The composition of INFL

An exploration of *tense, tenseless* languages, and *tenseless* constructions

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1. Introduction

Languages differ in the morpho-syntactic categories they make use of, and as a consequence they differ in their formal organization of meaning (cf. Sapir 1921). For example, in most Indo-European languages every indicative root clause must be morphologically marked for *tense* (present or past).

(1) a. Yoshi **is** playing.

b. Yoshi **was** playing.

Obligatory m(orphological)-marking for tense, however, is not a language universal. In many native languages of the Americas, tense marking is either optional or simply unattested. For example, in Halkomelem (Central Coast Salish) there is a morpheme expressing past time (*-lh* in (2)a), but its use is not obligatory. Consequently, the absence of overt past marking does not necessarily signal that the event is ongoing (i.e., present time), as shown in (2)b.[1]

(2) a. í-lh qw'eyílex tú-tl'ò

AUX-PAST dance he

'He was dancing.'

[1] The following abbreviations are used in this paper: 1/2/3 – 1st/2nd/3rd person; AI – animate intransitive; AUX – auxiliary; CF – counterfactual; COIN – coincidence; CONJ – conjunct order; DEM – demonstrative; DETF –definite feminine article; DETM – definite masculine article; DIST – distal; DUR – durative; EV-SIT – event situation; FUT – future; IMPF – imperfective; INF – infinitive; INT – intensifier; INTR – intransitive; INV – inverse; LOC – locative; neg – negation; NOM – nominative; NON.FACT – non-factive; OBV – obviative; PART – participant; PERF – perfective; PL – plural; POSS – possessor; PRES – present; PROX – proximate; PRT – particle; Q – question; REFL – reflexive; SG – singular; SUBJ – subject; SGS – singular subject; SS – subjunctive subject; TA – transitive animate; TNS – tense; TR – transitive; UT-SIT – utterance situation.

b. í qw'eyílex tú-tl'ò

AUX dance he

'He is/was dancing.'

Similarly, in Blackfoot (Algonquian), which lacks a dedicated past marker (Ritter and Wiltschko 2004), a clause that lacks overt m-marking for tense is compatible with either a present or a past time interpretation.

(3) oma pita a-ipaawani

3DEM eagle IMPF-fly.up

'That eagle is/was flying up.' (Reis Silva and Matthewson 2007: (8))

In this article, we explore the formal underpinnings of the variation in categorial inventories within the principles and parameters framework in its minimalist incarnation (Chomsky 1995, 2001). Within this framework it is assumed that all languages have the same abstract building blocks, with variation restricted to morphological features (Borer 1984).

The central thesis we put forward in this paper is summarized in (4).

(4) Parametric Substantiation Hypothesis:

a. Universal Grammar makes available a core set of abstract functional categories (COMP, INFL, ASPECT, …).

b. Languages vary in the substantive content associated with functional categories.

According to the Parametric Substantiation Hypothesis, the categorial identity of a functional category is dissociated from its substantive content. This implies that the morpho-syntactic category TENSE is decomposable into its substantive content (*present*

vs. *past*) and the abstract functional category that hosts it, namely INFL. Accordingly, tenseless languages such as Halkomelem and Blackfoot are defined as languages where INFL does not associate with temporal content. Rather, it has other substantive content compatible with its core function. In previous work (Ritter and Wiltschko 2009), we hypothesized that INFL requires deictic substantive content, i.e., content whose denotation is determined by context, including not only tense, but also location and person. This hypothesis was informed by our analysis of INFL as specified for location in Halkomelem and for person in Blackfoot. We review the main arguments of this work in section 2. The conclusion to be drawn is that languages do indeed differ in their formal organization of meaning. In particular, they differ in the content of functional categories, but not in their core function.

The main purpose of the present paper is to explore the properties of the universal category INFL in more detail. What are the properties intrinsic to the category that exist independent of its morphological feature content? To answer this question we first investigate clause types which are often considered to be *tenseless*: infinitives in section 3, and imperatives and counterfactuals in section 4. We show that the dissociation of core function from substantive content allows for an empirically and theoretically adequate analysis of these constructions. Furthermore, we show that in such environments the differences between *tense*-based, *location*-based, and *participant*-based languages disappear, precisely because the universal properties of INFL emerge.

In section 5, we explore the role INFL plays in the licensing of nominal arguments (i.e., *case*). In particular, the proposed dissociation of INFL from its temporal content leads us to ask whether it is the universal category INFL itself which functions as

the case-licenser or whether tense features are a necessary ingredient for case-licensing. We shall conclude that tenselessness is not a reliable predictor of caselessness.

In section 6, we conclude with a discussion of the theoretical as well as methodological implications of the Parametric Substantiation Hypothesis.

2. Exploring INFL in tenseless languages

The central goal of this article is to argue that functional categories are universally associated with a core function but that their substantive content is subject to variation. We first discuss the problem that tenseless languages pose in the context of the principles and parameters framework (section 2.1). We then summarize Ritter and Wiltschko's (2009) arguments for the Parametric Substantiation Hypothesis (section 2.2). And in section 2.3, we introduce the formal implementation of parametric substantiation, which will serve as the framework for the exploration of tenseless constructions and case.

2.1 The categorial identity of the head of the clause

In the early days of generative grammar, clauses were assumed to be exocentric phrases, which consisted of the subject NP, the predicate VP, and optional auxiliary verbs. The node immediately dominating NP (Aux) and VP was labeled S (for sentence), as schematized in (5).

(5) $[_S[$ NP (AUX) VP $]]$

However, with the rise of X'-theory and the hypothesis that *all* phrases are endocentric, the structure in (5) became untenable, particularly because S behaves like an endocentric phrase. The problem was solved by Chomsky's (1981: 52) proposal that tense features (along with AGR, subject-verb agreement), constitute the content of a

syntactic category INFL. For Chomsky, the label INFL signaled that this category represented verbal inflection. Subsequently, Travis (1984) provided compelling evidence that INFL was the head of S (=IP), based on its role in head movement phenomena. The revised structure is shown in (6). We add the subscript *tns* to indicate that tense features constitute the interpretable content of INFL.[2]

(6) $_{IP}[\ INFL_{tns}\ _{VP}[V_{\{present,\ past\}}]]]$

Other evidence supports the view that the distribution of verbal inflection is syntactically conditioned, and in particular that it fits the characteristics of a syntactic head. It is obligatory and unique; it interacts systematically with the head of its complement (VP); the main verb is only inflected in the absence of an auxiliary verb; and it interacts with the head that selects it (COMP): verbal inflection for tense and agreement is restricted to certain clause-types (assuming that clause-typing is a function of COMP; Cheng 1991).

Ever since Pollock's seminal paper (Pollock 1989), however, the categorial identity of the functional head hosting the inflectional tense features has been equated with its content, thus the label TENSE in (7).

(7) $_{TP}[\ TENSE\ _{VP}[V_{\{present,\ past\}}]]]$

In fact, what Pollock's (1989) study showed was that there is evidence for two head positions between the V and COMP, prompting him to propose the decomposition of INFL into TENSE and AGR. Subsequent research has challenged the conceptual and empirical motivation for a separate category AGR, with many assuming that the lower head position is in fact ASPECT (e.g. Zagona 1993, Stowell 1996). Here, we challenge

[2] We abstract away from agreement for the purpose of the following discussion.

the conceptual and empirical motivation for TENSE as a category, arguing for the pre-Pollockian view of tense features as part of the content of INFL.

Following Chomsky (1995), much current research assumes that TENSE, rather than INFL, is a category of Universal Grammar, and that TENSE functions as the head of the clause across all languages. We note, however, that the identity of this category as TENSE is an accident of history. The field was led to this conclusion by virtue of the obligatory presence of tense morphology in indicative clauses of most Indo-European languages. Thus, if the main object of investigation for generative grammarians had been languages where verbs are not obligatorily inflected for tense (such as Halkomelem and Blackfoot) INFL would not have been analyzed as hosting tense features. Consequently, the path towards the assumption that the head of the clause *is* TENSE would have not been paved. Of course, this does not imply that we could not have come to the same conclusion via a different route. So what evidence is there in support of the claim that the universal head of the clause <u>is</u> TENSE?

We have already seen that the evidence cannot derive from verbal inflection: not all languages have obligatory tense inflection. In Halkomelem, past marking is optional (see example (2) above) while in Blackfoot there are no dedicated morphological markers for *present* or *past* (see example (3) above). If the presence of obligatory *m-tense* were a necessary and sufficient condition for the postulation of the category TENSE, we would have to conclude that Halkomelem and Blackfoot lack TENSE. On the assumption that TENSE is the head of the clause we would then be forced to conclude that such languages lack this particular clausal head altogether (see Wiltschko 2002 for

Halkomelem, Ritter and Wiltschko 2004 for Blackfoot, as well as Shaer 2003 and Bittner 2005 for West Greenlandic).

(8) $_{CP}$[COMP $_{VP}$[V]]] TENSELESS CLAUSE

The view that the head of the clause is identified by its substantive content raises the possibility that it is associated with a dedicated semantic function. Much research on the syntax/semantics interface has sought to identify the precise nature of this function. Following Zagona 1990, 1995 and Demirdache and Uribe-Etxebarria 1997, 2000 we assume that TENSE serves to relate the event time to the utterance time.[3] In this sense, the core function of TENSE is that of *anchoring* (Enç 1987). The central problem that this assumption raises is the following*:* How can languages be tenseless but still satisfy the anchoring function of TENSE (Matthewson 2003, 2005, 2006)?

Two directions for addressing this problem present themselves. Either TENSE is universal even if tense morphology is not, or anchoring is universal but need not be mediated by TENSE. In this paper we provide evidence in support of the latter, in part because there is no principled reason as to why UG should privilege temporality as its anchoring category (Ritter and Wiltschko 2005). Moreover, if we assume the existence of a universal generalized anchoring category relating the event situation to the utterance situation, this would solve the anchoring problem in tenseless languages identified in Matthewson (2003, 2006).

In the absence of evidence for the universality of a functional category TENSE, we propose to return to the pre-Pollockian view according to which the universal head of the clause is INFL, which can but need not host morphological tense features.

[3] For the purpose of this discussion, we abstract away from aspect, which is introduced in Aspect, a functional category above VP but below IP.

Specifically, we will assume following Ritter and Wiltschko (2009) that INFL serves as the universal anchoring category, but that it is not intrinsically associated with substantive content. Rather, the substantive content associated with INFL is subject to cross-linguistic variation. Given that such variation is tied to the choice of morpho-syntactic features, we can conclude that the language-specific substantive content associated with INFL manifests itself via m(orphological)-marking. In the next subsection, we review Ritter and Wiltschko's evidence that INFL in matrix indicative clauses is associated with substantive content that varies across languages.

2.2 INFL can host features other than tense

Contrastive m-marking serves as the initial diagnostic to identify the language-specific feature associating with INFL (Ritter and Wiltschko 2009). As we have already seen, tense marking is not contrastive in either Halkomelem or Blackfoot. In both Halkomelem (2) and Blackfoot (3), the absence of past marking does not imply present tense. The core claim in Ritter and Wiltschko (2005) is that contrastive m-marking other than tense serves the anchoring function in these languages. In particular, contrastive m-marking in Halkomelem indicative clauses takes the form of locative auxiliaries which contrast along a spatial dimension. The proximate auxiliary *i* is used if the location of the reported event is the same as the location of the utterance. In contrast, the distal auxiliary *li* is used if the location of the reported event is elsewhere (Galloway 1993, Suttles 2004).

(9) a. **í** qw'eyílex tú-tl'ò Halkomelem
PROX dance he
'He is/was dancing [here]'

b. **lí** qw'eyílex tú-tl'ò

DIST dance he

'He is/was dancing [there].'

The locative auxiliaries thus serve as the anchoring category: they assert *where* relative to the utterance the event took place.

In Blackfoot, another type of contrastive m-marking serves the anchoring function of INFL. Here the relevant dimension involves a third core deictic category, namely person, and is expressed by a small closed set of verbal suffixes called ORDER markers in the Algonquianist tradition. The order suffix *–hp* is used in root indicative clauses to signal that at least one participant of the reported event is also an utterance participant, i.e., a local (1st or 2nd) person.[4] The absence of an overt order suffix in this type of clause indicates that none of the event participants is also an utterance participant. In other words, all event participants are 'others', i.e., 3rd person.

(10) a. Kitsinóóhpoaawa Kitsinóókihpoaawa

kit-ino-o-**hp**-oaawa kit-ino-oki-**hp**-oaawa

2-see-1:2-**local**-2PL 2-see-2:1-**local**-2PL

'I saw you (PL).' 'You (PL) saw me.'

[4] This departs from the analysis in Ritter and Wiltschko (2009), where the person prefixes were analyzed as the relevant contrastive markers. The current analysis has two advantages over our original proposal: First, Blackfoot order markers, like all other verbal inflectional morphemes, are realized as suffixes, but person markers are prefixes. Second, the relevant contrast between utterance participants and others is directly expressed in order suffixes but not in person prefixes. As noted above, order suffixes indicate only local (1st and 2nd) vs. 3rd person, but person prefixes have distinct forms for 1st and 2nd person, which unnecessarily complicates the analysis.

b. Ana póókaawa inoyííwa ani imitááyi

an-(w)a pookaa-wa ino-yii-**Ø**-wa an-(y)i imitaa-yi

DEM-PROX child-PROX see-DIR-**3**-PROX DEM-OBV dog-OBV

'The child saw the dog'

We attribute the absence of an overt order suffix to the presence of a zero morpheme in (10)b. Thus, regardless of phonetic content, the person-based suffixes in (10) serve to anchor the event to the utterance. In this case, what is marked is whether or not one of the event participants is also an utterance participant.

In Ritter and Wiltschko (2009), the functional equivalence of contrastive tense, location and person marking in English, Halkomelem and Blackfoot is argued to be a result of their categorial equivalence. Because the three languages differ in the substantive content of contrastive m-marking, we get the impression that we are dealing with instances of distinct categories. On our analysis, however, these categories instantiate the same abstract anchoring category, namely INFL. As such INFL can be viewed as a universal CATEGOREME with language-specific ALLOCATEGORIES. In other words, regardless of substantive content, the contrastive m-marking which serves to anchor the event to the utterance associates with the anchoring category INFL.

(11) a. $_{CP}[\ \ldots\ \text{COMP}\ _{IP}[\text{INFL}_{tns}\ \ _{VP}[\text{V}_{\{present,\ past\}}]]]$ English

b. $_{CP}[\ \ldots\ \text{COMP}\ _{IP}[\text{INFL}_{loc}\ \ _{VP}[\text{V}_{\{prox,\ distal\}}]]$ Halkomelem

c. $_{CP}[\ \ldots\ \text{COMP}\ _{IP}[\text{INFL}_{part}\ \ _{VP}[\text{V}_{\{local,\ other\}}]]$ Blackfoot

To support the claim that we are indeed dealing with the same category, Ritter and Wiltschko (2009) further show that tense, location, and participant marking have the same formal properties (in addition to being functionally equivalent and in

complementary distribution). Crucially, the distribution of the three types of contrastive markers is syntactically conditioned in ways that are strikingly similar. All three types of m-markers are unique and obligatory in indicative matrix clauses, but they are categorically excluded in other clause-types, such as imperatives and certain types of embedded clauses. Assuming that clause-typing is encoded in COMP, this suggests that all three markers interact with COMP, which is expected if they are associated with INFL, the head immediately below COMP. We discuss each of these constructions in detail in sections 3 and 4 as they provide us with a window into the formal properties of INFL without substantive content. In order for our exploration of the formal properties of INFL to proceed, we need to have an understanding of how the language-specific substantive content interacts with INFL in the first place. In other words, we need to formalize anchoring. This is the task we take on in the next subsection.

2.3 Formalizing anchoring

Building on Ritter and Wiltschko 2009, we assume that the universal anchoring function of INFL is derived as follows: At the initial state, INFL is intrinsically associated with an abstract unvalued coincidence feature (henceforth [*u* coin]). Coincidence as a central and universal characteristic of a variety of grammatical categories was first introduced by Hale 1986, who argues that it is "the definition of spatial, temporal and identity relations in terms of 'central' versus 'non-central' (or 'terminal') coincidence*"* (Hale 1986: 238).

Building on work by Demirdache and Uribe-Etxebarria (1997, 2000), we further assume that in matrix indicative clauses INFL introduces an abstract argument in its specifier position: the utterance situation. Accordingly, the core function of INFL is to

relate this utterance situation to the event situation, which is introduced in VP, as shown in (12).[5]

(12) $_{IP}$[Utt-sit INFL$_{[u\ coin]}$ $_{VP}$[Ev-sit V]] UG

Our central proposal here is that the unvalued coincidence feature in INFL must be valued in the course of the derivation; otherwise, the derivation will crash. As schematized in (13)-(15), m-marking in indicative clauses serves to value [*u* coin]. In particular, m-marking for *present tense, proximate location*, or *local participant* values INFL as [+coin], thereby asserting that the event situation coincides with the utterance situation. In contrast, m-marking for *past tense, distal location*, or *other (=3rd person) participant* values INFL as [-coin], thereby asserting that the event situation does not coincide with the utterance situation.

(13) a. $_{IP}$[Utt-sit INFL$_{[+coin]}$ $_{VP}$[Ev-sit V$_{\{present\}}$]] English

b. $_{IP}$[Utt-sit INFL$_{[-coin]}$ $_{VP}$[Ev-sit V$_{\{past\}}$]]

(14) a. $_{IP}$[Utt-sit INFL$_{[+coin]}$ $_{VP}$[Ev-sit V$_{\{proximate\}}$]] Halkomelem

b. $_{IP}$[Utt-sit INFL$_{[-coin]}$ $_{VP}$[Ev-sit V$_{\{distal\}}$]]

(15) a. $_{IP}$[Utt-sit INFL$_{[+coin]}$ $_{VP}$[Ev-sit V$_{\{local\}}$]] Blackfoot

b. $_{IP}$[Utt-sit INFL$_{[-coin]}$ $_{VP}$[Ev-sit V$_{\{other\}}$]]

This constitutes the essence of parametric substantiation. If the coincidence function of INFL and its temporal content are dissociated, then we expect them to have a life of their own. There are three core predictions that follow from this claim:

i) INFL can associate with substantive content other than *present* or *past*

ii) *present* or *past* marking may occur without associating with INFL

[5] For the purpose of this discussion we abstract away from the reference situation introduced in Aspect (see Bliss, Ritter and Wiltschko 2010 for some discussion).

iii) INFL may remain without substantive content

Above, we reviewed Ritter and Wiltschko's (2009) analysis of Halkomelem and Blackfoot according to which INFL does indeed associate with substantive content other than *present* or *past.* This confirms the first prediction on the basis of language variation: The abstract anchoring category INFL can be associated with different substantive content across languages. However, the abstract function is the same in each case: the coincidence feature relates the event situation to the utterance situation. Given that situations have spatio-temporal coordinates, it follows that a reference time is always available in indicative clauses, even if the coincidence feature is not valued by temporal content. Thus, the present analysis does not face the problem of lacking a reference time. At the same time, however, it does not identify tense as a privileged anchoring category. Rather, temporal content is just one among several possibilities, the only restriction being that the substantive content of INFL be suitable for establishing a relationship between the event and the utterance situation. Thus, almost any type of deictic content will be allowed.[6]

The present analysis, therefore, allows us to understand variation in the categorial inventories of languages (Sapir's problem) within a universalist approach. It simultaneously captures the defining properties of the language-specific categories. For example, the contribution of locative auxiliaries in Halkomelem has been described in two ways by two different scholars:

[6] Deictic elements require reference to the extralinguistic context of the utterance for interpretation. They include time (e.g. *now* vs. *then*), place (e.g. *here* vs. *there*) and participants (e.g. *you* and *I* vs. *them*).

*"*The choice between *ʔi* and *niʔ* depends on the **location of the speaker** relative to whatever the predicate refers to." Suttles (2004: 35) [emphasis ours]

"The choice between *í* and *lí* is governed by considerations having to do with the **location of the event**. In particular, locative auxiliaries encode the "semantic oppositions of emplacement ('here' …) and displacement ('there' …)" Galloway (1993: 359)

The analysis in (14) captures both of these descriptions: by virtue of associating with INFL, the locative content of the auxiliaries serves to relate the location of the event to the location of the speaker (i.e., the utterance location).

Our analysis also allows us to understand a comment made by one of our Blackfoot consultants. On several occasions she explained, "*He* is the past tense of *you*." Our treatment of 3rd person in (15) elegantly captures this insight. The non-local participant feature values the coincidence feature as [-coin], just like *past* does in a tense-based language.

As for the second prediction, namely that we expect to find *present* or *past* marking which does not associate with INFL, we have already seen that this is indeed the case. In particular, the past marker of Halkomelem can be analyzed in this way. Its non-contrastive distribution suggests that it does not associate with a functional head, but instead functions like a modifier.[7] We propose that contrastiveness is a property of m-marking that serves to value the formal features associated with functional heads. This follows from the assumption that these unvalued formal features are bivalent, and as such, they require the valuing m-marker to be contrastive. On this view, then, tenseless

[7] See Wiltschko 2009 on the distinction between head features and modifying features.

languages are defined as languages that do not associate temporal content with INFL. But tenseless languages do not lack the functional category INFL – they merely associate it with different substantive content. Moreover, tenseless languages may still have m-markers with temporal content – they simply do not associate them with INFL.

Finally, we turn to the third prediction, which will constitute the central theme for the remainder of the paper. The dissociation of the functional category INFL from its substantive content leads us to expect to find INFL without substantive content. For example, we expect that in certain contexts INFL will remain tenseless in English. This prediction is of course borne out: imperatives and certain embedded infinitives cannot occur with temporal m-marking. In fact, previous analyses have treated them as tenseless (e.g. Davies 1987; Zannutini 1991, 1994, 1997; Platzack and Rosengren 1998). Note, moreover, that the existence of tenseless clauses is really an embarrassment for the view that the categorial identity of INFL is TENSE. How can you have TENSE without tense?[8]

In the next two sections we explore the properties of the universal category INFL in clauses where it remains without substantive content. This allows us to study those properties of INFL that are independent of m-marking for tense, location or person. We predict that all languages will pattern in similar ways in these contexts. That is, in the absence of variable substantive content, we expect that all languages will employ the same valuation strategies for [*u*coin], the universal formal feature of INFL.

[8] We note in passing that arguments for the view that the category INFL is in fact TENSE are largely based on the inflectional properties of matrix indicative clauses. Thus, it is not surprising that imperatives and embedded infinitives, which do not share these inflectional properties, pose problems for this view.

3. Embedded INFL without substantive content: infinitives and their kin

On the assumption that the core function of a functional category is independent of its content, we expect that function to be available even if the relevant m-marking is not. For example, in languages where INFL in indicative clauses is valued by temporal content, we expect to find tenseless INFL in some environments. This prediction is borne out. In English, as in many other Indo-European languages, infinitives obligatorily lack m-tense. In section 3.1, we develop an analysis of English infinitives arguing that INFL's [*u*coin] feature is valued by the embedding predicate. We refer to this as *predicate valuation*. In sections 3.2 and 3.3, we explore contexts of predicate valuation in Halkomelem and Blackfoot, respectively.

3.1. Predicate valuation in English Infinitives

The obligatory absence of m-tense in English infinitives is illustrated in (16).

(16) $_{IP}$[I $_{VP}$[**V**$_{*\{past, present\}}$]][9]

a. Yoshi wanted to play.

b. *Yoshi wanted to play-**ed**

[9] In English, a bare verb (*play* in (16)) is used for present tense and infinitives. Thus, we cannot distinguish verbs inflected for present tense and infinitives on purely morphological grounds. There are, however, other Indo-European languages which use a special form in the infinitive. German infinitives, for example, are suffixed by *–en* as in i).

i) Yoshi möchte spiel-**en**.
Yoshi wants play-INF
'Yoshi wants to play.'

ii) Yoshi spiel-t.
Yoshi play-3rdSG.PRES
'Yoshi is playing.'

The tenselessness of INFL is not in itself surprising given the proposed dissociation of the category INFL from its substantive content. It does, however, still present us with some analytical challenges.

Recall that the anchoring function of INFL derives from its intrinsic coincidence feature [*u*coin]. The deictic anchoring observed in matrix indicative clauses arises in the presence of an abstract Utterance situation in the specifier position of IP. Embedded clause-types, such as *infinitives*, are generally assumed to lack such an abstract utterance situation (Enç 1987). Therefore, the event denoted by the embedded predicate will not be deictically anchored. Nevertheless, according to our proposal, INFL is intrinsically associated with [*u*coin] as a matter of UG. We thus need to answer the following two questions:

i) How is [*u*coin] valued in the absence of m-marking?

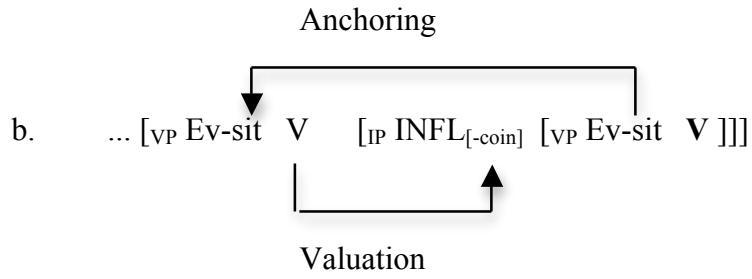
ii) What serves as the anchor for the embedded event?

We propose that, in the absence of m-valuation, [*u*coin] in an embedded infinitive is valued by the matrix predicate. Moreover, in the absence of the abstract utterance situation in Spec, IP, the closest anchor is the event situation associated with the embedding predicate. We propose that in this context the embedded event is anchored to the event denoted by the valuing predicate, as schematized in (17).

(17) a. ... [$_{VP}$ Ev-sit V [$_{IP}$ INFL$_{[+coin]}$ [$_{VP}$ Ev-sit **V**]]]

Anchoring

Valuation



As should be clear from (17), our analysis predicts two types of embedded infinitives that differ in the value assigned to the coincidence feature of INFL. Moreover, the two types of infinitives should co-vary with the semantic content of the embedding predicate that serves to value this coincidence feature. This prediction is borne out. The relevant literature identifies two major classes of infinitives: i) simultaneous infinitives and ii) future irrealis infinitives.[10] We discuss each of them in turn.

Simultaneous infinitives are those embedded under aspectual verbs, such as *start* and *continue*. In this context, the embedding predicate picks out some portion of the embedded event, and as such, they refer to the same event. For example, in (18)a the embedding predicate specifies the start of the dancing event. Evidence for this view comes from the observation that the matrix and embedded events cannot be modified by distinct temporal modifiers, as shown in (18)c. In order to capture these facts, we propose that aspectual predicates value the formal feature of the embedded INFL as [+coin], as shown in (18)d. In this context, this feature specification indicates that the embedded event coincides with the event denoted by the embedding predicate.

(18) a. Mika started to dance.

b. Ev(*start*) ≤ Ev(*dance*)

[10] We abstract away from bare VP infinitives, which lack an IP layer altogether. See Wurmbrand 2001 for a detailed discussion of different types of infinitives with various degrees of structural complexity.

c. On Monday Mika started to dance (*on Tuesday).

d. ... [$_{VP}$ Ev-sit *start* [$_{IP}$ INFL$_{\textbf{[+coin]}}$ [$_{VP}$ Ev-sit *dance*]]

The second major class of embedded infinitives, future irrealis infinitives, are embedded under future-oriented directive or desiderative verbs, such as *want* and *decide*. In this context, the embedding predicate picks out a distinct unrealized event.[11] For example, in (19)a *want* selects an unrealized sleeping event. We propose that this class of embedding predicates values the embedded INFL as [-coin], and that this indicates that the embedded event is separate from the event denoted by the embedding predicate. As a result, the two events can both be modified by distinct temporal modifiers. This is shown in (19) below.

(19) a. Konrad wanted to sleep.

b. Ev(*want*) ≠ Ev(*sleep*)

c. In the morning Konrad wanted to sleep (in the afternoon).

d. ... $_{VP}$[Ev-sit *want* $_{IP}$[I$_{\textbf{[-coin]}}$ $_{VP}$[Ev-sit *sleep*]]

Note that assertion of non-coincidence by itself would not imply the future interpretation of the embedded predicate. In fact, we saw in section 2 that in the context of indicative matrix clauses, the non-coinciding event situation is interpreted as having occurred in the past. (See also footnote 11.) This suggests that it is the semantic content of the valuing

[11] Note that the complement of *want* must be unrealized, but need not be scheduled subsequent to the matrix event, as shown in (i) below. In this example, the presence of a progressive auxiliary permits a reading where what is desired is an unrealized event occurring at the same time as the matrix event.
(i) Konrad wanted to be sleeping (instead of working).
That the progressive auxiliary does not force this interpretation is shown by (ii) where the addition of the temporal adverb results in an interpretation where the embedded event follows the matrix.
(ii) At noon Konrad said that he wanted to be sleeping at midnight.

element that is responsible for the specific interpretation. When *past* morphology values INFL as [-coin], the event situation is interpreted as having occurred in the past; when a directive or desiderative verb values INFL as [-coin], the event situation is interpreted as a future (and irrealis) event. This converges with claims found in the literature according to which the semantics of the predicate determines the temporal interpretation of the embedded clause (Ogihara 1996; Abusch 2004; Katz 2001, 2004; Bittner 2005). Thus, the assumption that INFL is not to be equated with tense can successfully account for the observed temporal contrast in the two types of infinitives.

Our analysis departs from previous ones according to which infinitives are tensed. It is precisely the temporal contrast just discussed which has led several researchers to conclude that infinitives are tensed, despite the absence of m-tense (Stowell 1982; Pesetsky 1992; Pesetsky and Torrego 2004; Bošković 1996, 1997; Martin 1996, 2001; Landau 2000, 2004; Wurmbrand 2001). These analyses all share the assumption that TENSE *is* the head of the clause. On this assumption, it is in fact surprising to find untensed clause-types in the first place. That is, if the head of the clause is equated with TENSE then we expect TENSE to be present in all clause-types. The very existence of the temporal contrast just discussed is thus a welcome result, but accounting for it is still not straightforward.

Consider for example Landau's (2004) analysis of infinitives: he proposes that the temporal contrast associated with the two types of infinitives reflects the feature value of the category TENSE itself: simultaneous infinitives are specified as [-*Tense*] and future irrealis ones are [+*Tense*] (Landau 2004: 838).

(20) a. $_{IP}$[… [- ***Tense*]** $_{VP}$[….V….]]] → simultaneous

b. $_{IP}$[… [+***Tense***] $_{VP}$[….V….]]] → future irrealis

There are several problems with this account, however. First, there is no principled reason as to why [-Tense] should correspond to the simultaneous interpretation, while [+Tense] should correspond to the future irrealis interpretation. As Landau (2004: 838) notes, this is a matter of convenience lacking principled motivation.

Second, everything else being equal, we might expect the feature specification [+Tense] vs. [-Tense] to correlate with the presence and absence of m-tense, respectively. This is, however, not the case: Neither of these constructions is marked for m-tense. Thus, the absence of m-tense in infinitives appears to be accidental. On our account, however, the absence of m-tense is a necessary prerequisite for the possibility of predicate valuation.

Third, even if the assumption that infinitives are tensed leads us to expect a temporal contrast, the nature of the contrast found in infinitives is unexpected. While tensed INFL in indicative clauses gives rise to a *present/past* contrast, in infinitives we observe a *simultaneous/future* contrast. Crucially, on our analysis, the temporal contrast that characterizes the two types of infinitives does not require INFL to be specified for tense features. The apparent temporality derives from the coincidence feature associated with INFL in combination with the semantic content of the valuing predicate. We might therefore expect that tenseless languages would display a similar temporal contrast in embedded clauses that lack m-marking. In what follows we show that this is indeed the case.

3.2. Predicate valuation and sequencing in Halkomelem

The absence of m-tense is one of the defining characteristics of infinitives in English. It cannot, however, serve as a diagnostic for predicate valuation in tenseless languages. As we have seen in section 2, tenseless languages are characterized by the general absence of contrastive m-tense across all clause-types – even indicative clauses. Instead, in the context of deictic anchoring, the m-marker, which serves to value INFL, has substantive content other than tense.

Our analysis thus far leads us to expect that we may find embedded clauses where locative m-marking is absent in Halkomelem. That is, we need to explore whether there are clauses in Halkomelem which obligatorily lack locative auxiliaries. In the absence of m-marking we may expect to find instances of predicate valuation. Furthermore, we may expect sequencing effects that depend on the semantics of the valuing predicate. We now show, based on the properties of clausal complements embedded under aspectual and future-oriented predicates, that these predictions are indeed borne out.

3.2.1 Complements of future-oriented predicates

With the exception of conditional clauses, all embedded clauses in Halkomelem are nominalized (Galloway 1993). Roughly, nominalization manifests itself in three different kinds of morphological marking: the presence of a nominalizing affix (*-s)*, a determiner preceding the nominalized constituent, and possessive agreement instead of subject agreement. For example, in (21) the embedding predicate *stl'i* 'want', is followed by a nominalized clause.

(21) l-stl'í [**kw-el-s** qw'eyílex (wáy:eles)]
1SG.POSS-want DET-1SG.POSS-NOM dance (tomorrow)
'I want to dance tomorrow.'

Judging from the English translation, the Halkomelem sentence in (21) appears to be a good candidate for predicate valuation: *Stl'i* 'want' is a desiderative predicate and the embedded event of dancing is future-oriented relative to the matrix event, and may in fact never occur. Thus, the nominalized clause fits the semantic characteristics of a future irrealis infinitive. Let us hypothesize that (21) does indeed instantiate a context of predicate valuation such that INFL is valued as [-coin] by the matrix predicate, as shown in (22).

(22) ... [$_{VP}$ Ev-sit *stl'i* [$_{IP}$ INFL$_{[-coin]}$ [$_{VP}$ Ev-sit *qw'eyílex*]]]

Valuation

This analysis correctly predicts that locative auxiliaries will be ruled out in such environments. As illustrated in (23), the presence of a locative auxiliary, while not ungrammatical, is incompatible with a future-oriented or irrealis interpretation of the embedded clause. Rather, a different valuation strategy is required for the embedded INFL in the presence of the locative auxiliary.

(23) l-stl'í kw-el-s **lí** qw'eyílex
1SG.POSS-want DET-1SG.POSS-NOM AUX dance

* 'I want to dance.'

✓ 'I like it when I used to dance.'

If we are correct in assuming that locative marking in Halkomelem values INFL, then it is the locative auxiliary itself that values INFL in this context.[12] In other words, (22) is comparable to an embedded finite clause in English, such as (24). Here too INFL is valued by m-marking.

(24) I liked that I danced at the party.

A comparison of matrix clauses with a locative auxiliary and embedded nominalized clauses without a locative auxiliary reveals that the extent of the attested morpho-syntactic difference that correlates with m-valuation on the one hand, and predicate valuation on the other, is much smaller than in English. As is well known, the absence of m-tense in English infinitives correlates with absence of subject verb agreement and normally also with the absence of overt DPs.[13] However, no such contrast obtains in Halkomelem: In this language both types of clauses require subject agreement (though the forms may differ) and allow overt subject DPs to the same extent.

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

[12] The observed past interpretation can be analyzed as a by-product of spatial anchoring: if the speaker, who is necessarily at the utterance location, describes an event in which s/he is a participant that takes place elsewhere, then the reported event must also be at a different time from the utterance. This follows from the fact that a given individual cannot be in two places at the same time. In Halkomelem, this gives rise to a past time interpretation of the event denoted by the predicate. See Ritter and Wiltschko (2009) for discussion.

[13] Raising to object/Exceptional Case Marking contexts such as (i) constitute an exception to the generalization that English infinitives lack an overt DP.
(i) I want Bill/him to dance now.

b. l-stl'í [kw-el-s qw'eyílex (wáy:eles)]
1SG.POSS-want DET-1SG.POSS-NOM dance (tomorrow)
'I want to dance tomorrow.'

c. s-tl'i'-s [kw'-s nem'-s toqw' …
NOM-want-3POSS DET-NOM go-3POSS return.home
… tthe se'wey'qe 'e te-n'a qsneyt]
DET man.PL OBL DET-DEM night
'The man wants to go home tonight.'

While Halkomelem lacks a clause-type that correlates with English infinitives in its morpho-syntactic properties (cf. Kroeber 1999), this does not imply that it lacks a clause-type where INFL is valued by the matrix predicate. Infinitives of the type found in English are only one possible morpho-syntactic instantiation of predicate valuation. The prohibition against overt subject DPs and subject-verb agreement is not a necessary condition for predicate valuation to occur – not even in tensed languages. For example, embedded subjunctive clauses of the type found in the Romance and Balkan languages (including Greek) show a similar pattern: overt DPs are allowed, as shown on the basis of the Romanian example in (26)a, and so is subject agreement, as shown on the basis of the Albanian example in (26)b.

(26) a. Ion vrea ca Dan să resolve problema. *Romanian*
Ion wants that Dan PRT solve the.problem
'Ion wants Dan to solve the problem.' (Farkas 1985: ex. 2)

b. Dua të shkojë nesër. *Albanian*

Want.1SG. PRT leave.3SG tomorrow

'I want him/her to leave tomorrow.' (Dobrovie-Sorin 2001: ex 10a)

This establishes that clauses embedded under desiderative verbs may have overt subjects that agree with the verb, even in tensed languages. We now turn to the question of whether INFL in these subjunctive clauses and in Halkomelem nominalized clauses is valued by the matrix predicate, as it is in English infinitives.

We propose that predicate valuation occurs in embedded subjunctive clauses based on the observation that their interpretation depends on the semantic content of the embedding predicate, just as it does in English infinitives. As discussed in Landau (2004), subjunctives in the Balkan languages fall into two major classes, depending on the semantic properties of the embedding predicate. Subjunctives embedded under desiderative (and other future-oriented) predicates are interpreted as future irrealis (as in (26) above), while subjunctives embedded under aspectual verbs receive a simultaneous interpretation.[14] This contrast, familiar from English-type infinitives, is illustrated in (27) on the basis of Greek. The simultaneity of subjunctives embedded under aspectual verbs can again be observed on the basis of the unacceptability of temporal modification of the embedded event.

(27) a. tora, o Yanis elpizi/theli na figi avrio *Greek*

now, the John hopes/wants PRT leave.3SG. tomorrow

'Now, John hopes/wants to leave tomorrow.'

[14] Landau further identifies differences in control as a relevant diagnostic to distinguish the two types: while future irrealis infinitives and subjunctives allow for partial control, simultaneous infinitives and subjunctives require exclusive control.

b. tora, o Yanis kseri/arxizi na komibai (*avrio).
now, the John knows.how/begins PRT swim.3SG tomorrow
'Now John knows how/begins to swim (*tomorrow).'

Varlokosta 1993: ex. 43, 44, 46

We have now established that predicate valuation is not instantiated by the same clause-type across all languages. While in many Indo-European languages predicate valuation manifests itself in the form of infinitives, in the Balkan languages it does so in the form of subjunctives. This means that the valuation strategy of INFL cannot be determined by examining the morpho-syntactic characteristics of the clause-type alone. The property that characterizes all cases of predicate valuation is the absence of m-marking (for tense, location, etc.) within the clause.[15] However, there is significant variability with respect to the availability of overt subjects and subject verb agreement. Halkomelem predicate valuation occurs in clauses that have morpho-syntactic properties similar to those found in Balkan subjunctives, and unlike English infinitives. Thus far, however, we have only investigated the properties of clauses embedded under desiderative verbs in Halkomelem, i.e., clauses where INFL is valued as [-coin]. In the next subsection we show that there are also Halkomelem embedding predicates that value INFL as [+coin].

3.2.2 Complements embedded under aspectual verbs

In this subsection we focus on clauses embedded under aspectual verbs such *iyóthet* 'start' and *try*-class verbs such as *t'át* 'try', illustrated in (28). As was the case with clauses embedded under desiderative verbs, the embedded clause is again nominalized in this context.

[15] With the exception of fake marking, discussed in section 3.2.2.

(28) a. tsel iyó-thet kw'-el-s xwemxál-em
1SGS start-REFL DET-1SG.POSS-NOM run-INTR
'I just started running.'

b. tsel t'át kw'-el-s xwemxál-em
1SGS try-TR DET-1SG.POSS-NOM run-INTR
'I tried to run.'

However, the temporal sequencing of events in the context of an aspectual or *try*-class matrix predicate differs from the temporal sequencing in the context of a desiderative predicate. In examples such as (28), the embedded event is interpreted as coincident with the event denoted by the matrix predicate. On our analysis, the simultaneity derives from the valuation of the embedded INFL as [+coin] by the matrix predicate, as schematized in (29).

(29) ... [$_{VP}$ Ev-sit V$_{aspectual}$ [$_{IP}$ INFL$_{[+coin]}$ [$_{VP}$ Ev-sit **V …**]]]

Valuation

So embedded nominalized clauses in Halkomelem fall into two major classes, depending on the semantic properties of the embedding predicate, just like English infinitives and Balkan subjunctives. On our analysis, the observed temporal contrast derives from the anchoring function of INFL, which–in the absence of a deictic anchor internal to the embedded clause–has recourse to the embedding predicate. Anchoring the embedded INFL to the higher predicate results in sequencing of the embedded event relative to the higher event.

If the analysis in (29) is on the right track, we predict that m-location in the form of locative auxiliaries should again be ungrammatical. This prediction is only partly borne out, however. As predicted, the distal locative auxiliary *li* is indeed ungrammatical in this context, as shown in (30).

(30) a. *tsel iyó-thet kw'-el-s **lí** xwemxál-em
1SGS start-REFL DET-1SG.POSS-NOM AUX run-INTR

b. *tsel t'át kw'-el-s **lí** xwemxál-em
1SGS try-TR DET-1SG.POSS-NOM AUX run-INTR

The ungrammaticality of (30) can be explained on the assumption that m-valuation is ruled out in the context of predicate valuation. As a consequence, m-marking is impossible. We assume that predicate valuation is a reflex of a selectional restriction imposed by the embedding predicate.[16] The proximate auxiliary *i*, however, behaves unexpectedly. As illustrated in (31), it may occur in clauses embedded under *try*-class verbs (Thompson 2008).

(31) a. tsel t'á-t kw'-el-s lép-ex
1SGS try-TR DET-1SGPOSS-NOM eat-TR
'I tried to eat it.'

b. tsel t'á-t kw'-el-s í-lh lép-ex
1SGS try-TR DET-1SGPOSS-NOM AUX-PAST eat-TR
'I tried to eat it before.'

[16] Reasonably, the problem with examples such as (30) is that a selectional property of the embedding predicate is not satisfied, i.e., aspectual and *try*-class verbs require a complement with an unvalued INFL in order to signal the temporal dependency relationship between them. Note that if the problem were simply a matter of valuation, proceeding in a bottom-up fashion, we would expect a closer anchor to be preferred over one that is farther away from the target (e.g. Infl vs. embedding predicate).

Why would this be? We propose that the proximate auxiliary is possible because of its formal feature content, though it lacks spatial force in this context. As such, it is reminiscent of subjunctive embedded clauses of the Romance type, where subjunctive is an integral part of verbal morphology, and its form depends in part on its m-tense content.[17] Consider the Italian example in (32) below.

(32) a. Gianni crede che Maria sia/*fosse incinta.
G. believes that M. be.PRES.SUBJ/*be.PAST.SUBJ pregnant.
'Gianni believes that Maria is pregnant.'

b. Gianni credeva che Maria fosse/*sia incinta.
Gianni believed that Maria be.PAST.SUBJ/*be.PRES.SUBJ pregnant
'Gianni believed that Maria was pregnant.'

Giorgi 2009: ex. 14-15

The tense in the embedded subjunctive clause must be the same as that of the embedding indicative clause. This dependency suggests that subjunctive morphology in this case is a form of *temporal agreement* rather than encoding a temporal relation between the two events (see Giorgi 2009). In other words, subjunctive tense appears to lack its temporal force. Let us refer to this as *fake m-tense*.

We propose that the proximate auxiliaries in complements embedded under aspectual verbs are *fake m-location*. They fail to value INFL but they nevertheless have to be compatible with its value. This explains the ban against distal auxiliaries in the complement of aspectual and *try*-class predicates. From indicative clauses, we know that proximate auxiliaries value INFL as [+coin] while distal auxiliaries value INFL as

[17] This differs from the subjunctive of the Balkan type discussed above, where the subjunctive is marked by an uninflected particle.

[-coin]. Thus, proximate auxiliaries can be used as fake m-location if they are embedded under an aspectual or *try*-class verb, which values its complement as [+coin], but distal auxiliaries cannot.[18] We further suggest that fake m-marking arises as a consequence of *late insertion*, but nothing crucial hinges on this particular implementation. As schematized below, in the context of an aspectual embedding predicate, the embedded INFL is valued by the embedded predicate in (33)a *before* the proximate auxiliary is inserted in (33)b.

(33) a. [Ev-sit $V_{aspectual}$ [$_{IP}$ **INFL$_{[+coin]}$** [$_{VP}$ Ev-sit V]]] → predicate valuation

b. [Ev-sit $V_{aspectual}$ [$_{IP}$ $i_{\mathbf{INFL\ [+coin]}}$ $_{VP}$[$_{VP}$ Ev-sit V]]] →late insertion of *i*

The existence of *fake* m-marking implies that we cannot take the absence of m-marking as a necessary and sufficient condition for predicate valuation. While the presence of m-marking may be a necessary condition for m-valuation, we have just seen that the absence of m-marking is not a necessary condition for predicate valuation. However, the absence of deictic force usually associated with m-marking *is* a necessary condition. This means that in the context of predicate valuation we expect either no m-marking or fake m-marking. This is summarized in Table 1.

[18] This raises the question as to why *li* cannot be used as a fake location marker in complements of predicates which value embedded INFL as [-coin]. We have nothing insightful to say about this gap. Note, however, that this kind of polysemy is not uncommon (i.e., where one item is used in two distinct environments with different but related semantic properties, and a contrasting item occurs in only one of those environments). Take for example the English demonstrative/complementizer polysemy. While both *this* and *that* can be used as demonstratives, only *that* can be used as a complementizer. (See Kayne, to appear, for an analysis of this gap.)

Table 1

m-marking	m-marking values INFL	Example
✓	✓	Indicative matrix clauses
✓	✗	Subjunctive complements (Romance type)
✗	✓	n/a
✗	✗	Infinitives

3.3 Blackfoot lacks predicate valuation and sequencing

So far we have seen that in contexts of predicate valuation, Halkomelem and English are remarkably similar: in both cases the semantic content of the matrix predicate serves to value embedded INFL, thereby giving rise to a sequencing effect. The embedded event situation is asserted to either coincide or not coincide with the matrix event situation.

In this subsection, we turn to potential contexts of predicate valuation in Blackfoot, but our investigation indicates that predicate valuation is not available in this language. In particular, we show that complements of aspectual and *try*-class verbs are realized as bare VPs (i.e., restructuring infinitives) while complements of future-oriented verbs obligatorily require an irrealis marker. We suggest that the absence of predicate valuation in Blackfoot can be derived from the assumption that, in this language, event-situations are always formalized through event participants rather than spatio-temporal arguments.

3.3.1 Complements of aspectual verbs

Aspectual and *try*-class verbs (corresponding to English *start* and *try*) are typically realized as verbal prefixes (called *preverbs* in the Algonquianist tradition). Consider the examples in (34):

(34) a. íkomatapihpiyi
iik-**omatap**-ihpiyi
INT-**start**-dance
'He started to dance.' (Blackfoot Language Database 17262)

b. nitsssáaksoyi
nit-**ssáak**-ooyi
1-**try**-eat
'I tried to eat.' (Frantz and Russell 1995: 220)

The preverb merges with the main verb to form a complex predicate. While existing analyses of Algonquian preverbs differ as to how these elements are integrated into the clause, they all share the assumption that preverbs are merged in the same minimal clause as the main predicate (Brittain 2001; Cook 2003a,b; Slavin 2006; Valentine 2001). As a consequence, preverbs occur immediately adjacent to the verb stem with no intervening functional material. For our purposes, it does not matter whether the preverb is analyzed as a modifying adverb, part of a compound lexical verb, or as a functional head located between V and COMP. Importantly, these are monoclausal structures, so there is no embedded INFL to be valued by the preverb. This establishes that Blackfoot lacks the clause-type formally equivalent to simultaneous infinitives: there is thus no possible candidate for a clause type that would instantiate predicate valuation of INFL as [+coin].

3.3.2 Complements of future-oriented verbs

In Blackfoot, verbs in embedded clauses normally belong to a paradigm called the CONJUNCT ORDER in the Algonquianist tradition.[19] Verbs of this paradigm are morphologically marked by the invariant suffix *–hsi,* which appears immediately before number agreement suffixes.[20] This is true for complements embedded under future-oriented verbs (35), for complements of verbs of saying and epistemic verbs (36), as well as for various adjunct clauses (37).

(35) a. nitsíksstaa n**ááhk**soy'ssi

nit-iik-sst-aa n-ááhk-ooyi-hsi

1-INT-want-AI 1-NON.FACT-eat-CONJ

'I want to eat.'

b. nitaanista oomaahkootooyakstsissi

nit-waanist-a ot-ááhk-go-yáakihtsiiyi-hsi

1- say.TA-DIR 3??-NON.FACT-go-go to bed.AI-CONJ

'I told him to go to bed.'

(36) a. nitsikannistsikssimmst nitssisstsiikoohsi

nit-iik-annist-ikssimmst nit-sistsikoo-hsi

1-INT-MANNER-think.AI 1-tired.AI-CONJ

'I think I am tired.'

[19] Frantz (1991) uses the term conjunctive order to indicate that the Blackfoot paradigm differs in some respects from counterparts in other Algonquian languages.
[20] We discuss this suffix in more detail in section 3.3.3.

b. anii okaissistsikoohsi

anii ot-a-sistsikoo-hsi

say 3-DUR-tired-CONJ

'He said he was tired now.'

('They were working, and he said he's tired.')

(37) nomohtó'too kááhksspommookssoaayi

n-omoht-o'too k-ááhk-sspommo-o:k-i-hs-oaa-yi

1-SOURCE-arrive.AI 2-might-help.TA-INV-1-CONJ-2PL-CONJ

'I came for you(pl) to help me.'

Frantz 1991: 111

The clauses embedded under directive and desiderative predicates in (35) are interpreted as future irrealis. In Blackfoot, this cannot be attributed to predicate valuation because the predicate alone does not suffice to trigger this interpretation. Instead, such complements obligatorily require a specialized irrealis marker (*aahk-).* If the matrix predicate were to value INFL as [-coin] we would not expect such marking to be necessary. Recall that no such marking is required in either English or Halkomelem. Note for completeness that this irrealis marker is not restricted to embedded clauses. It is also found in deictically anchored matrix clauses, as illustrated below.

(38) kik**ááhkái**kohkanoowataa

kit-**ááhk-ákáá-**ohkan-oowat-aa

2-NON.FACT-PERF-all-eat.TA-DIR

"You probably ate the whole thing." Bullshields et. al. 2008 (48)

We conclude that Blackfoot does not make use of predicate valuation. Since the predicate cannot value embedded INFL, sequencing cannot come about in this way. Instead, other strategies must be employed. Where English uses simultaneous infinitives, Blackfoot uses preverbs, which derive complex predicates denoting a single event. Where English uses future irrealis infinitives, Blackfoot uses a dependent clause with a conjunct order verb containing a dedicated irrealis marker. But if the predicate in (35)-(37) does not value INFL, what else does? And what is the embedded event anchored to? We turn to this question in the next subsection.

3.3.3 What the absence of predicate valuation tells us about anchoring in Blackfoot

We have just seen that Blackfoot does not have a clause-type dedicated to predicate valuation, i.e., there is nothing equivalent to English infinitives or Balkan subjunctives in the language. There is, however, a dedicated dependent clause-type, marked by the conjunctive order suffix (*–hsi*). We propose that the conjunct marker is associated with INFL, and that it values the coincidence feature as [+coin]. Evidence for its association with INFL comes from the fact that it is in complementary distribution with the suffixes that occupy INFL in independent clauses (i.e., *m*-participant). Recall that in independent clauses, INFL suffixes serve to value [*u*coin] by virtue of their substantive content: the local suffix *-hp* values INFL as [+coin] while the non-local suffix *-m* values it as [-coin]. In contrast to the independent suffixes, conjunct suffixes are insensitive to person, as shown in table 2.

Table 2

Actor	Independent	Conjunct
1st	-hp	-hsi
2nd	-hp	-hsi
3	-m	-hsi
3’	-m	-hsi

No substantive content appears to be associated with *–hsi*. This indicates that valuation may be purely formal in this case: *-hsi* merely marks INFL as [+coin]. Conjunct clauses in Blackfoot are thus similar to infinitives and subjunctives: their INFL remains without substantive content. They differ, however, from infinitives and subjunctives in that [+coin] does not give rise to a sequencing effect, but rather an atemporal dependency relation. Evidence that *–hsi* does indeed establish a syntactic dependency relation stems from the fact that it is associated with a strict ordering requirement: a conjunct clause must follow the clause it is dependent on. If the order of the two clauses in (35)-(37) is reversed, the result is ungrammatical, as shown below.

(39) a. * n**ááhk**soy’ssi nitsíksstaa
n-ááhk-ooyi-hsi nit-iik-sst-aa
1-NON.FACT-eat-CONJ 1-INT-want-AI

b. *oomaahkootooyakstsissi nitaanista
om-ááhk-oto-yaakihtsiiyi-hsi nit-waanist-a
3- NON.FACT-go-go to bed.AI-CONJ 1- say.TA-DIR

(40) a. *nitssisstsiikoohsi nitsikannistsikssimmst
nit-sistsikoo-hsi nit-iik-annist-ikssimmst
1-tired.AI-CONJ 1-INT-MANNER-think.AI

b. *anii okaissistsikoohsi

anii ot-aka-ssistsikoo-hsi

say 3-DUR-tired-CONJ

(41) *kááhksspommookssoaayi nomohtó'too

k-ááhk-sspommo-o:k-i-hs-oaa-yi n-omoht-o'too

2-might-help.TA-INV-1-CONJ-2PL-CONJ 1-SOURCE-arrive.AI

If *-hsi* values INFL as [+coin], thereby turning the anchoring function into a marker of dependency, we still need to know what INFL is dependent on. With this question in mind, consider again the examples in (35)-(37). The embedded clause provides the *content* of the propositional attitude in (35), and the content of what is being said in (36). This suggests that the conjunct clause is anchored to an argument of the verb and that it relates a proposition, rather than an event-situation. This differs from infinitives and subjunctives of the Indo-European type, which encode the anchoring relationship between the event situation associated with the embedding verb and the reference situation of the embedded predicate. This conclusion is supported by the fact that purpose clauses as well as other adjunct type clauses must be licensed by a dedicated verbal prefix encoding the type of relation. This is illustrated in (42):

(42) nomohtó'too kááhksspommookssoaayi

n-omoht-o'too k-ááhk-sspommo-o:k-i-hs-oaa-yi

1-SOURCE-arrive(AI) 2-might-help(TA)-INV-1-CONJ-2PL-CONJ

'I came for you$_{2p}$ to help me.'

Frantz 1991: 111 (1b)

In sum, we have seen that Blackfoot differs significantly from English and Halkomelem: it lacks predicate valuation, and anchoring of the embedded event is not relative to the matrix event, but instead to an argument or adjunct associated with the embedding predicate. So why can't Blackfoot anchor to an event situation?

The simplest (but maybe most surprising) conclusion to draw would be to say that Blackfoot verbs are not associated with spatio-temporal event situations. This would explain why anchoring cannot be relative to an event situation: there simply is no such argument to be anchored to. It would also allow us to understand the Blackfoot pattern we have found in deictically anchored clauses: it is the participants which are associated with the event rather than an abstract temporal or spatial event argument (as in English and Halkomelem, respectively).

Another striking piece of evidence in support of this claim is the fact that in order to introduce a spatio-temporal modifier in Blackfoot, the preverb *it-* is obligatory.

(43) Nit-áák-***(it)**-ipsst-iooyi omi ksikookooyiss.

1-FUT-LOC-inside-eat.AI DEM tent

'I will eat in that tent.'

On the assumption that verbs are not inherently associated with a spatio-temporal event-situation, this pattern can be straightforwardly accounted for. Spatio-temporal modification requires a spatio-temporal event argument (Davidson 1967). Therefore, in Blackfoot, spatio-temporal modifiers cannot directly associate with the verb; instead, the spatio-temporal argument must be introduced. This is precisely the function of *it-* (cf. Bliss and Louie 2010).

3.4 Summary

The main goal of this paper is to argue for the dissociation of the functional category INFL from its substantive content. This dissociation predicts that INFL may in some contexts remain without substantive content. In this section we have explored the properties of embedded INFL without substantive content. The fact that English embedded infinitives differ in their temporal interpretation (*simultaneous* and *future irrealis*) derives from the fact that INFL is intrinsically associated with an unvalued feature [*u*coin]. In the absence of substantive content in the form of m-marking, INFL requires another valuing element. Based on the fact that the semantic content of the embedding predicate determines the interpretation of the infinitival complement, we have argued that in the absence of m-valuation, the embedding predicate serves to value INFL as [+coin] or [-coin]. The former asserts that the matrix and the embedded event coincide, and the latter asserts that they do not. Thus, in embedded clauses the anchoring function of INFL derives a sequencing effect. We have further seen that predicate valuation maps onto different clause types in different languages: clauses that are realized as infinitives in English are realized as verbal subjunctives in Romance languages, as particle subjunctives in Balkan languages, and as nominalized clauses in Halkomelem.

Finally, the exploration of embedded clauses in Blackfoot has revealed another valuation strategy for INFL without substantive content: the conjunct order suffix values INFL as [+coin] in the absence of substantive content. Since there is no substantive content associated with INFL whatsoever, the anchoring function in this case derives a dependency relation.

In the next section we show that there is yet another strategy available for valuation: namely by means of the higher functional head COMP.

4. When INFL is valued by COMP: Imperatives and counterfactuals

In this section we explore the properties of INFL without substantive content in non-embedded clauses. We consider two clause-types: imperatives and counterfactuals. We argue that INFL is not valued via m-valuation in either one. Instead, in such contexts COMP serves to value the coincidence feature intrinsic to INFL. More specifically, we argue that the directive force in imperative COMP values INFL as [+coin] whereas counterfactuality, a property of COMP in counterfactual clauses, values INFL as [-coin]. We refer to this as COMP-valuation.

4.1 COMP-valuation in tense-based languages

English imperatives obligatorily lack m-tense; as such, they satisfy the characterization of tenseless clauses. English counterfactuals, however, appear to have m-tense. Nevertheless, there is evidence that they are tenseless, since their m-tense lacks temporal force. We consider each of these clause-types in turn.

4.1.1 Imperatives

It is a well-known fact that in English – and other tense-based languages – imperatives are characterized by INFL without m-tense. The obligatory absence of m-tense is illustrated in (44): imperatives must be realized with a bare verb.

(44) a. (You) be quiet!

b. *Are/will be/was quiet!

The absence of m-tense, however, does not imply the absence of the head that otherwise hosts tense, i.e., INFL (contra Zanuttini 1994.) In particular, the possibility for an overt subject as in (44)a indicates the presence of Spec, IP and thus the presence of INFL.

While on our account the availability of tenseless INFL is expected, it still raises the question as to how its intrinsic coincidence feature is valued. We propose that the imperative force associated with COMP values INFL as [+coin], as illustrated in (45) (cf. Zanuttini 1997, Rivero 1994, Rivero and Terzi 1995, Han 2000).

(45) $_{CP}$[$C_{[imp]}$ $_{IP}$[$\mathbf{I}_{[+coin]}$ $_{VP}$[Ev-sit….V….]]]

Thus, imperatives are like infinitives in that INFL is valued by a higher head. However, they differ in the choice of higher head: while tenseless INFL in infinitives is valued by the semantic content of the higher lexical predicate, tenseless INFL in imperatives is valued by the semantic content of a higher functional head.

Evidence that COMP values INFL stems from intervention effects of the familiar kind. That is, in the presence of a functional head between COMP and INFL, such as negation, we expect COMP-valuation to be impossible. This prediction is indeed borne out. In many languages, including Greek, dedicated imperatives are incompatible with negation, as shown in (46) (see Bošković 2004).

(46) a. Diavase

read.IMP

'Read!'

b. * Den/mi diavase

NEG read.IMP

'Don't read!' Bošković 2004: 270, ex 1

In languages where negation is a functional head below IP, negation blocks m-valuation from V (as in English, where this results in *do*-support), whereas in languages where negation is above IP it blocks COMP-valuation (see Miyoshi 2002, Bošković 2004). Interestingly, negative commands are expressed with negative subjunctives or infinitives across many languages (Joseph and Philippaki-Warburton 1987; Laka 1994; Zanuttini 1991, 1994, 1997; Rivero 1994; Rivero and Terzi 1995; Han 2000, 2001; Tomić 2001).[21] On our analysis these constructions form a natural class with imperatives: they are all defined by the absence of m-valuation.

But what is the event situation asserted to coincide with in the case of imperatives? According to Han (2001: 306),

> "by performing a directive action, the speaker instructs the hearer to update a particular module which [she] call[s] the plan set. A hearer's plan set is a set of propositions that specifies his/her intentions which represents the state of affairs the hearer intends to bring about. Thus, an imperative is an instruction to the hearer to add p to his/her plan set."

[21] The realization of negative imperatives commonly differs from non-negative imperatives, though the form it takes depends on the language-specific choices of INFL features. For example, Hebrew has an imperative paradigm that is only used for non-negative imperatives; negative imperatives require future tensed verbs. If our analysis of imperatives is on the right track, this would suggest that this is an instance of fake tense compatible with [+coin].

Translating Han's insight into our framework, we propose that the plan set is represented as an abstract argument in Spec, CP, as illustrated in (47). The directive force in COMP turns the clause-type into an instruction (rather than an assertion). Thus, valuation of INFL as [+coin] by means of the directive force in COMP is interpreted as an instruction to the hearer to make the event situation coincide with the plan set.

(47) a. $[_{CP}$ Plan-set COMP$_{[IMP]}$ $[_{IP}$ INFL$_{[+coin]}$ $_{VP}[$ Ev-sit **V**]]

b. $[_{CP}$ Plan-set COMP$_{[IMP]}$ $[_{IP}$ INFL$_{[+coin]}$ $_{VP}[$ Ev-sit **V**]]

4.1.2 Counterfactuals and other unreal situations

Just as different types of predicates value INFL as either [+coin] or [-coin], so do different types of COMP. Above we argued that imperative force in COMP values INFL as [+coin]. Here we propose that the counterfactuality associated with COMP values INFL as [-coin], as illustrated in (48).

(48) a. If I had a car, I would drive to the store

b. $[_{CP}$ COMP$_{[CF]}$ $[_{IP}$ **INFL$_{[-coin]}$** $_{VP}[$ Ev-sit V]]]

In contrast to imperative force, counterfactuality is not associated with a dedicated inflectional paradigm. This raises the question as to how COMP is associated with counterfactuality. Interestingly in English, as in many other languages, counterfactuals are characterized by past tense marking. Past tense marking in this context is, however,

not associated with temporal force (Steele 1975, James 1982, Iatridou 2000). Evidence for this comes from the fact that past tense morphology on the verb can co-occur with a temporal adverb of present time in a counterfactual clause, but not in an indicative clause, as exemplified by the contrast in (49).

(49) a. If I had a car right now, I would drive

b. * I had a car right now.

On our analysis, the absence of temporal force in (49)a follows from the assumption that past tense marking on the verb does not value INFL in this context. Instead, we propose that this is an instance of fake past in the sense defined in section 3.2.2. It serves as a form of *past agreement,* just like past subjunctive morphology in Romance. However, instead of agreeing with past marking in the matrix clause, we propose that in this context it agrees with fake past marking in COMP. Thus, counterfactuality in COMP is a result of past marking in COMP. Independent evidence for past marking in COMP comes from the fact that in counterfactuals the inflected auxiliary may move to COMP, as in (50).

(50) Had she arrived, I would not have left

This differs from realis conditionals where past marking has temporal force (51)a,b and INFL- to-COMP is ruled out (51)c. [22]

(51) a. If she really **arrived** last night she will be here today.

b. *If she really arrived right **now,** she will be here today.

c. *Has she really arrived, she will be here.

[22] The fact that the same complementizer (*if*) is used in realis and counterfactual conditionals indicates that it does not serve to value INFL.

But what is the event situation anchored to in this context? Following Mezhevich (2006, 2008a,b), we assume that there is an abstract evaluation situation argument in Spec, CP, relative to which the utterance is evaluated (cf. also Zagona 2003). Mezhevich (2008b: 328) asserts that "in the case of Mood (non-)coincidence is a relation of identity, not temporal ordering." She proposes that in realis mood, events occur in the actual world and there is an identity between the evaluation situation in Spec, CP and the utterance situation in Spec, IP. However, in irrealis mood the evaluation situation is distinct from the utterance situation. Thus, the abstract past marker in COMP of counterfactuals indicates that the utterance situation does not coincide with the evaluation situation.[23] Counterfactual clauses denote hypothetical situations that by the time of the utterance can no longer arise (cf. Iatridou 2000: 231).

On our account then, *counterfactuality* derives from a constellation of grammatical factors, each of which is independently attested, and thus not restricted to counterfactuals (see also Iatridou 2000).[24]

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[23] Mezhevich (2008b: 328) retains the traditional view that Mood operates on worlds, and more specifically that it "compares the world of the event denoted by the propositional content of a clause to the actual world." She proposes that time lines in all hypothetical worlds run parallel to the time line in the actual world (and to each other), and that in irrealis mood the utterance time is on a different time line from the evaluation time and event time, but that the utterance time and evaluation time are on the same "longitude". This captures the observation that counterfactual events may be ordered prior to, or co-temporaneous with, the utterance, as exemplified in (i):

(i) a. If I had had a car *then*, I would have driven to work.
b. If I had a car *now*, I would drive to work.

[24] Our analysis of counterfactuals in terms of abstract past marking in COMP is a modification of Iatridou's 2000 analysis. On her account, the past marker denotes an abstract exclusion feature (reminiscent of [-coin] in our analysis) which orders either times or worlds, but it is unclear what determines which it is (cf. Giannakidou 2009: 1904). On our account, past marking can serve to value either INFL or COMP. If it values INFL it orders times; if it values COMP it orders worlds (Mezhevich 2006, 2008b).

i) INFL is valued by COMP (as in imperatives).

ii) INFL is valued as [-coin] (as in past indicatives, future irrealis infinitives and subjunctives).

iii) The Event-situation is anchored relative to the Evaluation world. (This is generally the case in modal contexts.)

In sum, our exploration of tenseless INFL in non-embedded contexts has further demonstrated the usefulness of the proposed dissociation of substantive content from the functional category it is associated with. In particular, we have seen that in the absence of substantive content in INFL (i.e., in the absence of m-valuation), INFL may be valued by the substantive content associated with COMP. Furthermore, in the context of COMP-valuation, INFL anchors the event situation to the abstract argument in Spec, CP. The latter differs depending on the content of COMP: it is a plan set in imperatives and an evaluation world in counterfactuals. Finally, we have also seen that m-tense may occur independently of INFL, even in tense languages. That is, past marking may associate with COMP deriving counterfactuality, and in this context past marking in INFL remains uninterpreted (i.e., an instance of fake past agreement).

4.2 COMP-valuation in Halkomelem

In this section, we investigate contexts of COMP-valuation in Halkomelem. We start with imperatives.

4.2.1 Imperatives

Halkomelem imperatives are characterized by a dedicated suffix *–lha (52)*, which we analyze as instantiating COMP.

(52) qw'eyílex-lha!

dance-IMP

'Dance!'

If in the context of imperatives INFL is valued by imperative force in COMP, we predict obligatory absence of m-valuation. This prediction is borne out. Locative auxiliaries are ruled out in this context.

(53) *li/i qw'eyílex-lha

AUX dance-IMP

This pattern tells us something important about INFL: the obligatory absence of m-marking (either tense- or location-based) in imperatives is a formal property in our analysis. We could not have concluded this on the basis of English because tense marking in imperatives could be ruled out on semantic grounds. It is simply impossible to command somebody to do something they have already done, or are already doing.[25] In a locative-based system, however, there is no semantic incompatibility between location and imperative force. It is perfectly possible to command somebody to do something here or elsewhere. Our formal account permits a unified analysis: COMP-valuation excludes m-valuation.

4.2.2 Questions, conditionals, and negation

[25] Most English verbs use the same bare form for both present tense and imperative mood. However, the copula has a suppletive present tense form, and for this verb only the bare form is possible in imperatives.

(i) a. Be quiet!

b. *Are quiet!

We take this as evidence that tense marking is impossible in English imperatives.

In Halkomelem there are three clause-types where auxiliaries are optional, and if they occur they are not associated with spatial force: yes/no questions (54), conditionals (55) and negated clauses (56).

(54) a. lám-**a**-chexw
go-Q-2SG.SUBJ
'Are you going?'

b. lí-**a**-cha lám
AUX-Q-FUT go
'Will he go?'

(55) a. xélh cha te-l sqwálewel **we** lhémexw-es
sad FUT DET-1SG.POSS thought COMP rain-3SG.SS
'I'll be sad if it rains.'

b. xélh cha te-l sqwálewel **we** lí-s lhémexw
sad FUT DET-1SG.POSS thought COMP AUX-3SG.SS rain
'if it rains, …'

(56) a. **éwe** tsel q'óq'ey
NEG 1SG.SUBJ sick
'I'm not sick.'

b. **éwe** tsel lí-l q'óq'ey
NEG 1SG.SUBJ AUX-1SG.SS sick
'I'm not sick.'

All three clause-types are introduced by a particle in COMP: the yes/no particle *–a*, the conditional complementizer *we,* and the negative particle *ewe* (see Wiltschko 2002 for

arguments that Halkomelem negation occupies COMP). If INFL is valued by COMP, the locative auxiliary no longer serves to value INFL, and therefore loses its spatial deictic force. This is another instance of fake marking.[26]

4.3 COMP-valuation in Blackfoot

We now turn to contexts of COMP-valuation in Blackfoot.

4.3.1 Imperatives

Blackfoot has a dedicated imperative clause-types characterized by the suffix *–t*, as shown in (57).

(57) Ooyí-t!

eat.AI- IMP

'Eat!' (Frantz 1991: 114, ex (r))

In the context of plural subjects, which trigger the agreement suffix *–k*, we assume that the imperative suffix *–t* is deleted, as in (58):[27]

[26] COMP-valuation in Halkomelem appears to differ from COMP-valuation in English. While in Halkomelem, the distribution and interpretation of auxiliaries is affected whenever COMP is present, in English COMP only affects the interpretation of past marking in the context of counterfactuals. A proper analysis of this difference would require a better understanding of the syntax of COMP, which goes beyond the scope of this paper.

[27] This treatment of the imperative verb morphology is consistent with that of other verb paradigms, in that the stem is followed first by a paradigm marker and then by a plural agreement marker. Frantz (1991: 114) develops an alternative analysis of *–t* as 2nd person singular agreement in the imperative paradigm. His alternative provides a straightforward account of the complementarity of *–t* and *–k*, but would require us to assume that the imperative paradigm has a morphological structure that is very different from all others.

(58) Ooyik!

ooyi-t-k

eat.AI-IMP-PL

'Eat!'

If Blackfoot imperatives are derived via COMP-valuation, we predict the obligatory absence of m-valuation. This prediction is borne out: the local marker *–hp* is impossible.

(59) *Ooyí-hp-t!

eat.AI-LOCAL-IMP

There is again no semantic reason as to why participant marking should be ruled out. However, the ungrammaticality of (59) follows from our analysis: In Blackfoot, participant marking determines m-valuation of INFL, but imperatives require COMP-valuation, and this is impossible in the context of m-valuation.

4.3.2 Blackfoot requires dedicated counterfactual marking

Unlike English and Halkomelem, Blackfoot has a dedicated marker – the suffix *-opi* – for counterfactual conditionals and wishes.[28]

(60) a. Nitsítssáyoyi**htopi**, nitáaksoyi ánnohka

nit-it-say-Ioyi-**htopi** nit-áak-Ioyi annohka

1-then-NEG-eat-**UNREAL** 1-FUT-eat now

'If I hadn't eaten then, I'd eat now' (Frantz 1991:115, ex. x)

[28] The examples in (60) contain allomorphs of *–opi*. This suffix appears to be truly dedicated to counterfactuals. It is used neither in realis conditionals nor in other irrealis contexts (Bar-el and Denzer-King 2008).

b. nikkáminá**anatao'topi**

n-ikkam-inaanat-a-**o'topi**

1-if-own.TA-DIR-**UNREAL**

'How I should like to own him.' Frantz 1991: 115 (z)

Suppose that the existence of a dedicated marker for counterfactuality in Blackfoot is not a coincidence. We speculate that Blackfoot does not have the right ingredients to derive counterfactuality from other types of COMP or INFL marking: it cannot be derived by (fake) participant marking. We have to leave open the question whether this is necessarily the case in participant-based languages, and if so how it follows. Again, a detailed investigation of the morpho-syntax of COMP is necessary.

4.4. Summary

The goal of this section was to investigate the properties of INFL without substantive content in unembedded clauses. We have argued that in the absence of m-valuation, the substantive content of a higher functor (COMP) values INFL. In particular, imperative force in COMP values INFL as [+coin] while abstract past or distal marking values INFL as [-coin]. Furthermore, in the context of COMP-valuation, INFL no longer serves as a deictic anchor; instead, it functions as an *epistemic anchor*. On our analysis, this derives from the fact that the event is no longer anchored to the utterance situation, but instead to whatever abstract argument the relevant COMP introduces: a plan set in imperatives and an evaluation world in counterfactuals. We conclude that INFL functions as a deictic anchor only in the context of m-valuation. Recall that in the context of predicate

valuation, anchoring is relative to the matrix event resulting in a sequencing effect. The three valuation strategies for INFL are summarized in Table 3.

Table 3

Valuation Strategy	**Source of Valuation**	**INFL feature**	**Anchoring Argument**	**Semantic function of INFL**	**Clause type**
m-valuation	tense/location/person inflection	[+coin]	Utterance situation	deictic anchoring	matrix indicative
	tense/location/person inflection	[-coin]	Utterance situation	deictic anchoring	matrix indicative
predicate valuation	matrix verb	[+coin]	matrix event situation	event sequencing	simultaneous infinitive/subjunctive
	matrix verb	[-coin]	matrix event situation	event sequencing	future irrealis infinitive/subjunctive
COMP valuation	COMP	[+coin]	plan set	epistemic anchoring	imperative
	COMP	[-coin]	evaluation situation	epistemic anchoring	counterfactual

5. Implications for the tense-case connection

The primary goal of this paper is to argue that INFL is a universal functional category which is independent of its substantive content. As a consequence, INFL cannot be equated with Tense (contra Pollock 1989, Chomsky 1995). In this paper we have seen evidence from tenseless languages as well as from tenseless clause-types.

Our exploration of tenselessness would not be complete, however, without considering the implications of our analysis for the theory of case. In particular, there appears to be a tight connection between tense and case, which has figured prominently in the development of case-theory. In English, this tense-case connection manifests itself in the following way: nominative subjects are possible in tensed clauses (61)a but are ruled out in infinitives (61)b.

(61) a. Yoshi played.

b. Yoshi wanted (*he) to play.

In our terms, English nominative case is available if INFL is valued by m-tense. What about Halkomelem and Blackfoot? Is nominative case available if INFL is valued by m-location or m-participant? The answer to this question would tell us something about the nature of the tense-case connection: is it a connection between *tense* and case? Or is it a connection between *m-valued INFL* and case?

Empirically, we observe that case does not play a role in nominal licensing in the tenseless languages under investigation (Wiltschko 2002, Ritter and Wiltschko 2004, Ritter and Rosen 2005). That is, the distribution of overt DPs is not regulated by abstract case. Halkomelem and Blackfoot both have polysynthetic characteristics: overt argument DPs are always possible but never obligatorily overt, and their linearization is not restricted by case-theoretic considerations. In addition, we observe no infinitive effect. Rather, overt DPs are possible even if INFL is not m-valued. For example, in the context of predicate valuation in Halkomelem, an overt DP subject is possible inside the embedded clause (62).

(62) s-tl'i'-s kw'-s nem'-s toqw' …
NOM-want-3POSS DET-NOM go-3POSS return.home
…**tthe se'wey'qe** 'e te-n'a sneyt
DET man.PL OBL DET-DEM night
'The man wants to go home tonight.'

Blackfoot lacks predicate valuation; there is, however, a clause-type which obligatorily lacks participant prefixes - the so-called subjunctive order found in realis conditionals such as (63). Crucially, overt DPs are still possible in this context (e.g. the independent pronoun *kistoo* 'you' in this example).

(63) **kistoo** kammayiniki kitaakomai'to

kistoo ikamm-aani-iniki kit-aak-omai'to-o

2SG if-say.AI-LOCAL.SG.SUBJUNCTIVE 2-FUT-believe.TA-1:2

'If you say so, I will take your word for it.'

Assuming that these prefixes are agreement, we take this as evidence that the subjunctive paradigm is non-finite, i.e., that it also lacks m-marking. If this is correct, then these forms cannot participate in m-valuation, and the availability of overt DPs is not dependent on m-valued INFL.

Thus, the absence of case in Blackfoot and Halkomelem may suggest that case is restricted to *tense*. As briefly discussed in Ritter and Wiltschko (2009), this conclusion is supported by theoretical considerations. According to Williams (1994), case is a manifestation of tense marking on D. Since tense on D is uninterpretable, the result is a purely formal marker, which we call case (see also Haeberli 2002, Pesetsky and Torrego 2001). Since both location and participant marking are interpretable on D (at least at an intuitive level), it follows immediately that the type of tenselessness we find in Halkomelem and Blackfoot correlates with caselessness: instead of case-marked DPs, Halkomelem has DPs marked for location while Blackfoot has DPs marked for participancy (person), as summarized in the following table.

Table 4.

Content of m-valuation	DP-marking
$INFL_{TENSE}$	DP_{TENSE} = case
$INFL_{LOCATION}$	$DP_{LOCATION}$ = location marking
$INFL_{PARTICIPANT}$	$DP_{PARTICIPANT}$ = person marking

On closer inspection, however, the correlation between (un)interpretability of tense on D and case does not hold up. First, there is no principled reason as to why tense on D should not be interpretable. In fact, there are languages, including Halkomelem, where nouns can be marked and crucially interpreted as past (64) or future (65).

(64) a. tel má:l-**elh**
my father-PAST
'my late father'

b. tel x̲éltel-**elh**
my pencil-PAST
'my former pencil'

(Burton 1997:67)

(65) a. te-l swáqeth-**cha**
my husband-FUT
'my future husband'

b. te-l lálém-**cha**
my house-FUT
'my future house'

Second, in Somali tense is interpretable on D, but at the same time nominal phrases are case-marked (cf. Lecarme 2004).

(66) a. dhibaatá-da Khalíij-ku welí way taagán tahay
problem-DETF Gulf-DETM[+NOM] still F.3SG permanent is
'The Gulf crisis still persists.'

b. dhibaatá-dii Khalíij-ku wáy dhammaatay
problem-DETF[+PAST] Gulf-DETM[+NOM] F.3SG ended[+PAST]
'The Gulf crisis ended.'

Lecarme (2004: 444)

Third, even in Blackfoot there are nominal phrases whose linear order is fixed. In particular, while determiners in Blackfoot are generally obligatory, object NPs may

remain bare. But such bare NPs must follow the verb, as illustrated below (see Glougie 2001).

(67) a. omiksi ninna-iks iyapiya **piita**
DEM-PL man-PL see-AI-3PL eagle
'The men saw an eagle.'

b. *omiksi ninna-iks **piita** iyapiya
DEM-PL man-PL eagle see-AI-3PL

c. *iyapiya omiksi ninna-iks **piita**
see-AI-3PL DEM-PL man-PL eagle

Inasmuch as ordering restrictions on nominal arguments are indicative of case, we have to conclude that the availability of case does not depend on INFL being valued by tense.

In fact, it turns out that even in tensed languages the absence of m-valuation is not a reliable predictor of caselessness. Relevant examples include English imperatives (68), Romance subjunctives (69) and Hungarian infinitives (70) (Szabolcsi 2009), all of which allow for overt nominative subjects.

(68) You leave!

(69) Il faut que tu saches la vérité.
it is.necessary that **you.NOM** know.SUBJ the truth
'You need to know the truth.'

(70) Senki nem Akart csak ő leül-ni.
Nobody not wanted-3SG only he/she sit-INF
'Nobody wanted it to be the case that only he/she takes a seat.'

In light of these considerations we have to conclude that the tense-case connection must be revisited, but we leave this as a question for future research (but see Wiltschko 2010 for discussion).

6. The composition of INFL

The central goal of this paper was to make the case for INFL as a universal anchoring category, which exists independent of language-specific substantive content such as *tense*. We first discussed evidence from language variation: tenseless languages differ in the substantive content they associate with INFL: We saw location or participant marking in the absence of tense marking. Second, we discussed evidence from clause-types where INFL is not associated with substantive content, including infinitives, subjunctives, imperatives, and counterfactuals.

This exploration of tenseless languages and tenseless clauses has allowed us to gain insight into the composition of INFL. In particular, we have seen evidence that INFL is intrinsically, and thus universally, associated with an unvalued coincidence feature [*u*coin] which serves to anchor the eventuality encoded in the VP. As summarized in table 4, the coincidence feature derives deictic anchoring, dependency, epistemic anchoring, or sequencing depending on the context. In root indicative clauses, Spec, IP hosts an abstract utterance situation and thus m-valuation results in deictic anchoring. In Blackfoot conjunct clauses, m-valuation is contentless, and INFL anchors relative to a participant argument of the embedding predicate. In infinitival and subjunctive clauses, [*u*coin] is valued by the embedding predicate and the embedded event is anchored relative to the event denoted by the matrix predicate. This results in a sequencing effect in

the absence of tense (simultaneous vs. future irrealis). Finally, [*u*coin] may be valued by the substantive content associated with the embedding functor C, which in turn is associated with an evaluation world in counterfactuals or a plan set in imperatives.

	Result	Anchor	Substantive content	example
M-valuation with deictic content	Deictic anchoring	Utterance situation	Past/present	Root indicative clause
			Distal/proximate	
			Other/local	
M-valuation without content	Dependency	Embedding predicate	--	Blackfoot conjunct
Predicate valuation	Sequencing	Embedding event situation	Aspectual verb	Simultaneous infinitive
			Future verb	Future irrealis infinitive
COMP-valuation	Epistemic anchoring	Evaluation world	Past	Counterfactuals
		Plan set	Directive force	imperatives

If this analysis is on the right track, it implies that the existence of a *universal functional spine* (including INFL, among other functional categories), and that functional categories do not require dedicated morpho-syntactic features to trigger their projection. Consequently, clausal architecture does not merely arise as a consequence of the operation MERGE (contra Chomsky 1995).

Finally, the Parametric Substantiation Hypothesis has methodological implications as well. In particular, the apparent absence of a functional category in a given language may be misleading. We have seen in this paper evidence that tenseless languages as well as tenseless constructions make use of one and the same formal anchoring category, namely INFL. The content of INFL may vary, but its core function is universally fixed.

In sum, the Parametric Substantiation Hypothesis provides us with a new research agenda: to identify universal functional categories which exist independent of their

substantive content; to identify the core function associated with those categories; and finally to identify the range of variation these categories allow for.

References

Abusch, Dorit. 2004. On the Temporal Composition of Infinitives. In *The Syntax of Time*, ed. by Jacqueline Guéron and Jacqueline Lecarme, 27-53. Cambridge, MA: MIT Press.

Bar-el, Leora, and Ryan Denzer King. 2008. Irrealis in Blackfoot? In *Proceedings of the 11th Annual Workshop on American Indigenous Languages*, ed. by Joye Kiester and Verónica Muñoz-Ledo, 3-14. Santa Barbara, CA: Santa Barbara Papers in Linguistics.

Bittner, Maria. 2005. Future discourse in a tenseless language. *Journal of Semantics* 22:339–87.

Blackfoot Language Database. http://www.ubcblackfoot.com/.

Bliss, Heather, and Meagan Louie. 2010. Spatio-temporal topics and fixed quantifier scope: An analysis of Blackfoot *it-*. Paper presented at the Annual Meeting of the Canadian Linguistics Association. Concordia University, Montreal, QC.

Bliss, Heather, Elizabeth Ritter, and Martina Wiltschko. 2010. A Comparison of Theme marking in Blackfoot and Nishnaabemwin. Workshop on Structure and Constituency of the Languages of the Americas (WSCLA) 15. U of Ottawa.

Borer, H. 1984. *Parametric Syntax: Case Studies in Semitic and Romance Languages*. Dordrecht: Foris Publications.

Bošković, Želko. 1996. 'Selection and the Categorial Status of Infinitival Complements', Natural Language and Linguistic Theory 14, 269-304.

Bošković, Ž. 1997. *The syntax of nonfinite complementation: An economy approach*. Cambridge, MA: MIT Press.

Bošković, Želko. 2004. On the clitic switch in Greek imperatives. In *Balkan syntax and semantics*, ed. by Olga Mišeska Tomić, 269-292. Philadelphia: John Benjamins.

Brittain, Julie. 2001. *The Morphosyntax of the Algonquian Conjunct Verb: A Minimalist Approach*. New York: Garland (Routledge).

Bullshields, Beatrice, Solveiga Armoskaite, Heather Bliss, Joel Dunham, Jennifer Glougie, Meagan Louie, and Martina Wiltschko. 2008. "Collecting a Blackfoot creation story: methodology and empirical observation" Workshop on Structure and Constituency in Languages of the Americas 13

Burton, Strang. 1997. Past Tense on Nouns as Death, Destruction and Loss. In *Proceedings of the North East Linguistic Society 27*, ed. by K. Kusomoto, 65–77. GLSA, University of Massachusetts at Amherst.

Cheng, Lisa. 1991. On the typology of wh-questions. PhD dissertation, MIT, Cambridge, Massachusetts.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1-52. Cambridge, MA: MIT Press.

Christodoulou, Christiana and Martina Wiltschko. 2010. Function without content. Evidence from Greek subjunctive *na*. Paper presented at The Language Design Conference, UQAM, Montreal.
Cook, Clare. 2003a. A semantic classification of Menominee preverbs. In *Papers of the 34th Algonquian Conference*, ed. by H.C. Wolfart, 35-56. Winnipeg: University of Manitoba.
Cook, Clare. 2003b. Menominee preverbs as functional heads. In *Proceedings of the Workshop on Structure and Constituency in Languages of the Americas VIII*, ed. by Yunhee Chung, Carrie Gillon, and Rachel Wojdak, 1-16. Vancouver: UBC Working Papers in Linguistics.
Davidson, Donald. 1967. Causal Relations. *Journal of Philosophy* 64:691-703.
Davies, E. 1987. *The English imperative*. London: Croom Helm.
Demirdache, Hamida, and Myriam Uribe-Extebarria. 1997. The Syntax of Temporal Relations: A Uniform Approach to Tense and Aspect. In *Proceedings of WCCFL* 16, ed. by Emily Curtis, James Lyle, and Gabriel Webster,145-159. Stanford, CA: CSLI Publications.
Demirdache, Hamida, and Myriam Uribe-Etxebarria. 2000. The primitives of temporal relations. In *Step by Step: Essays on Minimalist Syntax in honor of Howard Lasnik.*, ed. by Roger Martin, David Michaels and Juan Uriagereka, 157-186. Cambridge, MA: MIT Press.
Dobrovie-Sorin, Carmen. 2001. Head-to-head merge in Balkan subjunctives and locality. In *Comparative syntax of Balkan languages*, ed. by Maria Luisa Rivero and Angela Ralli, 44-73. Oxford: Oxford University Press.
Enç, Mürvet. 1987. Anchoring Conditions for Tense. *Linguistic Inquiry* 18:633-657.
Farkas, Donka. 1985. *Intentional Descriptions and the Romance Subjunctive Mood*. New York: Garland.
Frantz, Donald G. 1991. *Blackfoot Grammar*. Toronto: University of Toronto Press.
Frantz, Donald G., and Norma Jean Russell. 1995. *Blackfoot Dictionary of Stems, Roots and Affixes.* 2nd edition. Toronto: University of Toronto Press.
Galloway, Brent. 1993. *A Grammar of Upriver Halkomelem*. Berkeley: University of California Press.
Giannakidou, Anastasia. 2009. The dependency of the subjunctive revisited: Temporal semantics and polarity. *Lingua* 119:1883-1908.
Giorgi, Alessandra. 2009. Toward a syntax of the subjunctive mood. *Lingua* 119: 1837-1858.
Glougie, Jennifer. 2001. Topics in the syntax and semantics of Blackfoot quantifiers and nominals. M.A. thesis, University of British Columbia, Vancouver.
Haeberli, Eric. 2002. *Features, categories and the syntax of A-positions.* Dordrecht: Kluwer Academic Publishers.
Hale, Ken. 1986. Notes on world view and semantic categories: Some Warlpiri examples. In *Features and projections*, ed. by Pieter Muysken and Henk van Riemsdijk, 233-254. Dordrecht: Foris.
Han, Chung-hye. 2000. *The Structure and Interpretation of Imperatives: Mood and Force in Universal Grammar.* New York: Garland.
Han, Chung-hye. 2001. Force, negation and imperatives. *The Linguistic Review* 18: 289-325.

Iatridou, Sabine. 2000. The Grammatical Ingredients of Counterfactuality. *Linguistic Inquiry* 31:231-270.
James, Deborah. 1982. Past tense and the hypothetical: A cross-linguistic study. *Studies in Language* 6:375-403.
Joseph, Brian, and Irene Philippaki-Warburton. 1987. *Modern Greek*. London: Croom Helm.
Kayne, Richard S. To Appear. Why Isn't *This* a Complementizer? In *Functional Structure from Top to Toe: A Festschrift for Tarald Taraldsen*, ed. by P. Svenonius. New York: Oxford University Press.
Katz, Graham. 2001. Tense selection and the temporal interpretation of complement clauses. In *Sinn und Bedeutung VI: Proceedings of the 6th Annual Meeting of hte Gesellschaft fur Semantik,* ed. by Graham Katz, Sabine Reinhard, and Philip Reuter, 169-184. Osnabrück: Publications of the Institute of Cognitive Science, University of Osnabrück.
Katz, Graham. 2004. The temporal interpretation of finite and non-finite complement clauses of attitude verbs. Ms., University of Osnabrück.
Kroeber, Paul D. 1999. *The Salish language family: reconstructing syntax*. Lincoln, NE: University of Nebraska Press.
Laka, Itziar 1994. *On the Syntax of Negation*. New York: Garland.
Landau, Idan. 2000. *Elements of Control: Structure and Meaning in Infinitival Constructions.* Dordrecht: Kluwer Academic Publishers.
Landau, Idan. 2004. The scale of finiteness and the calculus of control. *Natural Language and Linguistic Theory* 22:811-877.
Lecarme, Jacqueline. 2004. Tense in nominals. In *The Syntax of Time*, ed. by Jacqueline Guéron and Jacqueline Lecarme, 441-476. Cambridge, MA: MIT Press.
Martin, Roger. 1996. A minimalist theory of PRO and control. Doctoral dissertation, University of Connecticut, Storrs.
Martin, Roger. 2001. Null case and the distribution of PRO. *Linguistic Inquiry* 32:141-166.
Matthewson, Lisa. 2003. An under-specified tense in St'át'imcets. *Proceedings of WECOL*, UBC Working Papers in Linguistics.
Matthewson, Lisa. 2005. On the Absence of Tense on Determiners. *Lingua* 115:12, 1697-1735.
Matthewson, Lisa. 2006. Temporal Semantics in a Supposedly Tenseless Language. *Linguistics and Philosophy* 29:673-713.
Mezhevich, Ilana. 2006. Featuring Russian tense. Ph.D. dissertation. University of Calgary.
Mezhevich, Ilana. 2008a. A feature-theoretic account of tense and aspect in Russian. *Natural Language and Linguistic Theory* 26:359-401.
Mezhevich, Ilana. 2008b. A Time-Relational Approach to Tense and Mood. In *Proceedings of the 27th West Coast Conference on Formal Linguistics*, ed. by Natasha Abner and Jason Bishop, 326-334. Somerville, MA: Cascadilla Proceedings Project.
Miyoshi, N. 2002. Negative imperatives and PF merger. Ms., University of Connecticut, Storrs.

Ogihara, Toshiyuki. 1996. *Tense, attitudes and scope*. Dordrecht: Kluwer Academic Publishers.
Pesetsky, David. 1992. Zero syntax: Part 2. Ms., MIT, Cambridge, MA.
Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. In , ed. by Michael Kenstowicz, 355-426. Cambridge, MA: MIT Press.
Pesetsky, David, and Esther Torrego. 2004. Tense, Case and the Nature of Syntactic Categories. In *The Syntax of Time*, ed. by Jacqueline Guéron and Jacqueline Lecarme, 495-538. Cambridge, MA: MIT Press.
Platzack, C., and I. Rosengren. 1998. On the subject of imperatives: A minimalist account of the imperative clause. *The Journal of Comparative Germanic Linguistics* 1:177-224.
Pollock, J. Y. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20:365-424.
Reis Silva, Amelia, and Lisa Matthewson. 2007. An instantaneous present tense in Blackfoot. Paper presented at SULA 4, University of São Paulo, Brazil.
Ritter, Elizabeth, and Sara Thomas Rosen. 2005. Agreement without A-positions: A closer look at Algonquian. *Linguistic Inquiry* 36:648-660.
Ritter, Elizabeth, and Martina Wiltschko. 2004. The lack of tense as a syntactic category: Evidence from Blackfoot and Halkomelem. Paper presented at the 39th International conference on Salish and Neighbouring Languages, North Vancouver, July 2004, and the Annual Meeting of the Canadian Linguistics Association, University of Manitoba, Winnipeg, May 2004.
Ritter, Elizabeth, and Martina Wiltschko. 2005. Anchoring Events to Utterances without Tense. *Proceedings of the 24th West Coast Conference on Formal Linguistics*, ed. by John Alderete, Chung-hye Han, and Alexei Kochetov, 343-351. Somerville, MA: Cascadilla Proceedings Project.
Ritter, Elizabeth, and Martina Wiltschko. 2009. Varieties of INFL: TENSE, LOCATION and PERSON. In *Alternatives to Cartography*, ed. by J. Craenenbroeck, 153-201. Berlin: Mouton de Gruyter.
Rivero, Marisa. 1994. Negation, imperatives, and wackernagel effects. *Rivista di Linguistica* 6(1):39-66.
Rivero, Marisa, and Arhonto Terzi. 1995. Imperatives, V-movement and logical mood. *Journal of Linguistics* 31: 301-332.
Sapir, Edward. 1921. *Language: An Introduction to the Study of Speech.* New York: Harcourt, Brace and World.
Shaer, Ben. 2003. Towards the tenseless analysis of a tenseless language. In *Proceedings of SULA 2*, ed. by Jan Anderssen, Paula Menéndez-Benito and Adam Werle, 139-156. Amherst, MA: GLSA, University of Massachusetts, Amherst.
Slavin, Tanya. 2006. Some issues in the ordering of preverbs in Severn Ojibwe. In *Proceedings of the 2006 Annual Conference of the Canadian Linguistic Association*, ed. by Claire Gurski and Milica Radisic, 14 pages. http://westernlinguistics.ca/Publications/CLA2006/Slavin.pdf.
Steele, Susan. 1975. 'Past and irrealis: just what does it all mean?' *International Journal of American Linguistics* 41:200-217.
Stowell, Tim. 1982. The Tense of Infinitives. *Linguistic Inquiry* 13:561-570.
Stowell, Tim. 1996. The Phrase Structure of Tense. In *Phrase Structure and the Lexicon*, eds. Johan Rooryck and Laurie Zaring, 277-292. Dordrecht: Kluwer Academic

Publishers.
Suttles, Wayne. 2004. *Musqueam Reference Grammar*. Vancouver: UBC Press.
Szabolcsi, Anna. 2009. Overt nominative subjects in infinitival complements in Hungarian. *Approaches to Hungarian 11*, ed. by Marcel den Dikken and Robert Vago. Amsterdam: John Benjamins, pp. 251–276.
Thompson, James. 2008. Control constructions as a sub-class of nominalized clauses in Upriver Halkomelem. In *Papers for ICSNL XLIII,* ed. by Christiana Christodoulou and John M. Lyon, 151-162. Vancouver: UBC Working Papers in Linguistics.
Tomić, Olga Mišeska. 2001. The Macedonian Negation Operator and Cliticization. *Natural Language and Linguistic Theory* 19:647-682.
Travis, Lisa. 1984 Parameters and Effects of word order variation. PhD dissertation, MIT, Cambridge, Massachusetts.
Valentine, J. Randolph. 2001. *Nishnaabemwin Reference Grammar*. Toronto: University of Toronto Press.
Varlokosta, Spyridoula. 1993. Control in Modern Greek. In *University of Maryland Working Papers in Linguistics 1*, ed. by Carol A. Mason, Susan M. Powers, and Cristina Schmitt, 144-163. College Park, MD: University of Maryland Department of Linguistics.
Williams, Edwin. 1994. *Thematic Structure in Syntax.* Cambridge, MA: MIT Press.
Wiltschko, Martina. 2002. Sentential negation in Upriver Halkomelem. *International Journal of American Linguistics* 68:253-286.
Wiltschko, Martina. 2009. What's in a determiner and how did it get there? In *Determiners: universals and variation*, ed. by Jila Ghomeshi, Ileana Paul, and Martina Wiltschko, 25-66. Amsterdam: John Benjamins.
Wiltschko, Martina. 2010. The case for caselessness: exploring nominal licensing in two tenseless languages. Invited talk given at WSCLA 15, University of Ottawa.
Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin: Mouton de Gruyter
Zagona, Karen. 1990. Times and temporal argument structure. Ms., University of Washington, Seattle.
Zagona, Karen. 1993. Perfectivity and Temporal Arguments. In *23rd Linguistics Symposium on Romance Languages*.
Zagona, Karen. 1995. Temporal argument structure: Configurational elements of construal. In *Temporal reference, aspect, and actionality, vol. 1:Semantic and syntactic perspectives*, ed. by Pier-Marco Bertinetto, Valentina Vianchi, James Higginbotham, and Mario Squartini, 397-410. Torino: Rosenberg and Sellier.
Zagona, Karen. 2003. Tense and anaphora: Is there a tense-specific theory of coreference? In *Anaphora: a reference guide*, ed. by Andrew Barss, 140-171. Oxford: Blackwell.
Zanuttini, Raffaella. 1991. *Syntactic properties of sentential negation: a comparative study of Romance languages.* Doctoral dissertation, University of Pennsylvania.
Zanuttini, Raffaella. 1994. Speculations on negative imperatives. *Rivista di Linguistica* 6(1):67-89
Zanuttini, Raffaella. 1997. *Negation and clausal structure: a comparative study of Romance languages.* Oxford: Oxford University Press.

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