

The anatomy of universal categories Developing discovery procedures*

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1. Introduction

The concept of a universal grammar (UG) has been a fruitful strategy for linguistic investigation. It made it possible to uncover unity in the diversity of the languages of the world: the universalist approach towards natural language has been an important step towards discovery of cross-linguistic patterns that was not possible in the tradition of American structuralism, which was concerned with describing languages in their own terms, without reference to other languages.

At the same time, the concept of UG has also been a source of disagreement, both from inside and outside linguistics. A recent instantiation of this disagreement from within the field is the paper by Evans and Levinson 2009, which tries to make the case that there cannot be a UG because typologists cannot find universals. The alleged universals they discuss are taken from Pinker and Bloom 1990 and include the following: i) major lexical categories (noun, verb, adjective, preposition); ii) major phrasal categories (noun phrase, verb phrase, etc.); iii) phrase structure rules; iv) rules of linear order to distinguish, for example, subject from object, or “case affixes” which “can take over these functions; v) verb affixes” signaling “aspect” and “tense” (including pluperfects); vi) auxiliaries; vii) anaphoric elements including pronouns and reflexives; viii) and wh-movement.

The goal of this paper is to raise some issues with this conclusion in defense of UG. Specifically, I have no concern with their claim that some of the categories in the above list are not universally attested. In particular, the present paper is about categories and the question whether there are universal closed class (i.e., functional) categories. In fact, I will make an even stronger claim in this respect. I propose that the types of categories they mention (case, tense, aspect, pronouns and reflexives) cannot be universal on principled grounds: Universal categories cannot be defined on the basis of morphological type (such as inflection), word class (such as pronoun), or substantive content (such as tense). At the same time I take issue with Evans & Levinson’s 2009 conclusion that the absence of categories such as tense or pronouns in any given language points towards the non-existence of UG. This is because I argue that such categories are not primitives but

instead constructed. As such, they can be deconstructed and reconstructed in different ways – depending on the language. I thus like to outline a theory of universal functional categories according to which the basis of such categories is a syntactic spine – as set of hierarchically organized positions which are characterized by abstract functions which are crucially not defined in terms of inflectional type, word class, or substantive content. This spine serves as the input for the construction of language-specific categories with the principles of construction also being universally constrained.

It lies in the nature of this claim, that I cannot do full justice to it in the space I have here. It is impossible to show for every single functional category based on inflectional type, word class, or substantive content (which encompasses the majority of functional categories ever proposed) that it must be decomposed and that it is based on one of the universal positions of the universal spine I assume. I develop my claim based on previous work. The essence of the paper is programmatic in nature. It is meant as an argument in defense of UG, in particular in defense of the universality of a syntactic spine. Many have done this before of course, but I wish to bring a novel spin to this debate, one that is based on my experience as a fieldworker working on languages that have not received much attention within a universalist.

Consider for a moment the theoretically inclined field-worker's challenge. Suppose you have in front of you a phrase or sentence in the language you are working on. How do you go about analyzing it? How do you go about drawing a tree? And why would you draw a tree in the first place? In other words, what are the trees going to do for your understanding of the language? What we want to avoid is the temptation to force a given language into a template that does not do justice to its particularities. This means that we need a framework that allows us to talk about a language in its own terms. This is the main point the American Structuralists made when they were first confronted with the languages of the Americas. They realized that grammatical concepts based on Latin and Greek are not useful in the description of these languages. In the same way, it is not useful to analyze these languages based on a system of categories that has been developed mainly on the basis of Indo-European languages (even if these categories are claimed to be universal). What is necessary is a way to discover the *language specific categories* and then to have a way to map these categories onto a universal spine. In other words we need discovery procedures that allow us to talk about languages in their own terms. And here is where my particular spin on the defense of the concept of UG comes in: I submit that the assumption of UG is in fact ideally suited for this task. Because it is abstract enough, it allows us to talk about languages in their own terms.

But what are the discovery procedures that we can use to identify language specific categories? It was a major tenet of the structuralist tradition to develop such discovery procedures but they fell out of favor within the generative approach. Yet, many of the basic grammars and descriptions of the languages studied by field workers are based on structuralist discovery procedures, which are of course based on structuralist assumptions. However, some of the fundamental assumptions about the relation between sound, meaning and category have changed fundamentally within the generative tradition. For this reason, it is hardly desirable to use the output of structuralist analyses as the input of generative analyses van Valin 2007: 255. In sum, if our fundamental assumptions about core properties of natural languages have changed so dramatically, then we simply cannot directly import structuralist discovery procedures. We must

instead develop new discovery procedures that are firmly grounded in contemporary ideas about grammar. This is precisely the methodological goal I have. Again, I cannot do this in 20 pages – it will have to await a different venue (Wiltschko in preparation). What I will do here is sketch some of the necessary ingredients of such procedures.

I will assume here without discussion that the grammatical rules of all individual languages are structure-dependent and hence that UG comes with a certain structural template (the syntactic spine). This is a form of the universal base-hypothesis advanced in the 1960ies and more recently revived by Kayne 1994, and Cinque 1999. The question that I am interested in here concerns the content of this structure. That is, while the existence of layers of functional structure dominating lexical material is relatively uncontroversial, the labels associated with these functional categories (if any) are still subject to debate. In the core part of this paper (sections 2-4), I discuss three general strategies to assign labels to functional categories: i) morphological type (section 2); ii) word class (section 3); and iii) substantive content (section 4). For each of these types of labeling strategies I show how and why it got first introduced. Then I show that these labels cannot be universally associated with functional categories. Consequently, neither morphological type, nor word class, nor substantive content may serve as a discovery procedure. This leaves us with the question as to whether there is any sense in which these superficially different categories do in fact belong to a universally available class of abstract functional categories. In section 5 I make the case that this is indeed so. There are certain commonalities that these categories share which justify the assumption of a universal spine. On the basis of these findings, I conclude by outlining some discovery procedures that serve to identify functional categories within and across languages.

2. The (in)significance of morphological type

The postulation of functional categories within generative grammar is meant to account for two related effects. It makes available a position for a head (F) and a position for a phrase (XP) where XP enters into a close relation with F. This XP-position is known as the *specifier* of F.

The core of this section is concerned with the functional category INFL, the category whose label alludes to a morphological type, namely *inflection*. Introduced in the 80'ies (Travis 1984, Chomsky 1986), it still figures prominently in current analyses. In section 2.1, I briefly summarize how INFL was introduced as a functional head. I then show that the morphological type *inflection* is not considered a primitive in generative grammar (2.2). As a consequence, *inflection* (just like any other morphological type) cannot be a linguistic universal and it should consequently not serve as a meaningful label for a universal category. This conclusion is supported by the fact that not all languages use this morphological type (2.3). Consequently, morphological type cannot be used as a discovery procedure. Morphological types (including inflection) are constructed and what we have to discover are the pieces that serve to construct them (2.4).

2.1 Introducing INFL

The rise of functional categories within generative grammar started with the observation that all phrases are endocentric. That is, for every phrase based on a major lexical

category (V, N, A, and P), there is a corresponding *head* of the same categorial type, and conversely, for each instance of V, N, A, or P there is a corresponding phrase with the same label. This leads to the postulation of X'-theory, such that X ranges over any category. The X'-theoretic template postulates, among other things, a strict correspondence between heads and phrases as in (1). A non-trivial problem arises in light of the phrase-structure rules postulated for sentences, as in (2).

(1) $XP \rightarrow \dots X \dots$

(2) $S \rightarrow NP (Aux) VP$

Since a sentence (S) is also a phrase, X'-theory predicts that S too should be subject to the same template. This is however not the case. The rule in (2) is not endocentric: There is no head corresponding to the label for the phrase. So what, if anything, serves as the head of S? The one candidate that best fits the description of a head in English indicative matrix clauses is the inflectional morphology on the verb. Every indicative clause must have one and only one inflection. This can be seen on the basis of the examples in (3) and (4). In (3)a/b the verb is inflected for past and present, respectively. In the absence of inflection, the sentence is ungrammatical (3)c. This suggests that inflection is obligatory. In (4), we observe that the same generalization holds in the presence of the auxiliary *be*: the auxiliary must be inflected, as shown by the contrast between (4)a and (4)b. Moreover, the fact that in the presence of the auxiliary the verb can no longer be inflected (4)c/d tells us that inflection is unique.

(3) a. Yoshi played with his ball.
 b. Yoshi plays with his ball.
 c. * Yoshi play with his ball.

(4) a. Yoshi is playing with his ball.
 b. * Yoshi be playing with his ball
 c. * Yoshi is plays with his ball.
 d. * Yoshi be plays with his ball.

Obligatoriness and uniqueness are precisely the two properties we expect from a head. This paved the way for the claim that INFL (short for *inflection*) serves as the head of the clause (Travis 1984, Chomsky 1986). And, if INFL is indeed the label for the head of the clause as per UG, then we may expect that – everything else being equal – inflectional morphology serves as the head of the clause across all languages. If so, identifying the inflectional morphology in a given language would suffice to discover the head of the clause. However, everything else is not equal. One doesn't even have to look beyond English to realize that belonging to the morphological type inflection is neither a necessary nor a sufficient condition to be associated with INFL.

universalist approach since English and Halkomelem are typologically and geographically unrelated.¹

- (10) a. q'ó:y-t-es te qwá:l
kill-TRANS-3S DET mosquito
'He killed the mosquito.'
- b. *q'ó:y-t te qwá:l
kill-TRANS DET mosquito
'He killed the mosquito.'

However, if we look more closely, we observe that 3rd person agreement differs from English in at least two aspects. First in the context of negation an auxiliary is used. Crucially, 3rd person agreement is now found on both the auxiliary and on the verb (11).

- (11) éwe lí-s q'ó:y-t-es
NEG AUX-3S kill-TRANS-3S
'He didn't kill the mosquito.'

The behavior of 3rd person agreement thus violates the criterion of uniqueness. But if inflection is not unique, then one of the crucial arguments that it serves as the head of the clause is undermined: By hypothesis, there can only be one head.

Second, while in English, inflectional morphology is always on the highest verbal head (i.e., the auxiliary), in Halkomelem 3rd person agreement (in positive contexts) is restricted to the main verb and cannot appear on the auxiliary. This is shown in (12).

- (12) a. li q'ó:y-t-es te Strang te qwá:l
AUX kill-TRANS-3S DET Strang DET mosquito
'Strang killed the mosquito.'
- b. *li-s q'ó:y-t te Strang te qwá:l
AUX-3S kill-TRANS DET Strang DET mosquito

In light of these data, we conclude that not all inflectional morphology associates with the head of the clause.

2.3 Conclusion

In this section, we have established that membership in a particular morphological class – such as *inflection* – is neither a necessary nor a sufficient condition to identify it as instantiating a given functional head. This is despite the label that the category was given when it was first postulated on the basis of English indicative clauses (INFL). Generative linguists would probably not pursue the hypothesis that morphological type serves as a reliable diagnostic for category-membership. For example, within the framework of Distributed Morphology (Halle and Marantz 1993) inflection is not considered a primitive and the classic distinction between inflection and derivation has no status in this theory. Nevertheless, the point is still worth making that we cannot use morphological type as a proper discovery procedure for functional categories, for two reasons. First, the

¹1=1st person; 2nd person; AUX=auxiliary; CL=clitic; DET=determiner; FUT=future; NEG=negation; NOM=nominalizer; O=object; PL=plural; S=subject; SG=singular; SUBJ=subjunctive; TRANS=transitive

non-existence of inflectional morphology in some languages (e.g., isolating and agglutinative languages) has been used as evidence against the postulation of universal grammar (see Evans & Levinson 2009). Moreover, despite obvious evidence to the contrary, when analyzing a new language, it is a common strategy to simply use the content of the label of the category as a guiding principle to find the category that instantiates the purported universal category.

3. The (in)significance of word class

Aside from INFL, there are two other commonly assumed functional categories: C and D. Their labels are based on the names of the word-classes that have been postulated to occupy them: *complementizers* and *determiners*, respectively. The point of this section is to show that membership in either of these word classes is neither a necessary nor a sufficient condition to associate with the corresponding functional category. Hence, word-class cannot serve as a heuristic to identify functional categories in a newly studied language. This doesn't really come as a surprise from a theoretical perspective. In much recent work on the syntax-morphology-interface it is assumed that words (also known as vocabulary items) are inserted late and – as a consequence – are language specific. Thus, word-classes cannot be universal which means that we should not be using the names of language-specific word classes to refer to universal functional categories. In what follows, we discuss evidence that neither *determiner* nor *complementizers* are universally available, and even if a language appears to have this word-class, it may not be mapped onto the same functional category as in other languages.

3.1 Is C for complementizer?

The functional category C has been introduced around the same time as INFL (Chomsky 1986). Its origins trace back much further, however (Rosenbaum 1967). In particular, the non-lexical category *complementizer* was assumed to introduce S (the projection of the clause) when S was used as the complement of a verb. Before the introduction of generalized X'-theory in Chomsky 1986, the label of the newly formed projection was S' as in (13). This phrase structure rule violates the endocentricity requirement on phrases: There does not seem to be a head corresponding to the phrase S'. Just as with INFL, the situation was rectified in Chomsky 1986 by assuming that COMP (now replaced by C) serves as the head of the clause (CP), as in (14).

(13) S' → COMP S

(14) CP → ...C...

While the use of C instead of COMP reflects the fact that this position should not be identified with the word-class which occupies it, it is nevertheless the case that when we analyze a new language we tend to assume that whatever looks like a complementizer is automatically associated with the functional category C. In what follows, I discuss properties of the position C as well as the word class *complementizer*, which calls this assumption into question.

While C may host individual words that are often classified as complementizers (e.g., *that, if, for*) it is not restricted to these words. In particular, in the context of inversion triggered by question formation, auxiliaries are usually assumed to move to C, as shown in (15)a. In German, this type of inversion has been generalized resulting in the obligatory V2nd configuration: In matrix clauses the finite verb has to move to C (15)b.

- (15) a. [What **[did]**_C [_{IP} you eat last night]]
 b. [Den Ball **[hat]**_C [_{IP} der Yoshi verloren]]
 det_{acc} ball has det_{nom} Yoshi lost
 ‘Yoshi lost the ball.’

This establishes that C need not be occupied by elements belonging to the complementizer word class. Furthermore, the complementizer itself is not obligatory – and thus violates one of the criterial diagnostics for headship.

The converse argument against the assumption that the word class complementizer defines the syntactic position C stems from the fact that there are words, which arguably belong to this word class but which are not mapped onto C. For example, some dialects of Italian, allow for the multiple occurrence of complementizers (Poletto 2000). The following example is from Turin Piedmontese.

- (16) A venta **che** gnun **ch’a** fasa bordel
 It needs that nobody that-cl do+SUBJ noise
 ‘It is necessary that nobody makes noise. Cocchi & Poletto 2000: 66 (20)

Since there are two complementizers, it follows that they cannot both occupy the same head position: this violates the uniqueness requirement on heads. Facts like this have been used to develop a more articulated analysis of the C-domain such that instead of a single functional projection (CP) several are postulated, including ForceP, FocusP, TopicP, FinitenessP (Rizzi 1997). Note that neither of these positions is identified based on word-class.

The point of this subsection was to establish that the functional category typically labeled as C (short for complementizer) is not to be identified with the word-class that occupies it. Membership in the complementizer word class is neither a necessary nor a sufficient condition to occupy C. This conclusion is supported on independent grounds. Hudson 1997 argues that complementizers are not even to be considered a word class. His argument is based on the observation that there are no generalizations to be made over English *that, if, and for*, which correspond to those that are considered complementizers on most accounts. For example, *that* but not *if* can introduce a subject clause, as shown in (17) (for more arguments see Hudson 1997, section 4).

- (17) a. **That** it’s raining surprises me.
 b. ***If** it’s raining is unclear.

In addition, in many languages complementizers are words that serve double duty as determiners or demonstratives. This is true for English *that*, as shown in (18).

- (18) a. I know **that** it is raining.
b. I hate **that** rain.

Since the complementizer/determiner polysemy is pervasive across different languages (Roberts and Roussou 2003), it is desirable to develop an analysis that captures this pattern. Assuming that there is a word-class complementizer which is always mapped onto the functional category C does not provide us with an appropriate tool to capture this pattern.

Finally, there are languages which seem to lack the word-class complementizer altogether. This is true for Blackfoot (Algonquian). There are no clause-peripheral words that serve to introduce or type the clause. If the functional category C would be dependent on the presence of a complementizer, we would be forced to conclude that Blackfoot lacks the C-position. This would however be premature as there are elements in the grammar of Blackfoot which do seem to associate with the C-domain (see Déchaine and Wiltschko in press). I conclude that we cannot identify the functional category C with the word-class complementizer. In fact, I argue for an even stronger claim, namely that word-class should never serve as the label for a universal functional category, precisely because word-classes are always language specific.

3.2 Is D for determiner?

The functional category D has been introduced in Abney's 1987 seminal dissertation on the parallel structure of nominal and sentential phrases. He proposed that determiners – the class of function words which introduces the nominal phrase – are best analyzed as heading the nominal phrase, as in (19)a. This contrasts with previous analyses of determiners as occupying SpecNP (Jackendoff 1977) as in (19)b.

- (19) a. [DP [D [NP N]]] b. [NP DET [N' N]]

Abney's DP-hypothesis keeps the treatment of determiners in line with Chomsky's 1986 generalized X'-theory: The determiner, which functions as a head rather than a phrasal constituent, is now associated with its own head position. Interestingly, Abney himself explicitly denies a strict correlation between the word-class determiner, and the D head. He states that "*the existence of a functional head of the noun phrase, and the question whether the determiner is the head of the noun phrase are two separate questions.*" (Abney 1987: 40). Nevertheless, in practice, it is tempting to equate the two. That is, when analyzing a new language it is tempting to assume that words that look like they belong to the class of determiners occupy D. This would be the null hypothesis. But again, word-classes should not serve as the heuristic, as they are defined in language specific terms. Belonging to the word-class determiner is neither a necessary nor a sufficient condition to be associated with D, as I will now show.

First we observe that D can be occupied by word classes other than determiners. For example, it has been argued that D may host names (Abney 1987, Longobardi 1994). Longobardi 1994 argues that, in Italian, names start out as nouns but they move into D, as in (20)a, unless D is occupied by a determiner, as in (20)b.

- (20) a. [DP **[Mario]_D** mio [NP [~~Mario~~_N]]
 b. [DP **[il]_D** mio [NP [Mario]_N]]

Demonstratives are another obvious candidate to occupy D as they are in complementary distribution with determiners, at least in English.

- (21) [DP **[this]_D** [NP [rabbit]_N]]

This complementarity, however, does not hold across languages, an observation which may suggest that at least in some languages demonstratives occupy a position other than D (for example SpecDP, Haegeman and Gueron 1999, Giusti 2002).

As with complementizers, we also find the converse problem to the one just mentioned: There are words which appear to belong to the word-class determiner, but which are arguably not associated with D. Take for example the indefinite determiner *a* in English. It appears to be a member of the determiner word-class nevertheless its function and distribution differs from definite determiners. This lead to the claim that indefinite determiners occupy a position lower than D, namely Num(ber) (see (Davis and Matthewson 1999; Lyons 1999; Ghomeshi 2003; Borer 2005). For example definite determiners are restricted to argument position (22) whereas indefinite determiners can occupy both predicate and argument position (23).²

- (22) a. This is the cute dog.³ b. I saw the cute dog.

- (23) a. This is a cute dog. b. I saw a cute dog.

Similarly, Artiagoitia 2002 argues that determiners in Basque do not occupy D. His evidence stems from a comparison between Romance and Basque. He observes that in Basque nominal phrases containing a determiner-like element show similar patterns of interpretation as bare NPs in Romance. A similar analysis is also proposed for the definiteness markers of the Scandinavian type (Longobardi 2001). These markers have a distribution different from regular determiners, and crucially may co-occur with determiners. This is evidence that just like complementizers may occupy different functional positions, so do determiners.

In this subsection, we have established that membership in the word class determiner is neither a necessary nor a sufficient condition to be associated with the functional category D. There are elements other than determiners which occupy D and conversely, some words that one can reasonably call determiners occupy functional positions other than D. Again, in itself this is not surprising, given that word-class is a concept, which is necessarily language specific. But we need to take care to not use word-class membership as a convenient heuristic to discover the language specific instantiations of a universal category.

² This is an oversimplification: definite determiners may be used in predicate position in the context of superlatives.

³ The use of the definite determiner in this context is not ungrammatical but forces an equative reading.

3.3 Conclusion

The purpose of this section was to establish that word-class cannot serve as a discovery procedure for universal categories. In particular, word classes are always going to be language-specific, which is why they will always have to be discovered with language-specific tests. Assuming that functional categories are indeed universal it follows that they cannot strictly correlate with word classes (Lyons 1999: 298f.). Ideally then, names for word classes should not be used as labels for functional categories. It is after all too tempting to identify the functional category with its name, and if it happens to be the name of a word-class we are led to associate a given word with a particular functional category, without evidence beyond its label. Moreover, it will invite criticism that is in fact uncalled for. For example, Evans & Levinson 2009 argue that there cannot be a universal grammar based on the observation that not all languages have pronouns, reflexives, or auxiliaries. Since all of these notions correspond to word classes, there is in fact no reason to assume that they would constitute linguistic universals. Similarly, Hudson 1997 argues against the existence of functional categories, such as C or D based on the observation that it is hard to define the word class that corresponds to them.

4. The (in)significance of substantive content

So far, I have tried to show that neither morphological type, nor word class can serve as a discovery procedure for universal categories, despite the fact that some (putative) universal categories are labeled in those terms. While generative linguists may not in fact hold the explicit belief that these labels are to be identified with their content, there is another type of label that is generally assumed to be identified with the content of a functional category, namely semantic notions such as *tense*, or *number*. In fact, in the cartographic approach towards language variation, functional categories are explicitly defined in terms of their semantic content. This serves as a convenient heuristic for the generative fieldworker. When we analyze a little studied language within a universalist framework we need to have a way to determine how the particular building blocks of that language map onto the universal spine of functional projections. It is common practice to use substantive content as the guiding principle. Roughly, this semantically driven mapping proceeds as follows. If you find a marker for a particular concept C in language 1, assume that it will map onto the same syntactic position as the marker for C in language 2. In this section, I shall argue that this, too, is misleading and that we should not identify functional categories with their substantive content. Consequently, substantive content cannot serve as a discovery procedure for functional categories either. Instead, as I will conclude in section 5, the content of a universal functional category is much more abstract and the association of substantive content with a functional category is language specific.

4.1 Tense

Let us take tense marking as an example. In much generative work since the nineties, *tense* has figured prominently in the set of postulated universal functional categories. In fact, *tense* has replaced INFL as the label for the head of the clause. I submit that this is

simply because the head of the clause in English happens to have temporal content. In the days of INFL, this was recognized by associating two features (tense and agreement) with the head of the clause. Ever since Pollock 1989, the feature *tense* on INFL has become the label for the projection. Consequently, we are tempted to assume that a marker of tense in any language is an instantiation of the universal category *tense*. But this assumption does not necessarily help us to understand the language in its own terms precisely because – as I claim – universal categories are not based on substantive content. It follows that substantive content cannot be used as a discovery procedure.

Consider Halkomelem (Central Salish) as an example. If we are to analyze Halkomelem within a universalist approach, and on the assumption that *tense* is a universal category, we will first ask whether Halkomelem has *tense*. The first thing we observe is that Halkomelem has a marker for past (*-lh*) and for future (*-cha*).

- (24) a. *í-lh* *tseł* *lám* b. *th'í:qw'e-th-omé-tseł-cha*
 AUX-PAST 1SG.S go punch-TRANS-2SG.O-1SG.S-FUT
 'I'm gone.' 'I will punch you.'
- Galloway, 1993:317-319

So it is tempting to assume that these markers map onto the functional category *tense*. After all, if not the morphemes that mark *tense*, what else would map onto this position? But then we would expect that these *tense* markers have a lot in common with *tense* markers in other languages; that is *tense* markers should in some way behave like a universal natural class. The fact of the matter is however that past and future marking in Halkomelem has very different distributional properties from past and future marking in languages such as English or French, which have been used to develop the idea of the functional category *tense*. Recall that the defining properties of a head are obligatoriness and uniqueness. But crucially, these properties are not among the formal properties of past marking in Halkomelem.

First, we observe that *tense* marking in Halkomelem is not obligatory and consequently not contrastive. This can be seen on the basis of the fact that in the absence of overt past marking the reported event is not necessarily interpreted as ongoing (i.e., present *tense*). This is shown in (25): a sentence without past marking can be interpreted as both present and past. This contrasts with English, where in finite sentences the absence of past marking is necessarily present.

- (25) a. *í-lh* *qw'eyílex* *tútl'ò* b. *í* *qw'eyílex* *tútl'ò*
 AUX-PAST dance he AUX dance he
 'He was dancing.' 'He is/was dancing.'

Similarly, Halkomelem past marking is not unique in the same way as it is in English. In particular, it allows for past marking on categories other than (auxiliary) verbs. As discussed in detail in Burton 1997, past on nouns is marked in the same way as past on verbs (via the suffix *-lh*), and expresses death, loss, or destruction. Crucially, past marking on nouns can co-occur with past marking on auxiliaries, as shown in (26).

- (26) **i-lh** tsel ts-stó:les-**elh**
 AUX-PAST 1S have-wife-PAST
 ‘I had a wife.’

Suppose for a moment that the initial language of analysis for generative grammarians would have been Halkomelem rather than English. We would have not concluded that tense serves as the head of the clause (see Wiltschko 2003; Ritter and Wiltschko 2010 for further evidence). The absence of tense marking serving as the head of the clause (or the absence of tense marking altogether) does however not lead to the conclusion that there is no universal grammar (contra Evans & Levinson 2009). Instead, Ritter & Wiltschko 2010 argue that Halkomelem makes use of a different type of substantive content to instantiate the head of the clause, namely location.

4.2 Number

A similar point can be made based on number marking. Ever since Ritter’s 1991 work on number marking it is generally assumed that number heads its own functional category, labeled *Num(ber)*. This is illustrated in

- (27) [DP D [NumP [pl/sg]Num [_{NP} *n*]]]

On the assumption that functional categories are defined in terms of their substantive content we would expect that every morpheme that encodes a distinction in number (singular, dual, plural, etc.) will be associated with the functional category between D and *n*. That is, substantive content serves as a convenient heuristic to determine the architecture of the nominal phrase in any given language. This is however not the case. Consider for example Halkomelem. If we simply ask whether Halkomelem has plural marking, the answer is yes. Every noun may be marked for plural via reduplication, *-l-* infixation, or Ablaut (Galloway 1993).

- | | | | | |
|------|----|------------------------|------------------------|----------------------------------|
| (28) | a. | <i>reduplication:</i> | méle
<i>child</i> | mámele
<i>children</i> |
| | b. | <i>-l- infixation:</i> | q’ámi
<i>girl</i> | q’álemi
<i>girls</i> |
| | c. | <i>Ablaut:</i> | swíweles
<i>boy</i> | swóweles
<i>boys</i> |

Galloway 1993:379f.

Everything else being equal, we may conclude that Halkomelem plural marking associates with the same functional category as it does in English. However, everything else is not equal. Its formal properties are strikingly different from those of plural marking in English (Wiltschko 2008). For example, Halkomelem plural marking is optional (29), it is not restricted to nouns (30), and it may appear inside compounds and derivational morphology (31). As is well known, none of these properties of are attested in English plural marking.

morpheme. This further suggests that we should not use substantive content (such as *number*) as the label for a functional category.

4.3 Conclusion

The main purpose of this section was to show that substantive content is not intrinsically associated with functional categories (Ritter & Wiltschko 2009, 2011). Rather, categories that are defined in terms of their substantive content are language specific. On this view, it comes as no surprise that some of the categories mentioned by Evans & Levinson 2009 (for example tense and aspect) are not universally attested.

The dissociation of content from functional category has also been shown for concepts such as Person (Déchaine & Wiltschko in press), Evidentiality (Blain and Déchaine 2007), Negation (Déchaine and Wiltschko 2003), Diminutives (Steriopolo 2008), and Gender (Ritter 1993; Steriopolo 2010) among others. The claim that substantive content is associated with functional categories on a language-specific basis predicts that the same content may associate with different functional categories. This is indeed what we find, as we have seen in this section. However, there are two more predictions, which – for reasons of space – I cannot discuss here. First, we expect that the same category can be associated with different types of substantive content. This has been argued for by Ritter & Wiltschko 2011 for INFL, which according to them can be occupied by tense, location, or person. Similar claims have been made for other functional categories. For example, Borer argues that the category that hosts *number* may also associate with *classifiers* (Borer 2005). For Viewpoint Aspect, (Bliss, Ritter et al. in press) argue that it can be substantiated by temporal content as well as by participant content, resulting in a system which encodes the point of view.

The other prediction is that functional categories should sometimes surface without any substantive content. This is arguably the case for infinitives (Ritter & Wiltschko 2011) and subjunctive marking (Christodoulou & Wiltschko, in press) as well as case (Wiltschko 2011).

If indeed substantive content is not a universally defining characteristic of functional categories, we cannot use it as a discovery procedure. That is, the substantive content associated with a given morpheme cannot be taken as a heuristic to determine its categorical identity. Just like nouns and verbs are not to be defined in terms of their meaning, neither are functional categories. This leaves us with the question as to whether there are universal functional categories, and if so, how they are defined. I briefly address this question in the next section (see Wiltschko, in preparation for further discussion).

5. The anatomy of universal categories

We started out with a challenge for the universalist approach towards natural languages raised by Evans & Levinson 2009. They argue that languages do not all have categories such as tense, aspect, auxiliaries, pronouns, etc. On the basis of this they conclude that there cannot be a universal grammar. I agree with the claim that the categories they mention are not universally attested, but I disagree with their conclusion. I have argued that on principled grounds these categories cannot be attested across all languages because universal categories cannot be identified by morphological type, word class, or

substantive content. But what else defines a functional category? What is the proper characterization of the universal spine?

There is considerable disagreement concerning the nature of the functional spine, whether it exists at all, and, if it does, how many functional categories it consists of and what the labels of these categories are. One thing that most generativists agree on, however, is the existence of specific domains (Grohmann 2003) or levels (Williams 2003): The domain of thematic relations (roughly ν P), the domain of grammatical relations (roughly AspP and IP), and the domain of discourse relations (roughly CP). Furthermore, there is consensus in the field that there is a parallelism between nominal and verbal functional categories (Abney 1987, Szabolcsi 1987) among many others). I take both of these observations to be significant – pointing to the conclusion that there is a universal spine: otherwise the universality of these domains and the parallelism between nominal and verbal projections would remain without explanation.⁴ Moreover, there will be different effects associated with the different domains: For example elements within the domain of grammatical relations will likely serve to introduce or license grammatical relations. These domain effects can then effectively be used as discovery procedures. In addition, the parallelism between nominal and verbal projections manifests itself in the types of functions associated with each. For example, Abney 1987 has argued that D is the nominal counterpart of INFL; they both serve as anchoring categories in the sense that they anchor either the event or the referent to the discourse (Ritter & Wiltschko 2011; Wiltschko 2011). I submit that the other domains are also associated with category-neutral abstract functions as summarized in table 1 (Wiltschko and Déchaine 2010)

<i>Domain</i>	<i>Function</i>	<i>Nominal correlate</i>	<i>Verbal correlate</i>
<i>Thematic domain</i>	Classification	Classifier	Aktionsart
<i>Grammatical domain (object)</i>	Point of view	Phi	Aspect
<i>Grammatical domain (subject)</i>	Anchoring	D	Infl
<i>Discourse domain</i>	Typing	K	C

Table 1: The universal spine

Associating substantive content with the universal spine will result in language-specific categories such as tense, and number, etc. which may or may not be manifested in the form of word-classes, specific morphological types or word-order effects. These manifestations are necessarily language-specific and cannot define universal categories. To analyze a given language means to determine for any given linguistic object LO (a word, a morpheme, or even a type of movement) where and how it associates with the universal spine. The *where* concerns the position in the functional spine and we can use domain effects as well as core function to determine it. The *how* concerns the way a given LO is associated with the spine: via substitution (the LO behaves like a head) or via adjunction (the LO behaves like a modifier).

⁴ Whether these domains and – and by extension the functional spine – are specific to the language faculty or whether they are a product of general cognitive capacities is a different question, which I will not address here

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So what are the benefits of the universalist approach towards languages, an approach that places both universality and diversity at center stage? First, I believe that it allows us to do what the American Structuralists put on their agenda: namely to talk about a given language in its own terms. It further allows us to compare the formal properties of languages without having to rely on substantive content as the means of comparison (contra Haspelmath 2007). And finally it allows us to explore whether or not all natural languages follow a particular structure, which in turn allows us to draw conclusions about the nature of the human mind.

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