackfoot has four different verb paradigms (called *orders* in the Algonquianist literature), which are distinguished in part by whether or not they have person prefixes. The two orders that have obligatory person prefixes are the independent and conjunctive (but see note 27 on the restricted use of third person prefixes in the independent order). Verbs in the independent order are primarily used as matrix clauses. We have seen examples of such clauses in (52) above. The conjunctive order, which is marked with a suffix *–hs,* is used in most types of embedded clauses, as shown in (55) (see Frantz 1991:111 for discussion).

(55) a. áyo'kaawa nitáí'to'toohsi
á-Io'kaa-wa nit-á'-it-o'too-hs-yi
DUR-sleep(AI)-3SG 1-INCHOAT-there-arrive(AI)-CONJ-CONJ
'He was asleep when I got there.' (Frantz 1991:111, ex. a)

b. nitáísskskammawa kitá'waawayákiyssi
nit-á-sskskamm-a:-wa kit-á'-wa:wayaki-yi-hs-yi
1-DUR-watch(TA)-DIR-3SG 2-INCHOAT-hit(TA)-INV-CONJ-CONJ
'I was watching over her, when she hit you.' (Frantz 1991:111, ex. b)

c. íikssoka'piiwa otáísootaahsi
iik-soka'pii-wa ot-á-sootaa-hs-yi
very-good(AI)-IN.SG 3-DUR-rain(II)-CONJ-CONJ
'It's good that it's raining.' (Frantz 1991:111, ex. e)

We analyze clauses with independent or conjunctive order verbs as *personed*, that is, INFL in such clauses is obligatorily specified for person features [±1, ±2], (on analogy with *tensed* and *located* clauses, which are specified for [±past] and [±distal], respectively). Clauses with imperative or subjunctive order verbs, in contrast, are *unpersoned*, that is, INFL lacks these substantive features. We further predict that the contexts in which we find unpersoned clauses in Blackfoot should be similar to those in which we find untensed clauses in English and unlocated clauses in Halkomelem, that is, imperatives and infinitives.

Imperative order verbs are used in imperative clauses in Blackfoot. We interpret the absence of person prefixes in imperatives as evidence that $INFL_{PERSON}$ in these clauses lacks [±1, ±2], just as [±past] and [±distal] are absent in imperatives in languages with $INFL_{TENSE}$ and $INFL_{LOCATION}$, respectively.

(56) a. ooyít!
ooyi-t
eat(AI)-2SG(IMP)
'Eat!'

b. ooyik!
ooyi-k
eat(AI)-2PL(IMP)
'Eat!' (Frantz 1991:114, ex. r)

Blackfoot has no infinitives. The second verbal paradigm in which person prefixes are obligatorily absent is the so-called *subjunctive* order used for *if*-clauses and generic *when(ever)* clauses (Frantz 1991:113). Note that in these examples we still find person marking in the form of suffixes, but as we argue immediately below, these suffixes are agreement markers and do not substantiate INFL.

(57) a. ikkamínimmiinnaaniki, nitáaksowatoo'pinnaana
ikkam-Ini-mmiinnaaniki nit-yáak-Iowatoo-'p-innan-wa
if-see(TI)-1PL(S) 1-FUT-eat(TI)-THEME-1PL-IN.SG

'If we see it, we'll eat it.' (Frantz 1991:113, ex. m)

b. ikkamáyo'kainoainiki, nitáakahkayi
ikkam-á-yo'kaa-inoainiki nit-yáak-wa:hkayi
if-DUR-sleep(AI)-2PL(S) 1-FUT-go.home
'If you (guys) are sleeping, I'll go home.' (Frantz 1991:113, ex .l)

c. ai'sóótaasi, áakitsipiimmiaawa
a'-sootaa-si yáak-it-IpiiM:-yi-aawa
INCHOAT-rain(II)-IN.SG(S) FUT-then-enter-3PL-PRO
'When it rains, they will go in.' (Frantz 1991:113, ex. p)

We hypothesize that the Blackfoot subjunctive is similar to the infinitive in a TENSE-based language, in that they lack specific substantive content in INFL necessary to anchor the situation denoted by the predicate (directly) to the utterance.

As a consequence of the obligatoriness of person marking in Blackfoot, we might also expect the possibility for a dedicated zero-marker instantiating a specific value of PERSON.[31] This is indeed the case: third person marking is always overt in the conjunctive order (see section 4.2.2) but is silent in the independent order, except in a transitive clause with an obviative (a.k.a. fourth person) agent and a proximate (a.k.a. third person) patient or goal.

(58) ikákomimmiiwa nohkówa kitáni
∅-iik-wákomimm-yii-wa n-ohkó-wa k-itan-yi
3-very-love-DIR-3SG 1-son-PROX 2-daughter-OBV
'My son loves your daughter.' (Frantz 1991:53, ex. l)

At this point, however, we have not seen any properties of person marking in Blackfoot that would distinguish it from person agreement in English. That is, even in TENSE-based languages like English, INFL is assumed to host person marking in the form of subject-verb agreement. Consider for example the sentences in (59). The suffix *-s* on the inflected verb indicates agreement with a third person singular subject in the present tense, as illustrated in (59a). It is obligatory in this finite context but banned from infinitival contexts, as shown by the contrast between (59b) and (59c). And finally, person agreement can be realized as a phonetically empty marker (i.e., first and second person subjects are not associated with overt agreement morphology), as shown in (59d,e).

(59) a. John walk-**s**
b. John walk*(-s).
c. John wants to walk(***-s**).
d. I walk.
e. You walk.

As we have now seen, person agreement in English, a TENSE-based language, appears to have precisely the same formal characteristics as person marking in Blackfoot. So how can we tell whether person marking is really functioning to anchor the event participant to the utterance participant, and not simply encoding an agreement relation between the verb and its subject or object? In other words, how can we tell the difference between person marking that substantiates INFL and person marking that functions as agreement? This is the question we address in the next subsection.

4.2.2 $INFL_{PERSON}$ differs from person agreement

The difference between person agreement of the familiar sort and person marking that functions as an

anchoring category can be established on the basis of a careful investigation of Blackfoot person and number marking. In addition to the person prefixes already introduced, Blackfoot has two other affixal positions for person and number marking. Thus, Blackfoot is traditionally described as making available three distinct agreement positions, as in (60), filled by the paradigms summarized in Table 2 (Frantz 1991).

(60) [Prefix- [*Verb Stem*] - Suffix1] -Suffix2

Prefix		**Suffix 1**		**Suffix 2**	
kit-	2	*-(i)nnaan*	1PL	*-wa*	3SG
nit-	1	*-oaa(wa)*	2PL	*-yi*	3PL/OBV PL
(ot-)	3	*-oaa(wa)*	3PL	*-yini*	OBV SG

Table 2: Three affixes for person and number marking in Blackfoot

We argue that the suffixal positions are agreement markers of the familiar type, but that the person prefixes function as the anchoring category $\text{INFL}_{\text{PERSON}}$. The first argument for this claim derives from comparing the feature content of the person prefixes with that of the agreement suffixes. While the former encode person features only (first, second, and third), the latter encode a bundle of person and number features or number and proximate/obviation marking. The fact that the person prefixes encode person only is consistent with the hypothesis that they substantiate INFL as a PERSON category. The agreement suffixes, on the other hand, establish an agreement relation with a given argument and as such can encode more than one feature. Note that feature bundling is typical of agreement markers.

A second argument stems from the well-known fact that person prefixes do not establish a relation with a fixed argument. Instead they merely establish *whether or not* an utterance participant (first or second person) is involved in the event. This captures Frantz' insight that "the person affixes do not signal the *function* of persons, but only that they are *involved*" (1971:18). Thus, in the examples below, the person prefixes *nit-* and *kit-* are used whenever an utterance participant is involved in the event, regardless of whether the participant functions as an AGENT or as a THEME.[32]

(61) a. nitsikákomimmawa nitána
nit-iik-wákomimm-a-wa n-itan-wa
1-very-love(TA)-DIR-3SG 1-daughter-3SG
'I love my daughter.' (Frantz 1991:51, ex. a)

b. nitsikákomimmokinnaani kitániksi
nit-iik-wákomimm-ok-innan-yi k-itan-iksi
1-very-love(TA)-INV-1PL-3PL 2-daughter-PL
'Your daughters love us.' (Frantz 1991:56, ex. i)

(62) a. kitsikákomimmawa nitána
kit-iik-wákomimm-a-wa n-itan-wa
2- very -love(TA)-DIR-3SG 1-daughter-3SG
'You love my daughter.' (Frantz 1991:51, ex. c)

b. kitsikákomimmoka nitána
kit-iik-wákomimm-ok-wa n-itan-wa
2- very -love(TA)-INV-3SG 1-daughter-3SG
'My daughter loves you.' (Frantz 1991:55, ex. e)

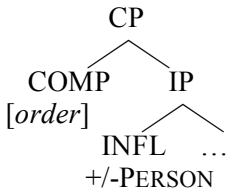
A final argument stems from the interaction of person marking with clause-types other than matrix indicative. Specifically, the presence of person prefixes is determined by the clause-type, whereas agreement suffixes are present across all clause-types (cf. Frantz 1991). As discussed in section 4.2.1, Blackfoot (like other Algonquian languages) has different clause-types, known as *orders* in the Algonquian tradition, and these orders differ in terms of their morphology and their distribution. Both person prefixes and agreement suffixes are present in clauses in the so-called *independent* order, which roughly corresponds to matrix indicative clauses, and in the *conjunct* order. However, person prefixes cannot occur while the agreement suffixes are still expressed in the *imperative* and *subjunctive* orders:[33]

Order	**INFL$_{\text{PERSON}}$**	**Agreement$_{\text{PERSON}}$**
Independent	yes	yes
Conjunct	yes	yes
Subjunctive	no	yes
Imperative	no	yes

Table 3: The distribution of person markers across different clause-types

We analyze these co-occurrence restrictions on the person prefixes as an instance of selection. Assuming that clause-typing is encoded in COMP (Cheng 1991), we propose that information about order in Blackfoot is also located in COMP. If so, we can understand the co-occurrence restriction on person prefixes as the effect of a selectional relation between C and INFL. Specifically, we propose that if COMP is in the independent or conjunct order, it selects for a [+PERSON] INFL, while a subjunctive or imperative COMP selects for INFL that is specified for [-PERSON], as schematized in (63).

(63)



This analysis provides a principled reason for the different co-occurrence restrictions between clause-type (order) and person markers. Only the person prefixes are heads (namely INFL$_{\text{PERSON}}$) and as such they can enter into a selectional relation with another head, such as COMP. In contrast, the person and number suffixes are not so affected because—according to our analysis—they are not heads but instead markers of agreement relations between the verb and its arguments. As such, they are not susceptible to selectional restrictions.

Another diagnostic property of INFL is that it can undergo head-movement to COMP. Evidence that Blackfoot person prefixes undergo head-movement to COMP is provided by *na-*, an epistemic modal realized in COMP (Bliss and Ritter 2007).[34] As illustrated in (64) and (65), *na-* is in complementary distribution with person prefixes. More specifically, *na-* only appears in contexts that otherwise lack an overt person prefix, that is, when there is an inclusive AGENT or THEME, and when there are only third person arguments, but *ot-* is not permitted (see note 27 for details).

(64) a. nitóksta'si
nit-óksta'si
1-run.AI
'I ran.'

b. kitóksta'si
kit-óksta'si
2.run.AI
'You ran.'

c. (na)óksta'siwa
na-óksta'si-wa
NA-run.AI-PROX
'S/he ran.'

(65) a. *nanitóksta'si
na-nit-óksta'si
NA-1-run.AI

b. *kitnaóksta'si
kit-na-óksta'si
2-NA-run.AI

Following Bliss and Ritter (2007), we assume that *na-* and the person prefixes are competing for the same structural position. The contrast between (64a,b) and (64c) shows that the person prefix, rather than *na-*, appears in this context. These facts are exactly what we expect if person prefixes are $INFL_{PERSON}$ elements that raise to COMP, a position otherwise occupied by *na-*, as illustrated in (66).

(66) a. $[_{CP}$ NA $[_{IP}$ nit-/kit- … $[_{VP}$ V]]]
b. $[_{CP}$ nit-/kit- $[_{IP}$ ~~nit-/kit-~~ … $[_{VP}$ V]]]

Note that if *nit-* and *kit-* were agreement morphemes, we would expect, contrary to fact, that either *na-* would appear instead of the agreement prefix, or that *na-* would co-occur with the prefix.

This treatment of *na-* is reminiscent of the facts of English conditionals, illustrated in (67). All three examples have the same semantic content, and differ only in the choice of elements in INFL and COMP. In (67a) there is no movement: COMP is realized as the complementizer *if,* INFL is realized as the modal *would*, and the auxiliary *have* is in a position subordinate to INFL. In (67b), *have* has undergone head-movement to INFL. In this context the auxiliary bears tense inflection, and *would* is not expressed. Similarly, in(67c), *have* undergoes subsequent head-movement to COMP, and now occupies the position of *if.*

(67) a. $[_{CP}$ if $[_{IP}$ he would have $[_{VP}$run]]]
b. $[_{CP}$ if $[_{IP}$ he had ~~had~~ $[_{VP}$run]]] (V-to-INFL movement)
c. $[_{CP}$ had $[_{IP}$ he ~~had~~ ~~had~~ $[_{VP}$run]]] (V-to-INFL and INFL-to-COMP movement)

This establishes that person prefixes are formally distinct from person agreement. We argue that the behaviour of person prefixes reflects their status as $INFL_{PERSON}$ elements: they can enter into a local relation with COMP, the higher head. In particular, we have seen evidence that COMP can select for a specific instance of $INFL_{PERSON}$, and that $INFL_{PERSON}$ can move to COMP.

4.2.3 Uniqueness

The final characteristic of INFL we discuss here is that of uniqueness: given that INFL is a head, we expect its marking to be unique. Assuming that person prefixes instantiate $INFL_{PERSON}$ in Blackfoot, we predict that there can only be one person prefix per clause. This prediction is borne out. For completeness, note that the agreement suffixes differ again in this respect: as discussed above, there are two slots

available for agreement suffixes. Given the Blackfoot-specific properties, this is in fact a non-trivial prediction. Recall that the person prefixes do not establish a relation with a fixed argument, but instead they merely establish *whether or not* an utterance participant (first or second person) is involved in the event. So in the present context it is interesting to observe what happens if both the speaker and the addressee are involved in the event. Interestingly, even in this context, only one person prefix is allowed, as shown in (68).

(68) a. kitsikákomimmoki
kit-iik-akomimm-oki
2-very-love-2:1
'You love me.'

b. kitsikákomimmo
kit-iik-akomimm-o
2-very-love:1:2
'I love you.'

c. *nitkitsikákomimmoki
nit-kit-iik-akomimm-oki
1-2-very-love-2:1

d. *nitkitsikákomimmo
nit-kit-iik-akomimm-o
1-2-very-love:1:2

e. *kitnitsikákomimmoki
kit-nit-iik-akomimm-oki
2-1-very-love-2:1

f. *nitkitsikákomimmo
nit-kit-iik-akomimm-o
1-2-very-love:1:2

Even if both speaker and addressee are involved in the reported event, only one person prefix is allowed. This is consistent with the claim that the person prefixes instantiate INFL, which in turn can only be marked once, as discussed in section 3.2.1.

4.3. Tying up some loose ends

There are two outstanding issues that are specific to a system in which PERSON substantiates INFL. Specifically, a PERSON-based system differs in at least two respects from a TENSE- or LOCATION-based system. First, we assume that there is only one utterance time and only one utterance location, and that there is only one event time and one event location. PERSON differs, however, in that, on the one hand, there can be more than one utterance participant (the speaker and the addressee), and on the other hand that there are up to three participant arguments of the event. We refer to the latter as event participants. While we cannot fully explore the consequences of these two properties specific to a PERSON-based system, we wish to briefly discuss the hypotheses we are currently exploring.

4.3.1 How do we deal with two utterance participants?

Recall from the previous section that INFL is always uniquely marked. This is also the case in a PERSON-

based system, even if both utterance participants are involved in the reported event. Which of the utterance participants is the event participant anchored to, the speaker or the addressee? Given the data in (69)–(70), we observe that the person prefix is always the one corresponding to second person regardless of whether the addressee is the AGENT or THEME. The use of the first person prefix yields ungrammaticality.

(69) a. kitsikákomimmoki
kit-iik-akomimm-oki
2-very-love-2:1
'You love me.'

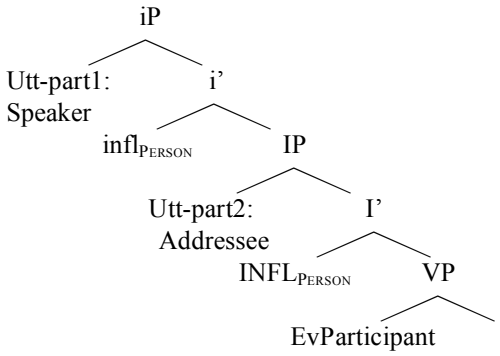
b. kitsikákomimmo
kit-iik-akomimm-o
2-very-love:1:2
'I love you.'

(70) a. *nitsikákomimmoki
nit-iik-akomimm-oki
1-very-love-2:1

b. *nitsikákomimmo
nit-iik-akomimm-o
1-very-love:1:2

In the traditional Algonquian literature, this phenomenon is described as a person-hierarchy effect. That is, given a choice between two event participants, the choice of the person prefix is determined by the following stipulations (known as the person hierarchy): if there are a third person and a local person, the local person outranks third person; if there are two local persons, second person outranks first person. We suggest that this person hierarchy is structurally conditioned (see also Jelinek and Carnie 2003). In particular, we speculate that $INFL_{PERSON}$ is in fact more complex than $INFL_{TENSE}$ or $INFL_{LOCATION}$, precisely because there are two utterance participants. Following ideas by Speas and Tenny (2003) we assume that $INFL_{PERSON}$ can project a complex shell-structure, similar to Larson's (1988) VP-shell structure for di-transitive predicates. Specifically, we will assume that the speaker occupies the specifier position of the higher $INFL_{PERSON}$ ($infl_{PERSON}$), while the addressee occupies the specifier position of the lower $INFL_{PERSON}$ within the INFL-shell structure. Speas and Tenny argue that the shell structure permits a structural definition of speaker and addressee: the speaker is the agent (i.e., the external argument) of the utterance and the addressee is the goal (i.e., the indirect internal argument). This is schematized in (71).

(71)



This shell structure allows us to account for the observed person-hierarchy effect in Blackfoot. Assuming that anchoring of the reported eventuality to the utterance is subject to a locality condition, Spec$INFL_{PERSON}$ will always be a closer anchoring position than Spec-$infl_{PERSON}$. Thus, anchoring to the addressee will always take precedence over the speaker, resulting in the Blackfoot-specific person hierarchy effects (2>1). But why can there not be two person prefixes? In other words, why does the uniqueness condition hold despite the fact that INFL contains two head positions? We assume that general considerations of economy derive this effect: once the reported event is anchored, it cannot be anchored again, even if a second anchoring position would be available.

4.3.2 How do we deal with two event participants?

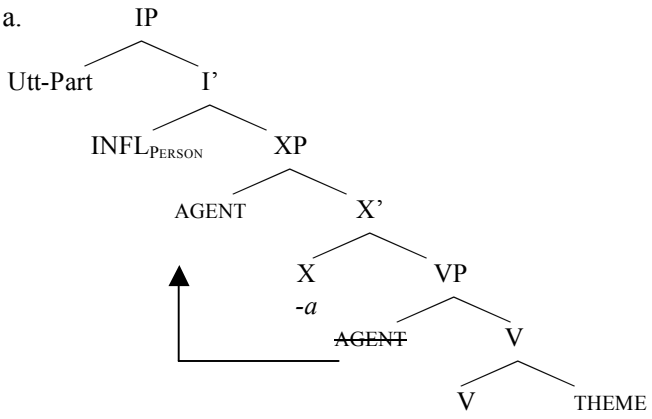
The next problem that a PERSON-based system presents has to do with the number of participants involved in the event. In the case of an intransitive predicate, the single event participant can straightforwardly be ordered relative to the utterance participant. However, if there are two or three event participants, it is not immediately clear which one is to be ordered relative to the utterance participant. So the following question arises: What determines which of the event participants is in fact ordered, the AGENT or the THEME? The empirical facts are as follows. The event role of the utterance participant is marked on the verb stem by a special suffix, know as the *theme sign*, which immediately follows the verb stem. If the anchoring utterance participant functions as the AGENT of the event, the verb stem is suffixed by a so-called *direct sign* (*-a)*. In contrast, if the anchoring utterance participant functions as the THEME of the event, the verb stem is suffixed by the so-called *inverse sign* (*-ok*).

(72) a. nitááwayakiaa — Utt-participant = AGENT
nit-(w)aawayaki-a-wa
1-hit-DIR-3SG
'I hit him.'

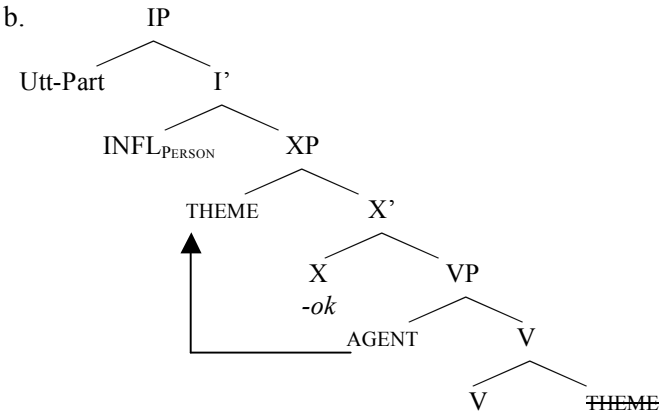
b. nitááwayakioka — Utt-participant = THEME
nit-(w)aawayaki-ok-wa
1-hit-INV-3SG
'He hit me.'

Suppose the theme signs occupy a functional head (labeled X in (73)), which triggers the movement of an argument into its specifier position: the direct marker signals movement of the AGENT as in (73a), while the inverse marker signals movement of the THEME as in (73b).[35]

(73) a.

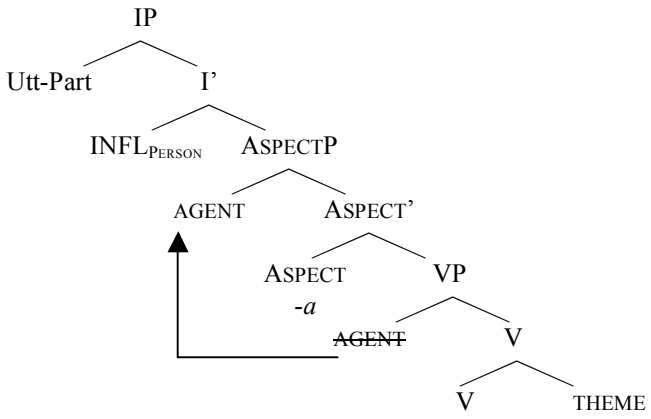


b.



According to this analysis, INFL$_{PERSON}$ does not directly order event participants relative to utterance participants. Rather, this ordering relation is mediated via an intervening phrase: whatever participant occupies the specifier position of XP is asserted to either coincide or not with the relevant utterance participant. But what is the function of XP? According to the Parametric Substantiation Hypothesis, UG provides a set of core abstract categories with specific functions, but the substantive content of these categories is not universally determined. This leads us to expect that the position of the theme signs (direct and inverse marking), which is specific to a PERSON-based system, might have a counterpart in the more familiar TENSE-based systems. We speculate that this is indeed the case and that the relevant functional head corresponds to ASPECT in a TENSE-based system, as illustrated in (74).

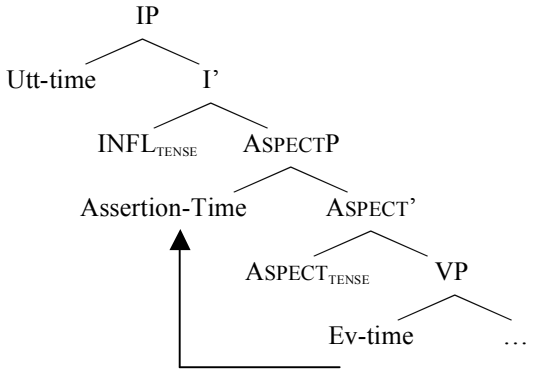
(74)



If this approach is on the right track, we need to establish that PERSON-based ASPECT (i.e., direct/inverse marking) is functionally equivalent and formally identical to the more familiar TENSE-based aspect. A proper treatment of ASPECT within the Parametric Substantiation Hypothesis is beyond the scope of the present paper, and so we limit ourselves to a few speculative remarks.

We have thus far assumed a simplified view of the role of TENSE, namely that it serves to order the event time relative to the utterance time. However, as Klein (1994, 1995) notes, this view is too simplistic. Rather, the relation between event time (his situation time) and utterance time is better analyzed as an indirect relation mediated by a third time that Klein calls *Assertion Time* or *Topic Time* and which is the time about which an assertion is made. Thus, a more complete representation of a clause in a TENSE-based system is shown in (75) (see Demirdache and Uribe-Etxebarria 1997, 2000).

(75)



Observe that this clausal structure of a TENSE-based system is remarkably similar to the clausal structure we have proposed for the PERSON-based system of Blackfoot. Instead of the assertion time introduced in a TENSE-based system, we may talk about an assertion-participant, that is, the participant about which an assertion is made.

This much is in line with the main idea of the Parametric Substantiation Hypothesis: one and the same abstract functional category can be associated with different substantive content across languages. So just like INFL, ASPECT may be substantiated by TENSE, LOCATION, or PERSON. Furthermore, on principled grounds we expect that the content of INFL will influence the content of ASPECT (or vice versa): for example, if the substantive content of INFL is TENSE, it orders times and therefore ASPECT must make a time available as well. Consequently, we expect ASPECT to be temporal in a TENSE-based system but participant-oriented in a PERSON-based system and spatial in a LOCATION-based system. In this way, we suggest that the direct/inverse system of Blackfoot is functionally equivalent to a temporally based aspectual system such as the one found in English. [36]

4.4. Summary

This concludes our discussion of Blackfoot, which we analyze as a system in which PERSON substantiates INFL. We have seen that INFL$_{PERSON}$ (as it manifests itself in the form of Blackfoot person prefixes) is formally identical and functionally equivalent to INFL$_{TENSE}$ and INFL$_{LOCATION}$. It is obligatory, uniquely marked, may remain silent, and may enter into a relation with the higher head, COMP. In addition, we have seen Blackfoot-internal evidence to the effect that person marking that instantiates INFL$_{PERSON}$ is formally distinct from person marking that serves to signal an agreement relation. Blackfoot has both types of person marking, and these two types are formally distinct in a way that is consistent with the proposed analysis. Finally, we have seen that a system in which PERSON substantiates INFL is necessarily different from a system in which either TENSE or LOCATION substantiates INFL. This is because there are two utterance participants (as opposed to one utterance time or utterance location) and there can be two event participants. We have briefly sketched avenues of analysis for these particular properties of a PERSON-based INFL system. Specifically, we have proposed that the two utterance participants are accommodated in a complex INFL-shell structure (following work by Speas and Tenny 2003). And we have argued that the Blackfoot direct/inverse system that serves to order only one of two available event participants is the functional equivalent of ASPECT in a PERSON-based system.

5. Conclusion

In this paper we have investigated the nature of functional categories in three unrelated languages: English, Halkomelem, and Blackfoot. Even a superficial look at the categories that need to be expressed obligatorily in each of these languages reveals significant cross-linguistic variation. This has in fact been one of the main claims within the tradition of the American structuralists: the inventories of grammatical categories differ across languages. The main goal of the present paper was to understand this observation

within a universalist framework, namely the Principles and Parameters framework in its Minimalist version (Chomsky 1995 and subsequent work).

We have argued that a cartographic approach to the problem is untenable. Consider again what a cartographer would say in light of the empirical findings reported here. The source of cross-linguistic variation reduces to a language-specific choice in which of the functional categories provided by UG are overt and which ones remain silent (see for example Cinque 1999 for this view). Accordingly, the languages under investigation here would be analyzed as follows: in English only TENSE is overt, in Halkomelem only LOCATION is overt, and in Blackfoot only PERSON is overt. Alternatively, it might be the case that language variation reduces to a choice among different categories (see for example van Gelderen 1995, Thrainsson 1996, and Wiltschko 2002 for such an approach). This cartographic approach to variation is illustrated in Table 4.

	English	**Halkomelem**	**Blackfoot**
TENSE	*overt*	silent	silent
LOCATION	silent	*overt*	silent
PERSON	silent	silent	*overt*

Table 4: Language variation in categories within a cartographic approach

However, the cartographic approach towards categorial variation faces problems. Specifically, this approach has nothing to say about: i) the complementary distribution of categories across the three languages; ii) the formal identity of the three categories (TENSE, LOCATION, and PERSON); or iii) the functional equivalence of these categories.

In this paper, we have introduced an alternative to cartography, namely the Parametric Substantiation Hypothesis. This hypothesis shares in common with cartographic approaches the assumption that UG makes available a hierarchically organized inventory of functional categories. At the same time, however, it denies one of the core tenets of cartography, namely the assumption that functional categories are universally associated with fixed substantive content. Rather, we have explored the hypothesis that functional categories are substantiated by different semantic concepts across languages. Specifically, we have argued that the functional category INFL, which universally serves to anchor the reported event to the utterance, can be associated with different kinds of substantive content. The only restriction on the content of INFL, which follows from its function, is that it be deictic. And in fact we have seen that the major deictic categories, TENSE, LOCATION, and PERSON, can indeed be analyzed as substantiating INFL. This is illustrated in Table 5.

Language	**INFL category**	**Function of INFL**
English	TENSE	anchors reported event to utterance
Halkomelem	LOCATION	
Blackfoot	PERSON	

Table 5: Parametric Substantiation Hypothesis

The Parametric Substantiation Hypothesis predicts precisely the state of affairs we have seen to hold and which proved problematic for a cartographic approach: the three categories TENSE, LOCATION, and PERSON are functionally equivalent, formally identical, and in complementary distribution. We have also seen evidence that the substantive content of INFL might determine other properties of the clause: for example, we have analyzed the direct/inverse system of Blackfoot as the functional equivalent of ASPECT in a PERSON-based INFL system. And we would expect ASPECT to have spatial content in a language with LOCATION-based INFL. Furthermore, we expect that any property of clause structure that is dependent on the substantive content of INFL is affected by this kind of variation. A case in point is the licensing of nominal arguments. On some accounts, structural case is directly linked to the substantive content of INFL (i.e., TENSE; Pesetsky and Torrego 2001). If this is indeed so, we expect that nominal

licensing in LOCATION- and PERSON-based systems differs significantly from that of TENSE-based languages. Specifically, we might expect the absence of case marking altogether, and in fact we have previously argued that this is indeed the case (see Wiltschko 2003 for Halkomelem, and Ritter and Rosen 2005 for Blackfoot). Instead we might expect that nominals are pervasively marked for LOCATION or PERSON. This appears to be the case, as discussed in detail in Wiltschko (to appear). These consequences of the present proposal are summarized in Table 6. However, a detailed investigation of these properties has to await future research.

	Aspect	**Nominal licensing**
$INFL_{TENSE}$	temporally based	DP_{TENSE} = case
$INFL_{LOCATION}$	spatially based	$DP_{LOCATION}$ = location marking
$INFL_{PERSON}$	participant based	DP_{PERSON} = participant marking

Table 6: Consequences of the Parametric Substantiation Hypothesis

Finally, we note that the Parametric Substantiation Hypothesis has many more implications that we were not able to address in this paper. For example, we might expect that INFL can be substantiated by deictic categories other than the ones discussed here. Social deixis as manifested in the honorific system of Japanese comes to mind. Moreover, if the Parametric Substantiation Hypothesis is on the right track, we expect that other core categories are affected as well. We have already seen that this might indeed be so for ASPECT, but other functional categories such as COMP and DET need to be investigated from this angle as well. The Parametric Substantiation Hypothesis as outlined in this paper thus opens up an entire new line of research into the nature of categorization.

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[1] In this paper we use small capital letters to indicate the morpho-syntactic categories of TENSE, LOCATION and PERSON, and lower case for tense, location and person marking, which may be realized either on the verb or in the functional heads, TENSE, LOCATION and PERSON, respectively.

[2] In Upriver Halkomelem, the obligatoriness of location marking is not straightforwardly obvious since this dialect has introduced a zero auxiliary serving as an alternative to the overt [+distal] auxiliary *li* (see section 3.2.4 for discussion). In the other dialects of Halkomelem, however, this zero auxiliary is not available and thus the obligatoriness of the auxiliary is more straightforwardly observable.

[3] The following abbreviations are used in this paper: AI – animate intransitive; ARG – argument; AUX – auxiliary; C – COMP; coin – coincidence; CONJ – conjunctive; CONT – continuative; DET – determiner; DIR – direct; DUR – durative; EV – event; I – INFL; IMP – imperative; IN – inanimate; INCHOAT – inchoative; INDEP – independent; INT – intensive; INV – inverse; LOC – location; NEG – negative; NOM – nominative; O – object; OBL – oblique; OBV – obviative; PASS – passive; PL – plural; POSS – possessive; PRO – pronoun; PROX – proximate; Q – question; S – subject; SG – singular; TA – transitive animate; TI – transitive inanimate; TNS – tense; TRANS – transitivizer; UTT – utterance; V – verb; 1 – first person; 2 – second person; 3 – third person.

[4] More precisely, we assume that INFL anchors a reference argument (introduced by ASPECT) to the utterance, but for the core of the paper we can abstract away from this. For now, we abstract away from a category that mediates between eventualities and the utterance, namely ASPECT. See section 4.3.2 for some discussion.

[5] We assume that *future* is not a TENSE but instead contains a modal component (Enç 1996; Copley 2004). Therefore, a [-coin] setting of INFL will only result in a past interpretation. See section 3.2.4 for a brief discussion on the future in Halkomelem.

[6] *ʔi* and *niʔ* are the locative auxiliaries of the Downriver dialect of Halkomelem corresponding to the Upriver auxiliaries *i* and *li*, respectively.

[7] We have confirmed Galloway's and Suttles' generalizations with our consultant using video clips to elicit judgements.

[8] Note that the impossibility for a future interpretation here implies that the future must contain a modal component (see note 4). However, see Matthewson (2006), who argues that the impossibility for a future interpretation in similar contexts shows that there must be a phonetically empty TENSE which restricts the event time to either *past* or *present*.

[9] In Upriver Halkomelem a past interpretation is equally acceptable in this context. Although Suttles (2004) only

mentions the present interpretation for this particular example, we assume that this is an artifact of the description. (Unfortunately, no speakers of Downriver Halkomelem remain to confirm this prediction.)

[10] If more than one auxiliary is used, only the highest one is inflected:

i) John has been dancing.
ii) *John has is dancing.
iii) *John have is dancing.

[11] Whether INFL is instantiated by a bound form (inflectional suffixes in English) or a free form (locative auxiliaries in Halkomelem) is independent of the substantive content of INFL (cf. Borer 2005).

[12] One might argue that the co-occurrence of *li* and *i* is independently ruled out for reasons of semantic compatibility. That is, the event location cannot be simultaneously coincide *and* not coincide with the utterance location. However, the point is still valid because in the context of yes/no questions the auxiliary *li* loses its locative force (see section 3.2.2) and should thus be compatible with the [proximate] auxiliary *i,* contrary to fact.

[13] These examples without the question particle *-a* are ambiguous between interrogative and declarative interpretations. In this section we focus on the significance of the interrogative interpretation.

[14] On general properties and motivation for T–to-C movement, see Pesetsky and Torrego (2001).

[15] See also Davis (2002) for the postulation of an empty auxiliary in clitic-initial constructions in Lillooet.

[16] The temporal interpretation of these sentences differs if the verb is marked as continuative (see Bar-el et al. 2003 for a description of the facts, and Ritter and Wiltschko, in preparation, for an analysis).

[17] The fact that there is only one covert locative auxiliary in Upriver Halkomelem is not surprising: If both proximate and distal locative auxiliaries were covert, there would likely be an intolerable amount of ambiguity in the system. (English also has only one covert tense marker, i.e., present in context of first, second, and third non-singular subjects.) We have no insight to offer as to why the distal, rather than the proximate, locative auxiliary is covert in Upriver Halkomelem. Note, however, that a covert locative auxiliary is not required for this to be an INFL category, as evidenced by the fact that in Downriver Halkomelem both locative auxiliaries have phonetic content.

[18]Note that the situation is different with third person subjects, which are not associated with a subject clitic. We discuss such examples below.

[19] It suggests, however, that the distribution as a second-position clitic is syntactically, not phonologically conditioned.

[20] Another Salish language that allows for this order is Squamish, a closely related Central Coast Salish language (see Bar-el et al. 2003 for discussion).

[21] Jeroen van Craenenbroeck (p.c.) raises the very interesting question of whether it would be possible to get a past tense interpretation in dissociation contexts, e.g., someone listening to himself on tape, or looking at a picture or movie of himself. Unfortunately, we have no data that would answer this question, and speakers are no longer available for elicitation.

[22] There are contexts, however, in which third person subjects are associated with a third person clitic, namely in so-called subjunctive clauses (Galloway 1993). As discussed in Bar-el et. al. (2003), the same pattern holds: in the absence of an auxiliary that triggers V-to-INFL movement, a future interpretation obtains.

[23] We assume that the unacceptability of the past tense suffix *-ed* in both infinitives and imperatives has the same explanation, i.e., that INFL lacks [± past] in these two constructions, and consequently, tense marking is impossible. Note that an alternative account of (38) that asserts that the infinitive marker *to* blocks [± past] cannot be extended to (39), where there is nothing in INFL to block the insertion of past tense marking.

[24] The distribution of the auxiliaries in embedded clauses is still subject to investigation. That is, there appear to hold certain restrictions on the occurrence of the proximate auxiliary *i* (Thompson, in preparation).

[25] Note, however, that infinitives are different in Halkomelem: they contain agreement, making them more akin to inflected infinitives in Greek. The crucial point is that location marking is unavailable in these contexts.

[26] Specifications of location are sometimes obligatory in English as well, but their obligatoriness is then dependent on the main predicate and is not a function of the clause, as in (i)-(ii):

(i) He put the book *(on the shelf).
(ii) He used to live *(on Vancouver Island).

[27] In clauses with independent order verbs, the third person prefix, *ot-* is only used if both event participants are third person: specifically, if an obviative (a.k.a. fourth person) functions as the AGENT. Otherwise, the third person prefix remains silent. However, other clause types have a different distribution: In conjunctive clauses, *ot-* is used whenever there are only third person participants, and in subjunctive and imperative clauses, *ot-* is never used (see Frantz 1991 for details).

[28] This leaves open the question as to what counts as the relevant event participant in case there are two (AGENT and PATIENT, for example). See section 4.3.2 for discussion.
[29] Our Siksiká Blackfoot consultant allows both a past and present time interpretation for such an example. But see Matthewson and Reis Silva (2007), who report that in the absence of a durative, only a past interpretation is available for their Kainaa Blackfoot consultant. At this point, we do not know whether this is due to a dialectal difference, but we have replicated these results with our Siksiká consultant over a number of sessions and with different predicates.
[30] In fact we predict that both Blackfoot and Halkomelem should lack the effects of structural case. Wiltschko (2003) shows that this prediction is also borne out in Halkomelem: Like Blackfoot, this language lacks morphological case, case-motivated A-movement, and A-binding. Thus, the case facts also provide further support for the claim that Halkomelem does not have a functional category TENSE, in line with the Parametric Substantiation Hypothesis.
[31] We have not yet found any candidates for person marking that lack their substantive content.
[32] Throughout this paper we use AGENT and THEME as the labels for these thematic roles. They correspond to the traditional Algonquian terms ACTOR and GOAL, respectively.
[33] Note that the presence of agreement in *subjunctives* and *imperatives* supports the view that the substantive content of INFL (TENSE, LOCATION, and PERSON) is independent of agreement. Thus, Blackfoot subjunctive clauses are formally similar to agreeing infinitives/subjunctives in Greek: both require a negative specification for the substantive content of INFL ([-PERSON] in Blackfoot and [-TENSE] in Greek) while agreement is still present.
[34] The prefix *na-* is only used by speakers of the Siksika dialect. Frantz (1991) analyzes it as a past tense marker, but see Bliss and Ritter (2007) for arguments against this treatment.
[35] Compare this to Bruening (2001), an analysis in which direct marking involves movement of the AGENT into SpecIP, and inverse marking involves movement of the THEME into SpecIP. This analysis would predict that there is a uniquely identifiable grammatical relation *subject* in Blackfoot, but this does not appear to be the case (see Ritter and Rosen 2005, Ritter and Wiltschko 2005).
[36] If indeed the substantive content of the functional category ASPECT is dependent on the substantive content of TENSE in a given language, then we expect ASPECT in Halkomelem (a LOCATION-based system) to be spatial in nature. We hypothesize that this might be a fruitful line of research: Halkomelem has a set of directional auxiliaries that might be amenable to such an analysis, but we will have to leave a more thorough discussion for future research. In this context, we will also need to address another issue: how do we analyze the types of morphemes and constructions that appear to be aspectual in the standard temporal sense (i.e., imperfective, perfective, continuative, etc.) and which both languages appear to have in their inventory?

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