Discovery Procedures for functional categories
A case study of Salish articles [1]

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In this paper, I argue that neither semantic content nor membership in a putative word class are sufficient to identify a given linguistic element (feature or morpheme) with a specific functional category. I make the argument based on a case study of article systems in Halkomelem and across the Salish family. With German articles as the comparison set I show that the distributional properties as well as their feature specification suggests that they associate with the functional category CLASS, which in German is associated with number marking.

1 Introduction

The investigation of functional categories has played a major role within the Principles and Parameters framework (Chomsky 1981, 1995). Specifically, under the assumption that X'-theory generalizes to closed-class grammatical categories and features (Chomsky 1986) much research has been devoted to the proper characterization of such categories. We can identify four major questions that surround this line of research:

(1) i) What is the nature of syntactic-semantic functions in clauses structure
    ii) What are the principles that govern how and where these functions project in clause-structure?
    iii) What is the content of syntactic-semantic function in clause structure?
    iv) Why and how do syntactic semantic functions vary cross-linguistically?

In this paper I attempt to provide answers to these question on the basis of a detailed case study of the word class known as articles across the Salish family. The background for my investigation is a particular view regarding questions iii) and iv) which I am currently pursuing in joint work with Elizabeth Ritter (University of Calgary), namely the so called PARAMETRIC SUBSTANTIATION
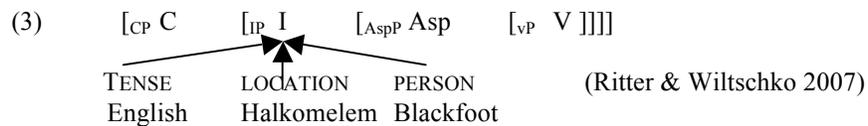
HYPOTHESIS (Ritter & Wiltschko 2007). There are two core assumptions which define this hypothesis, as summarized in (2)

(2) i) A given functional category is **not** universally associated with identical substantive content.
   ii) Conversely, a given substantive content is **not** universally associated with identical functional categories.
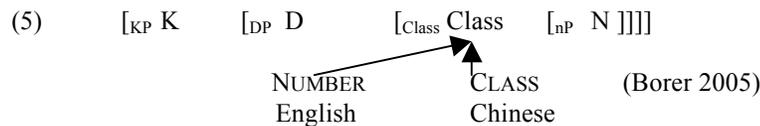
According to this view, functional categories are not inherently associated with substantive content, but rather this association is subject to language variation. As such the Parametric Substantiation Hypothesis contrasts with cartography (i.e., Cinque 1996) which holds a strictly universalist association between functional categories and their semantic content. For example, in Ritter & Wiltschko (2007, to appear), we argue that the functional category INFL is universally associated with the abstract function to anchor the reported event to the utterance but languages vary in the substantive content it associates with: while English uses TENSE, Halkomelem (Salish) uses LOCATION, and Blackfoot (Algonquian) uses PERSON to substantiate INFL, as illustrated in (3).

(3)   [CP C   [IP I   [AspP Asp   [vP V]]]]

        TENSE   LOCATION   PERSON   (Ritter & Wiltschko 2007)
        English   Halkomelem Blackfoot

A similar idea is put forth in Reinholtz (2007) who argues that the functional category C, which is often assumed to be associated with question formation, and thus with the feature [+Q], is not universally so used. Rather, she argues that in Swampy Cree (Algonquian) C is associated with the formation of negative statements, and thus with the feature [+Neg]. This is illustrated in (4).

(4)   [CP C   [IP I   [AspP Asp   [vP V]]]]

        QUESTION   NEGATION   (Reinholtz 2007)
        English   Swampy Cree
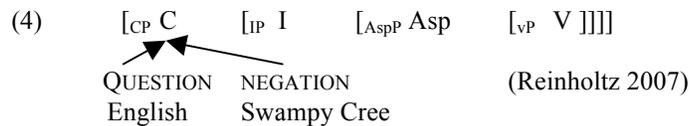
Similar proposals have also been made for functional categories found in the nominal domain. For example, Borer (2005) argues that number marking in English is associated with the same functional category as classifiers in classifier-languages such as Chinese. This is illustrated in (5)

(5)   [KP K   [DP D   [Class Class   [nP N]]]]

                    NUMBER   CLASS   (Borer 2005)
                    English   Chinese

If functional categories are not inherently associated with substantive content, we expect the converse pattern to hold as well: we expect the same content to be associated with distinct functional categories. And this appears to be the case as

well. For example, Blain & Déchaine (2007) argue that EVIDENTITALITY can associate with each of the functional positions available in the verbal domain:
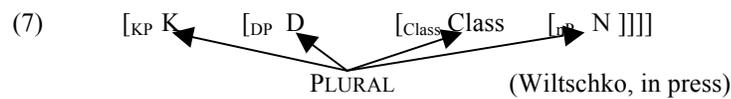
(6)   [$_{CP}$ C   [$_{IP}$ I   [$_{AspP}$ Asp   [$_{vP}$ V]]]]

               EVIDENTIALS (Blain & Déchaine 2006)
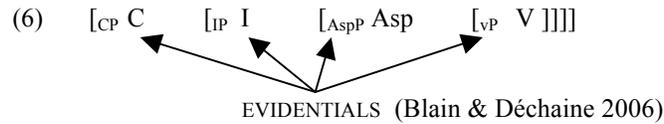
And for the nominal domain, Wiltschko (in press) argues that PLURAL marking can associate with all nominal functional heads, as illustrated in (7)

(7)   [$_{KP}$ K   [$_{DP}$ D   [$_{Class}$Class   [$_{nP}$ N]]]]
                        PLURAL   (Wiltschko, in press)

Finally, for the word-class often referred to as *articles* or *determiners* different authors have argued that they associated with different functional categories. While Abney (1987) associates articles with D (the nominal equivalent of INFL), Szabolcsi (1983) associates them with K (the nominal equivalent of COMP), and Borer (2005) argues that the indefinite article in English associates with CLASS (the position associated with number in English). This is illustrated in (8).

(8)   [$_{KP}$ K   [$_{DP}$ D   [$_{Class}$Class   [$_{nP}$ N]]]]
                        ARTICLES

While in the relevant literature, the association of articles with either D or K is sometimes presented as a matter of debate, I will argue here that it is in fact a direct consequence of the Parametric Substantiation Hypothesis. In particular, I argue that the closed class of words preceding nominals in argument position are in fact not uniformly associated with one and the same functional position. It is for this reason that I chose the term ARTICLE to refer to this word class instead of DETERMINER , because the latter term is usually associated with the functional category D. Thus, I will argue that there are at least three types of articles: ones that associate with CLASS (Cl-articles), ones that associate with D (D-articles) and ones that associated with K (K-articles).

The idea that a word class such as ARTICLE is not universally associated with D is not new. Both Abney (1987), and Lyons (1999), mention this as a possibility:

"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

"[…] functional heads correspond to grammatical or semantic categories rather than to word classes." Lyons 1999: 298f.

The main goal of this paper is to demonstrate that all three types of articles are attested across the Salish languages and that the difference in association has predictable morphological, syntactic and semantic consequences. I will further discuss the implications of this finding for discovery procedures of functional categories as well as the two remaining questions defined in (1).

2   The problem of discovering functional categories and their content

The Parametric Substantiation Hypothesis presents us with an interesting methodological problem: how do we know whether a given feature, or morpheme is associated with a certain functional category? Note that under the cartographic assumption according to which functional categories are universally associated with semantic content, this question has a trivial answer: we can tell on the basis of content. Thus the cartographic methodology reduces to a mapping of categories with similar content onto corresponding functional categories. Applied to nominal categories in German and Halkomelem, respectively, this methodology gives us the following results. In German, we observe that the noun is marked for plural and so is the article preceding the nominal. This suggests that the noun starting out in n moves to CL to associate with plural marking. In addition the article is associated with D and agrees with plural in CL via the syntactic operation AGREE. This is illustrated in (9).

(9)   a. die   Buben
           art.pl boy-pl
           'the boys'
       b. [$_D$ die [$_{CL}$ Bub-en   [$_n$ ~~Bub~~]]]

By the same line of reasoning we would associate the superficially similar Halkomelem nominal phrase in (10)a with the structure in (10)b: plural marking associates with CL and the preceding article associates with D.

(10)   a. ye   swóweles
           art.pl   N.pl
           'the boys'
       b. [$_D$ te   [$_{CL}$ swóweles [$_n$ swíweles]]]

This methodology is widely assumed in the generative tradition, particularly in the cartographic approach. Because of the assumption that functional categories are universally associated with the same semantic content, we use semantic content as a criterion for identifying the relevant functional categories in a given language: roughly, plural marking maps onto CL and ARTICLES will map onto D.
    But this suggests that the criteria to identify functional categories are essentially semantic. This is at odds with the pervasive assumption that syntactic categories are not defined in terms of meaning. We readily accept this for nouns and verbs ("the person-place-and-thing-problem"). And given that functional categories are syntactic categories par excellence, we would expect the same

reasoning to apply here as well. Thus, in order to show that articles in German and in Halkomelem associate with the same syntactic category, we would have to make the case on the basis of distributional evidence. And indeed, initial evidence turns out to support our conclusion that German and Halkomelem articles occupy the same functional position. Both are obligatorily present in argument position and obligatorily absent in predicate position.

(11) *(der) Bub   hat *(das) Lied   gesungen   *German*
      ART *boy* *AUX* *ART* *song* *sung*
      'The boy has sung the song.'

(12) t'ílém *(te) swíyeqe *(te)   st'ilem
      sing *ART* *man*   *ART* *song*
      'The man is/was singing the song.'

This much is consistent with the assumption that in both languages articles associated with D and as such they turn predicates into arguments (Longobardi 1994). Similarly, a superficial look at their feature specification suggests that German and Halkomelem articles form a natural class: while the details differ, we observe that they both encode gender, number, case and some form of a proximate distal distinction (see section 6 for details).

However, on closer inspection, there are also differences between German and Halkomelem articles, both in terms of their syntactic distribution and in terms of their feature specification. Consider syntactic distribution again. In certain contexts, German allows for articelless (i.e., bare) arguments. Specifically, plural nouns, mass nouns and proper names can all function as arguments without an article as shown in (13). This contrasts with Halkomelem, where articles are still obligatorily present with plural nouns, mass nouns and proper names as shown in (14):

(13) a. (Die) Männer   haben (die) Lieder   gesungen.
          ART *man-PL*   *AUX* *ART* *song-PL* *sung.PART*
          'Men sang songs.'

      b. Ich habe (das) Holz gesehen.
          I *AUX* *ART* *wood* *seen*
          'I have seen wood.'

      c. Ich habe (den) Konrad gesehen.
          I *AUX* *ART* *Konrad* *seen*
          'I have seen Konrad.'

(14) a. t'ílém *(te) **sí:wí:qe**
          sing *ART* *man.PL*
          'The men are singing.'

      b. tsel   kw'éts-lexw   ***(te)** siyólh
          1SG.S *see-TRANS-3O*   *ART* *wood*
          'I seen wood.'

c. tsel   kw'éts-l-exw   ***(te)**   Konrad
   1SG.S see-TRANS-3O   ART Konrad
   'I have seen Konrad.'

This distributional difference between articles in German and Halkomelem summarized in table 1 casts doubt on the conclusion that they instantiate the same functional category.

articles w/	**German**	**Halkomelem**
singular noun	obligatory	obligatory
plural noun	optional	obligatory
mass noun	optional	obligatory
name	optional	obligatory

Table 1: Distributional differences between German and Halkomelem articles

3   Proposal

On the basis of distributionally differences, such as the ones reported in section 2, I propose that articles in German and Halkomelem are associated with distinct functional categories: they are not uniformly associated with D. Specifically, I propose that in Halkomelem articles associated with CL while in German they associated with D.

(15)   [$_{KP}$ K   [$_{DP}$ D   [$_{Class}$ Class   [$_{nP}$ N]]]]
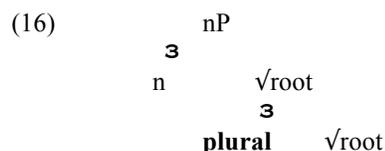   German   Halkomelem
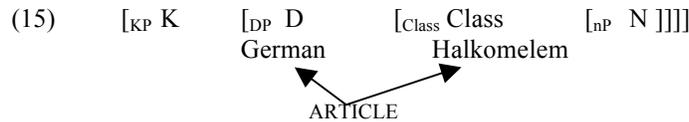
ARTICLE

This helps us to understand the distributional difference between German and Halkomelem articles. The optionality of German articles can be understood under the assumption that argumenthood requires the presence of some functional structure, but not necessarily D (see Pereltsvaig 2005, Déchaine & Wiltschko 2002): plural marking, and mass nouns which are associated with CL (Ghomeshi 200**, Wiltschko in press) obliviate the requirement for an overt article. In Halkomelem however, the article associates with the lowest functional category CL and therefore it will always be required for argumenthood. To independently motivate this proposal, I discuss three properties which further distinguish German and Halkomelem articles:

First, I briefly review evidence that Halkomelem plural marking does not associate with CL leaving this position free to associate with articles (section 4). Second, I discuss further differences between German and Halkomelem articles based on their syntactic distribution. I will also show that across the Salish family articles do not form a uniform class and based on the syntactic diagnostics established I argue that we find all logically possible articles: K-articles, D-articles, and CL articles (section 5). Finally I provide evidence from feature specification which turns out to be only superficially similar across the

two languages. And again I will show that the feature specification we find across the family is consistent with the claim that we find all three types of articles (section 6).

4 Where is Halkomelem Plural Marking?

If we assume that Halkomelem articles substantiate CL the question arises as to what category, if any, plural marking associates with. It cannot also substantiate CL. It turns out that Halkomelem plural marking does not have the same distribution as plural marking in German or English (Wiltschko, in press). It is therefore independently justified to not associate plural marking with CL. In particular, in Wiltschko in press I argue that Halkomelem plural marking does not associated with a functional category at all but instead it modifies √roots before they are categorized. This is illustrated in (16).

(16)   nP
              3
          n   √root
                     3
                plural   √root

As such, plural marking in Halkomelem does not have the same classification function as it does in German or English. Evidence for this analysis includes (but is not restricted to) the following. First, we observe that Halkomelem plural marking is positioned inside of derivational morphology, such as the nominalizing prefix s-.

(17)   t'ílém   s-t'ilem   s-t'elt'ílém
        sing   *n-sing*   *n-sing.PL*
        'to sing'   'song'   'songs'

(18)   p'eq'   s-p'eq'   s-p'eq'p'eq'
        white   *n-white*   *n-white.PL*
        'white   'white spot on skin' 'white spots on skin'
                                                            Galloway 1993: 379

Moreover, Halkomelem plural marking is not restricted to nouns, which is expected if it modifies √roots before they are categorized as nouns:

(19)   a. qw'óqw-et   qw'óleqw-et
            whip sthg/so   *whip sthg/so several times*

        b. xáq-lhel-em   xáqxeq-lhál-em
            sighing   *sighing over and over*

        c. kw'ákw'ets-et   kw'etskw'ets(-met)
            looking at   *looking for so repeatedly*
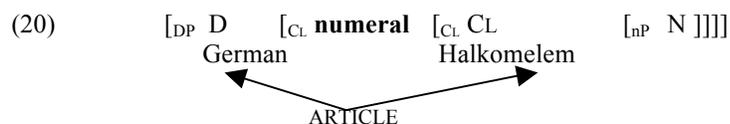   Galloway 1993: 325f.

For the purpose of this paper, this much should suffice to establish that plural marking in Halkomelem is not associated with CL unlike in German. It thus follows that CL is available for the association with some other content. In what follows I will argue that this is precisely what we find: in Halkomelem ARTICLES associate with CL.

5 ARTICLES associate with CL: Evidence from distribution

### 5.1 The contrast between Halkomelem and German

If articles in German associate with D while in Halkomelem they associate with CL we expect that the two types of articles display different distributional properties inside the nominal phrase as well.

   We start with the relative distribution of numerals. For the purpose of this paper, I will assume that numerals adjoin to ClASS and as such displays a classificatory function. We therefore predict that in German, where articles associate with D, they precede numerals. This is borne out as shown in (21). In contrast, for Halkomelem where articles associate with CL, we correctly predict them to follow numerals (21)

(20)   [$_{DP}$ D   [$_{CL}$ **numeral**   [$_{CL}$ CL   [$_{nP}$ N]]]]
                   German   Halkomelem

                               ARTICLE

(21)   a.   Ich   habe **die   drei   Senioren** gesehen.
            1SG. AUX   ART   3   senior-PL seen
            'I have seen the three seniors.'
       b.   Ich   habe **die   zwei   Frau-en**   gesehen.
            1SG.S AUX   ART   2   woman-PL   seen
            'I saw the two women.'
       c.   **Die   fünf Bub-en** haben gespielt
            ART   5   boy-PL   have played.PART
            'The five boys were playing.'

(22)   a.   tsel   kw'éts-l-exw **lhixw   te**   silyó:lexwe
            1SG.S see-TRANS-3O 3   ART   old.people.PL
            'I saw three old people.'
       b.   tsel   kw'éts-l-exw **isale te**   slhélhàli
            1SG.S see-TRANS-3O 2   ART   woman.PL
            'I saw two women.'
       c.   iwólem   **lhq'átse te**   swóweles
            play   5   ART   boy.PL
            'Five boys were playing.'

Similar facts obtain for distribution of quantifiers relative to articles. Again, I will assume that quantifiers adjoin to C_L. Therefore we correctly predict that in German quantifiers precede articles, while in Halkomelem they follow.

(23)　　　　　　[_{DP} D　[_{CL} **quantifier** [_{CL} CL　　[_{nP} N]]]]
　　　　　　　　German　　　　　　　　Halkomelem

　　　　　　　　　　　　　ARTICLE
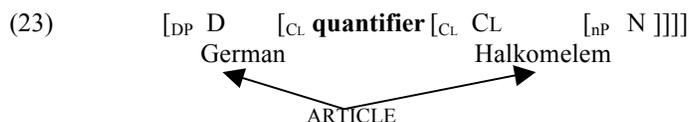
(24)　a.　Ich　habe **die　vielen　Senioren** gesehen.
　　　　　1SG. AUX ART　many　senior-PL seen
　　　　　'I have seen the three seniors.'
　　b.　Ich　habe **die　vielen　Frau-en**　gesehen.
　　　　　1SG.S AUX ART　many　woman-PL seen
　　　　　'I saw the two women.'
　　c.　**Die vielen Bub-en**　haben gespielt
　　　　　ART many　boy.PL　　AUX　played
　　　　　'The many boys were playing.'

(25)　a.　tsel　kw'éts-l-exw **qex　te　silyó:lexwe**
　　　　　1SG.S　see-TRANS-3O　many　ART　old people.PL
　　　　　'I saw many old people.'
　　b.　tsel　kw'éts-l-exw　**qex　te　slhélhàli**
　　　　　1SG.S　see-TRANS-3O　many　ART　woman.PL
　　　　　'I saw many women.'
　　c.　iwólem **qex　te　swóweles**
　　　　　play　　many　ART　boy.PL
　　　　　'Many boys were playing.'

Another distributional distinction between German and Halkomelem articles concerns the possibility for extraction out of nominal phrases. While in Halkomelem, nominal arguments allow for both quantifier extraction (26) and (28) possessor extraction , in German neither quantifier extraction (27) nor possessor extraction (29) yields a well-formed expression.

(26)　　　[Q]　　　　　　　　[Q̶ Cl　*n*]_{CLP}　　　　　Halkomelem
　　a.　mékw'　ítet　　　ye　pú:s
　　　　　all　　sleep　　ART.PL cat
　　　　　'All the cats are sleeping.'
　　b.　mékw' lép'ex-es　te　pú:s　te　sth'óqwi
　　　　　all　　eat-3S　ART　cat　ART　fish
　　　　　'The cat ate all the fish.'

(27)　　　[Q]　　　　　　　　[Q̶ Cl　*n*]_{CLP}　　　　　German
　　　　*viele haben die　Katzen　geschlafen.
　　　　　many AUX　ART　cat-PL　　slept

(28)   [Poss]   [CL Poss [CL art [*n*]CLP   *Halkomelem*
a. ni   t'íləm   kwθe sqé?əq-s   ?ə   sɬéni?
    aux   sing   art   y.brother-3pos art   woman
    'The woman's younger brother sang.'
b. státəl-stəxw   cən   ?ə sɬéni? ni   t'íləm kwθə sqé?əq-s
    know-CAUS   1SUB   AR   woman   AUX   sing   ART   y.brother-3pos
    'I know the woman whose younger brother sang.'

(29)   *[Poss]   [CL Poss [CL   art [*n*]CLP   German
a. Wessen Mutter ist   gekommen?
    Whose   mother aux   arrived
    'Whose mother has arrived?'
b. *Wessen ist   Mutter gekommen?
    Whose   aux mother arrived

The fact that in German nominal arguments do not allow for extraction while in Halkomelem extraction is possible can be understood in terms of the proposed analysis. In German the presence of an article indicates the presence of a DP. Assuming that DPs are phases, it follows that extraction is not allowed. In contrast, in Halkomelem articles do not indicate the presence of the functional category DP but only CLP. Since CL does not constitute a phase we expect it to allow for extraction from within.

5.2   The contrast with other Salish languages

The properties of Halkomelem articles which distinguish them from German ones are not found across all of the Salish family.

5.2.1   Lillooet: D- and Cl-articles

Lillooet (Northern Interior Salish) articles pattern with those of German: they precede numerals, they precede weak quantifiers, and possessor extraction is not allowed from within nominal arguments.

(30)   a. Lhexwp **i   kalhélhs-a**.
           escape   ART   3.animal-EXIS
           'Three animals escaped.'
       b. Wa7   pumák7am **i   ntsíltslekst-a**   úcwalmicw.
           PROG   drum   ART 5.people-EXIS   people
           'Five people are drumming.'   Davis, in preparation (Ch. 9)

(31)   ít'-em   **i**   cw7ít-**a**   smúlhats.
         sing-INTR   ART.PL   many-ART   woman
         'A lot of women sang.'   Matthewson 1998: 285 (56a)

(32) a. swat   skícza7   qwatsáts
          who   mother   leave
          'Whose mother left?'   (Gardiner et al. 1993: 145)
      b. *swat ku qwatsáts ku   skícza7-s
          who ART leave   ART   mother-3SG.POSS (Gardiner et al. 1993: 145)

This much suggests that Lillooet articles occupy the same position as they do in German, namely D. This is however not the entire story. Lillooet articles are morphologically complex: they consist of a element preceding the nominal phrase (*i,* or *ku* in (31) and (32), respectively) and an enclitic *–a* which clitizizes onto the first word following the article. It is the first part of the article which, I argue occupies D. I further argue that the enclitic *–a* associates with the same position as the Halkomelem article, namely *CL*. Thus, Lillooet is a language which has both D- and CL- articles, which is of course expected given the logic of our analysis.

(33)   [DP D   [CL CL   [nP N]]]]
                            Lillooet: i   Lilloooet: -*a*
                            German   Halkomelem

                                    ARTICLE

Evidence that the two elements of the complex article in Lillooet occupy different syntactic positions stems from coordination. When a nominal argument is coordinated one can use both elements of the complex article on both coordinates ((34). Alternatively, the second conjunct may only be accompanied by the enclitic *–a* but remain without the initial article as in (35). Under the preset analysis this pattern is expected: coordination can either target DP or CLP.

(34) Wa7   ts'éts'qwaz'-am i=ucwalmícw=a
      prog   fish.DIM-MID   ART.PL=people=EXIS
      ...l=[ki=tsal'álh=a]   múta7 [i=tswáw'cw=a]
      ...in=ART.PL=lake=EXIS and   ART.PL=creek=EXIS
      'The people fish for trout in lakes and creeks.'   (Davis 2000: 60 ex. (66))

(35) Wa7   ts'éts'qwaz'-am i=ucwalmícw=a
      PROG   fish.DIM-MID   ART.PL=people=EXIS
      ...l=ki=[tsal'álh=a]   múta7 [tswáw'cw=a]
      ...in=ART.PL=lake=EXIS and   creek=EXIS
       'The people fish for trout in lakes and creeks.' (Davis 2000: 60 ex. (66))

This much establishes that articles in Lillooet consist of two components which occupy different syntactic positions, consistent with the analysis put forth in (33).

     With respect to the other distributional property discussed above, namely whether or not articles are obligatory for nominal arguments, we observe that

Lillooet patterns somewhere in between German and Halkomelem: while neither bare plurals (36) nor bare mass nouns (37) are allowed (as expected if number does not occupy a functional head) names can remain without articles (38).

(36) a. Wa7 ts'aqw-an'ítas   i   t'éc-a   **i   míxalh-a**
          PROG eat-TRANS-3PL.ERG ART.PL sweet-EXIS   ART.PL bear-EXIS
          'Bears eat honey.'
      b. *Wa7 ts'aqw-an'ítas   i   t'éc-a   **míxalh**
          PROG eat-TRANS-3PL.ERG   ART.PL sweet-EXIS   bear
          'Bears eat honey.'   Matthewson 1998: (94)

(37) a. qwen-án-lhkan   ku   sqlaw'
          need-TRANS-1SG.S   ART   money
          'I need money.'
      b. *qwen-án-lhkan   sqlaw'
          need-TRANS-1SG.S   money
          'I need money.'   Matthewson 1998: (95)

(38)   Pún-lhkan   **s=Gertie** múta7 ti=kúkwpi7=a
          find(dir)=1SG.S   N=Gertie and   ART=chief=EXIS
          'I found Gertie and the chief'   Davis 2000: 59

While the data are certainly consistent with the proposed analysis, I have nothing to say about this particular patterning.

5.2.2   Southern Interior Salish: K-articles

We have so far seen evidence for the proposal that Halkomelem articles associate with C$_L$, while Lillooet articles simultaneously associated with both C$_L$ and D. I now turn to articles of the Southern Interior Salish branch (henceforth SIS) and argue that they associate with the highest functional position in the nominal domain, namely K, as illustrated in (39).

(39)   [$_{KP}$ K   [$_{DP}$ D   [$_{Class}$ Class   [$_{nP}$ N]]]]
          SIS   Lillooet   Halkomelem/Lillooet -a

                          ARTICLE

A first piece of evidence for the association of articles with K in SIS stems from the fact in this language articles precede prepositions (examples below are from Okanagan, cited from Kroeber 1999: 71)

(40) a. kn   c'wak   **iʔ-t-**t'ic'men
          1SG.S burned   ART-OBL-iron
          'I got burnt by the iron.'   (Mattina 1996: 46)

b. s-t'raq'w   iʔ-skemkwuʔqen **iʔ-k'el**-temxwulaʔxw
ASP-come.down ART-snow.on.trees ART-to-ground
'The snow on the trees came down to the ground.'   (COD 41)

Setting aside for the moment the analysis of prepositions, the data in (40) is consistent with the claim that articles associate with the highest position in the nominal domain. If this analysis is on the right track, we expect Halkomelem articles to occur in a position following the preposition, since it associates with the lowest functional category in the nominal domain. This prediction is borne out as shown in (41) and (42).

(41)   a. kw'áts-et-es **lí** kwtha   lálem
            see-TRANS-3 *P*   *ART-2SG.POSS*   *house*
            'He saw it in your house.'
    b. Le kw'íyeqel **lí** te   tsítselh
            aux climb   *P ART*   *high*
            'He climbed up high.'   Galloway 1993: 340

(42)   a. le   lhókw'te móqw **lá** te thqát
            AUX   fly   *ART bird P ART bird*
            'The bird flew to the tree.'   Galloway 1993: 341

    b. su   le   kw'áts te   swíyeqe **lám** te skw'echóstel
            then AUX look   ART man   P   ART window
            'and then the man looked through the window'
                                        (R. George: Sasqets story)

The question remains, however, as to the proper analysis of prepositions here. I propose that in Halkomelem and SIS the word-class referred to as PREPOSITION is best analyzed as associating with the functional category D as illustrated in (43)

(43)   [_{KP} K   [_{DP} D   [_{Class} Class   [_{nP} N]]]]

                        ↑   ↑   ↑

       SIS ARTICLE   PREPOSITION   HK ARTICLE

On this analysis we predict that in SIS articles are not obligatory in the context of a preposition. This follows from our assumption that nominal argumenthood is licensed by any kind of functional projection, and thus the presence of the preposition in D should suffice. This prediction is indeed borne out. Kroeber 1999 states that "[a]ll of them [SIS languages] allow DP's without an overt article. DP's without an article often are found in contexts suggesting

nonreferentiality, but there also seems to be a tendency to omit articles in the presence of a preposition…" Kroeber 1999: 68[2]

(44) a. kem' kwu-síwst t-nqwʕáwtn   *Okanagan*
     or *1P.S-drink* *OBL-liquor*
     'or we will drink liquor'   (GW 404; cited from Kroeber 1999: 68)

   b. nínw'iʕ n-yáʕ'-lx   l-cítxw
     if/when LOC-assemble-3P   IN-house
     'when they gather in the house [previously mentioned]'
                       (GW 401; cited from Kroeber 1999: 68)

(45)   kwn:ksntwaxw lx   l   snk:i¿wmn   *Moses Columbian*
     marry   3PSU LOC church
     'They were married in church/a church'.   Mattina 2006: 123

The analysis proposed here allows us to understand this pattern. In addition it provides the formal underpinnings of a suggestion by Kinkade, cited in Mattina 2006: 122:

"Locatives in Salishan are often classified formally as prepositions. Whether or not they should be so analyzed in Moses-Columbia depends on one's definition of a preposition. In an unpublished paper, Kinkade (n.d.) warns against equating locatives with prepositions because their reference is both "more and less inclusive" than that of prepositions in European languages."

I further suggest that the association of apparent prepositions with D in Halkomelem is not at all surprising in light of the following assumptions. Abney (1987) argues that D parallels INFL in the verbal domain. Ritter & Wiltschko (2007) argue that in Halkomelem it is LOCATION rather than TENSE which associates with INFL. Given the parallel between D and INFL, we therefore expect that LOCATION also substantiates D in Halkomelem, and this is precisely what we find. This analysis receives further support by the fact that the exponents of locative and directional prepositions in Halkomelem serves double duty as locative and directional auxiliaries. This intriguing pattern is straightforwardly explained under the assumption that this word class instantiates D and INFL: as such it appears to be a category-neutral functional category (i.e. it is neither verbal nor nominal).

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[2] The second part of the generalization, namely that the omission of an article in this language suggests non-referentiality is also consistent with the present analysis. While in Halkomelem articles occupy Cl, in SIS they occupy K. In line with much research on the properties of functional projections in the nominal domain I assume that D and K are vital in the encoding of referential properties while Cl is not. Consequently, in a language with K-articles we expect non-referential nominals to lack articles while in languages with Cl articles the presence of the article does not imply referentiality.

This concludes the distributional argument for the claim that Halkomelem articles associate with CL.

6 ARTICLES associate with CL: Evidence from feature specification

In this section I provide further evidence for the claim that articles in Halkomelem associate with the functional category CL. Now the evidence has to do with the features specification found on the articles.[3] As mentioned above, German articles encode a distinction in gender, number and case as shown in table 2. If we include the demonstratives, location is also a relevant feature but I will not discuss it here (see Wiltschko, to appear for some discussion). Similar distinctions are made in Halkomelem as well (table 3)

	Masc	Fem	Neut	Pl
Nom	der	die	das	die
Acc	den	die	das	die
Dat	dem	der	dem	den
Gen	des	der	des	der

table 2: Feature specification of German articles

	Masc; neutral	Fem	Oblique
Present & visible; neutral	te	the	
Near & not visible	kwthe	kwse	tl'
Remote, "hypothetical"	kw'e	kw'se	
Plural		ye	

table 3: Feature specification of Halkomelem articles

Does the similarity in feature specification mean that we have to conclude that German and Halkomelem articles form a natural class and as such should be analyzed as occupying the same functional position after all? Evidence suggests the contrary. It turns out that the features have different properties across the two languages despite their apparent similarity in content. In what follows I discuss the features encoded on articles (the discussion is largely based on Wiltschko, to appear). For each feature, I first consider the contrast between German and Halkomelem and then I briefly discuss similar feature specifications of articles in other Salish languages.

6.1 Gender

Articles in both German and Halkomelem encode a distinction in GENDER as shown in (46) and (47).

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[3] See Wiltschko, to appear for a detailed analysis for how these features are associated with D.

(46) te   swíyeqe   the   slhálì
      ART   man   *ART.FEM woman*
      'the man'   'the woman'

(47) **der**   Mann   **die**   Frau   **das**   Kind
      ART.MASC man   *ART.FEM woman*   *ART.NEUT child*
      'the man'   'the woman'   'the child'

While the data above might suggest that GENDER on articles is identical across the two languages the following data show that the pattern is in fact quite different. Specifically, in German every noun is classified for grammatical GENDER, which in turn is independent of the natural gender of the referent. In addition, the article obligatorily agrees with the grammatical gender of the noun, as shown in (48)(49).

(48) *****die** Mann   *****der**   Frau   *****der**   Kind
      ART.FEM man   *ART.MASC woman*   *ART.MASC child*
      'the man'   'the woman'   'the child'

(49) *****das** Mann   *****das*   Frau   *****die**   Kind
      ART.NEUT man   *ART.NEUT woman*   *ART.FEM child*
      'the man'   'the woman'   'the child'

In contrast, in Halkomelem nouns are not classified for grammatical GENDER. But there are nouns denoting female individuals and others denote male individuals. That is, Halkomelem nouns can encode natural GENDER. As for GENDER marking on articles, we observe that a noun referring to a female individual can be preceded by the feminine article (50)a but also by the other article (*te*)(50)b, which I thus analyze as unspecified for GENDER. As expected, the feminine article cannot be used with nouns denoting male individuals (51)a, while the unmarked article *te* is well-formed in this environment (51)b.

(50) a. **the**   slhali   b. **te**   slhali
          ART.FEM woman   *ART   woman*
(51) a. *****the** swiyeqe   b. **te**   swiyeqe
          ART.FEM man   *ART   man*

I argue that this pattern reflects the proposed difference in functional association (and thus categorial identity) between German and Halkomelem articles. Specifically, I assume that in German GENDER occupies CL and as such functions itself as a grammatical category which classifies nouns. GENDER marking on articles, which occupy D, therefore arises as a matter of the syntactic operation AGREE (i.e., it is a matter of agreement).

(52) GENDER marking via AGREE(ment): German D-articles
          [_D art [_CL gender/#   [_n]]]
              ▲

In contrast, in Halkomelem GENDER does not function as a nominal classifier, but instead, articles occupy this position. Therefore, GENDER does not classify nouns. I further propose that feminine marking on the article functions as a modifier which restricts the referent of the noun to being female. As illustrated in (53), I assume that the functional category CL introduces an abstract reference argument (analogous to the temporal reference argument introduced by verbal aspect, Klein 1995).

(53) Nominal classification
    [CL   Ref-arg [CL   art [n noun]]]
    [CL fem-Ref-arg [CL fem-art [n noun]]]

This analysis predicts that in Halkomelem, but not in German, GENDER marking on the article can contribute to the interpretation of the referent. Specifically, when the noun is compatible with both a male or a female referent (like *alex* 'sibling'), the choice of the feminine article restricts the interpretation to only female referents ('sister' as in (55)a), while the unmarked article is interpreted as the elsewhere case. As such it is most readily interpreted as denoting a male sibling ('brother'), presumably by Gricean implicature, but the unmarked interpretation is available as well (55)b.

(54)   a. [CL   Ref-arg [CL art   [n alex]]]
      b. [CL fem Ref-arg [CL art.fem   [n alex]]]
                 ▲────────┐
                 restrict

(55)   a. **the**-l   alex
          ART.FEM-1SG.POSS   *sibling*
          'my sister
      b. **te**-l   alex
          ART-1SG.POSS   *sibling*
          'my sibling/brother'

The same is true of nouns denoting animals: the use of the feminine article restricts the referent to female instantiations of the kind as in (56).

(56)   a. te   músmes   b. the   músmes
         ART cow   *ART.FEM cow*
         'the cow/male cow'   'the female cow'

In German, however, GENDER on the article arises by means of agreement with GENDER in CL. It therefore merely reflects the classification of the noun rather than itself contributing to the interpretation of the referent. As a consequence, the article by itself never suffices to determine the referent of a noun whose natural GENDER is unspecified. This pattern is illustrated in the following data. (58) shows that the grammatical GENDER for *Doktor* ('doctor') and *Anwalt*

('lawyer') is masculine even though their natural GENDER is unspecified. (59) shows that feminine marking on the article in this context results in ungrammaticality. This establishes that the use of article marked as feminine does change the restrictions on the referent of the noun, as illustrated in (57).

(57)   *[_D ART.FEM [_CL *MASC*   [_n Doktor]]]
        ▲_____|

(58) a. der   Doktor
          ART.MASC *doctor*
      b. der   Anwalt
          ART.MASC *lawyer*
(59) a. *die   Doktor
          ART.FEM *doctor*
      b. *die   Anwalt
          art.fem *lawyer*

In order to unambiguously refer to a female doctor or lawyer there are two other strategies that can be employed German. The noun, lexically classified as masculine can be overtly classified by a feminizing suffix –*in* (61) or by adding a classificatory noun *Frau* ('woman') preceding the noun:

(60)   [_D ART.FEM   [_CL -in_*fem*   [_n Doktor]]]
       ▲_____|
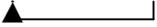
(61) a. die   Doktor-in
          ART.FEM *doctor-FEM*
      b. die   Anwält-in
          ART.FEM *lawyer-FEM*

(62)   [_D ART.FEM   [_CL Frau_*fem* [_n Doktor]]]
       ▲_____|

(63) a. die   Frau   Doktor
          ART.FEM *woman*   *doctor*
      b. die   Frau   Anwalt
          ART.FEM *woman*   *lawyer*

This much establishes that GENDER-marking on articles in German and Halkomelem differ formally While in German it arises via agreement with nouns that are lexically specified for GENDER, in Halkomelem GENDER-marking on articles functions itself as a classificatory device. But rather than classifying nouns, it restricts the denotation of the noun's referent. This is summarized in table 4

	German	Halkomelem
GENDER encoded on article	via agreement	as a classificatory device
GENDER classifies	nouns	referents

table 4: the formal properties of GENDER specification

If follows that the apparent identity in the content of the feature specification on articles does not tell us anything about their formal properties. In fact the different formal properties of the features associated with articles in German and Halkomelem, respectively can be taken to support our claim that articles associated with distinct functional categories in the two languages: while in German articles associate with D, in Halkomelem articles associate with Cl.

(64)   [_{KP} K   [_{DP} D   [_{CL} CL   [_{nP} N]]]]
                   German   Halkomelem

                        ARTICLE

If the classificatory function of GENDER marking on articles is indeed tied to the association of the article with the functional category CL, we predict that in Salish languages where articles associate with D or K gender on articles will not serve as a classificatory device. This prediction is upheld in the sense that neither in Lillooet nor in the Southern Interior Salish languages is GENDER among the features marked on articles.

6.2   Number

We now turn to the marking of plural. In both German and Halkomelem, plural can be marked on articles as well as on nouns as shown in (65) and (66), respectively.

(65)   a. **te**   swíyeqe
               ART   man
               'the man'
        b. **ye**   sí:wí:qe
               ART.PL   man.PL
               'the men'

(66)   a. **der**   Mann
               '*ART.MASC   man*
               'the man'
        b. **die**   Männer
               ART.PL   man-PL
               'the men'

But similar to what we have found to be the case for GENDER when it comes to concord the two languages differ. While in German concord is obligatory: plural marked nouns must be preceded by a plural marked article, and plural marked articles must precede plural marked nouns as in (67). In contrast Halkomelem displays optional concord: plural marked nouns can be preceded by a plural

marked noun or by an unmarked noun and plural marked articles can precede a plural marked noun or an unmarked noun (68).

(67) a. ***die** Mann   b ***der** Männer
          ART.PL man   *ART.SG man-PL*

(68) a. te   swíyeqe   b. te   sí:wí:qe
          ART   man   *ART   man.PL*
          'the men'   'the men'

      c. ye   swíyeqe   d. ye   sí:wí:qe
          ART.PL man   *ART.PL man.PL*
          'the men'   'the men'

Like with GENDER, I propose that this pattern is tied to the difference in association site: in German plural is associated with CL while articles associate with D. Therfore, number marking on articles in German is a function of agreement between CL and D

(69) NUMBER marking via AGREE: German D-articles
        [$_D$ art [$_{CL}$ gender/#   [n]]]

In contrast, in Halkomelem plural marking on nouns is not associated with CL as argued in Wiltschko 2008, but instead it modifies roots i.e., it applies before roots become nouns. I further argue that plural marking on articles again functions as a classificatory device rather than arising via AGREE. It is for this reason that plural marking on the article alone suffices to obtain a plural interpretation by restricting the denotation of the referent argument in SpecCL.

(70) a. [$_{CL}$ Ref-arg   [$_{CL}$ art   [$_n$]]]
      b. [$_{CL}$ pl-Ref-arg [$_{CL}$ pl-art [$_n$]]]

Again, we observe that plural marking on articles differs formally across German and Halkomelem. I argue that this reflects their association site. In German articles associate with D and therefore plural marking on articles is a result of AGREE. In Halkomelem articles associate with CL and can therefore serve as a classificatory device for nominal reference. This is summarized in table 5.

	German	Hk
Number encoded on article	via agreement	as a classificatory device
Number classifies	nouns	reference argument

Table 5: the formal properties of number specification

If the classificatory character of plural marking on articles is indeed tied to the association of articles with CL we predict that in other Salish languages plural marking should behave differently. This prediction is borne out. We start with a

discussion of Lillooet, were articles associate with D. We might, therefore, expect that articles display obligatory concord for number. This is indeed the case as shown in (71).

(71) ti   sk'úk'wmi7ta   ti spzúz7a
      ART   *child*   *ART*bird*
      'the/a child'   'the/a bird'

   b. i   sk'wemk'úk'wmi7ta   i   spepzúz7a
      ART.PL child.PL   *ART.PL bird.PL*
      'the/some children'   'the/some birds'

   c. *ti sk'wemk'úk'wmi7ta   *ti   spepzúz7a
      ART child.PL   *ART   bird.PL*

The Southern Interior Salish languages, where articles associate with K do not mark their articles for plural.

	Hk: Cl-art	German: D-art	Lillooet: D-art	SIS: K-art
Gender	✓	✓ AGREE	--	--
Number	✓	✓ AGREE	✓ AGREE	--

table 6: Cross-Salish distribution of GENDER and NUMBER specification

6.3   Visibility

The final feature I consider is VISIBILITY. This is a feature not present on German articles and I argue that this absence is not coincidental. I hypothesize that it is directly linked to the fact that Halkomelem is a language where ANCHORING is spatial in nature. In particular, I take VISIBILITY to be a prerequisite for spatial anchoring: just as nominals are interpreted as *countable* when they are associated with plural marking, so are nominals interpreted as *locatable* when they are associated with invisible marking. It is in this sense that VISIBILITY has a classificatory function which reflects its association with CL.

	neutral	Fem	Oblique
Present & visible; neutral	*te*	*the*	
Near & not visible	*kwthe*	*kwse*	*tl'*
Remote, "hypothetical"	*kw'e*	*kw'se*	
Plural		*ye*	

table 7: feature specification of Halkomelem articles

However, just as GENDER in Halkomelem places a restriction on the reference argument, so does VISIBILITY marking. That is, it does not classify nouns as being locatable on non-locatable, it classifies their referents as such. Evidence, that VISIBILITY is not a deictic category (anchored to the speech-act sitation) but

instead classifies referents stems from the example in (72), which Suttles 2005 describes as follows:

> "It is also possible to use a near from to indicate former absence. For example, upon recovering a lost pocketknife, one might – even while holding it – say:

(72) tl'amə kwlhə nə-həlkw
     3   cert   art.fn my-pocket
     'It's my (lost) pocketknife.'   Suttles 2005: 343 (g)

In Lillooet, in contrast, VISIBILITY is not encoded on the part of the articles which precede nominals (i.e., the D-articles). However, the suffixal portion of Lillooet articles might qualify. Matthewson (1998) argues that *–a* asserts the existence of the referent. I contend that the assertion of existence arises because *–a* marks the locatability of the reference argument. Lillooet thus differs in that locatability is overtly marked while in Halkomelem non-locatability (*invisibility)* is overtly marked.

(73)   a. [$_{CL}$ Ref-arg   [$_{CL}$ kw- $_{[-visible]}$ [$_n$]]] → *locatable*
       b. [$_{CL}$ Ref-arg   [$_{CL}$ −a $_{[exis]}$ [$_n$]]] → *locatable*

The part of the Lillooet complex article preceding nominals encode a distinction in terms of proximate/distal:

	assertion of existence X...a			non-assertion of existence
	present	absent	remote	
singular	ti/ta....a	ni/na...a	ku...a	
plural	i...a	nelh...a	kwelh...a	ku
collective	ki...a			

table 8: Feature specification of Lillooet articles

In section 5, I have argued that these articles associate with D, the position of nominal anchoring. We therefore predict that the feature distinction present vs. absent is deictic in nature, unlike the distinction in VISIBILITY encoded on Halkomelem CL-articles. I will have to leave an in depth contrastive analysis of the difference between Halkomelem and Lillooet for future research. There is however one interesting piece of evidence for this conjecture and it might shed light on the historical reconstruction of articles across the Salish family.
    Recall from section 5.2 that articles in Lillooet associate with the same position as so called prepositions in Halkomelem, namely the anchoring category D, which is substantiated by LOCATION. This is illustrated in (74).

(74)   a. Halkomelem: [$_{D=loc}$ "P" ` [$_{CL}$ art [$_n$]]]
       b. Lillooet: [$_{D=loc}$ art   [$_{CL}$ -art [$_n$]]]

Recall further that the Halkomelem exponents of D_{LOC} (i.e., the so called prepositions) are *i* (here) and *li* (there). Interestingly, in the Downriver dialect these are realized as *i* (here) and *ni* (there). This is a striking parallel to the Lillooet articles, where PRESENT PLURAL is realized as *i* while ABSENT SINGULAR is realized as *ni*. According to the present analysis this is more than a coincidence: Lillooet articles occupy the same functional head as Halkomelem prepositions, and they have the same function: they mark that the referent is present or absent relative to the utterance location. While more work has to be done to properly reconstruct these words, I take the present approach to be a promising one, but will have to leave the details for future research.

As for Southern Interior Salish, from the materials available to me I was not yet able to classify the features encoded in these systems. This study will have to wait for future research. This leaves us with the feature distribution of Salish articles summarized in table 9

	Hk: Cl-art	German: D-art	Lillooet: D-art	SIS: K-art
Gender	✓	✓ AGREE	--	--
Number	✓	✓ AGREE	✓ AGREE	--
Visibility	✓	--	--	--?
Location	--	--	✓	??

Table 9: A formal typology of feature specification

Similarly, the status of the features not yet discussed (Case and hypothetical) is not clear to me at this point and again, I will have to leave a full discussion for further research.
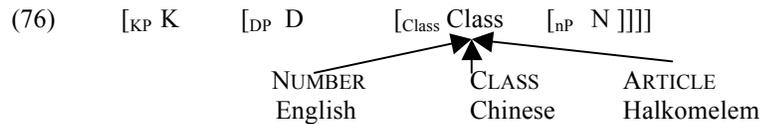
7   Conclusion

This investigation started with the assumption that a great deal of language variation lies in the association relation between universally available core functional positions and their semantic content. My objective in this paper was to show that the word class commonly known as ARTICLES does not universally associate with D but instead that they can associate with distinct functional positions. In particular, I have argued that across the Salish family articles are distributed over all three functional projections in the nominal domain as in (75).

(75) $[_{KP}$ K $[_{DP}$ D $[_{Class}$ Class $[_{nP}$ N]]]]
          SIS   Lillooet   Halkomelem/Lillooet -a
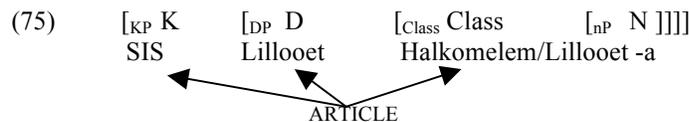
                                   ARTICLE

The evidence discussed was based on the following two sets of general criteria
    i) distributional properties of articles (external and internal to the nominal
   phrase) and

ii) the feature specification found in the article systems of the languages under coniderations.

The proposal in (75) implies that the functional category CL can be associated with articles as illustrated in (76). This adds to the list of linguistic elements which can associate with CL, namely NUMBER marking (English) and CLASSIFIER marking (Chinese). This is consistent with previous proposals according to which the indefinite article in English (*a*) is associated with this position (Davis and Matthewson 1999; Borer 2005; Ghomeshi 2003).

(76)   [$_{KP}$ K   [$_{DP}$ D   [$_{Class}$ Class   [$_{nP}$ N]]]]

NUMBER   CLASS   ARTICLE
English   Chinese   Halkomelem

Given that the same functional category can be occupied by elements of seemingly different content, we are lead to conclude that discovery procedures for functional categories should not be based on semantic criteria. In other words, a category should not be judged by its substantive content. Nevertheless there is a core function that all elements associating with CL have in common, and which can serve in their discovery. In particular, the functional category CL in the nominal domain has three related functions:
    i)   it serves to classify its complement (*n*P's "nouns")
    ii) it introduces an abstract reference argument in its specifier position
    iii) it can place restrictions on the reference argument

(77)   ClP
          3
        ref-Arg   Cl'
                    3
              Cl   nP
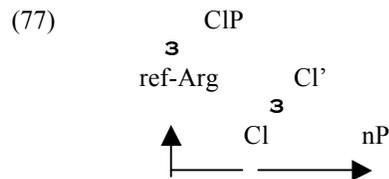
So, what has our investigation of article systems across the Salish family and their comparison to German articles taught us? Let us go back and see how we can now answer the questions about functional categories originally asked (and repeated below as (78))

(78) i) What is the nature of syntactic-semantic functions in clauses structure?
     ii) What are the principles that govern how and where these functions project in clause-structure?
     iii) What is the content of syntactic-semantic function in clause structure?
     iv) Why and how do syntactic semantic functions vary cross-linguistically?

Starting with the last question, we have further confirmation that the syntactic-semantic functions vary cross-linguistically, because the association of semantic content with functional category is not universally fixed (the parametric

substantiation hypothesis). As for the question regarding the content of the syntactic semantic functions we have to conclude that it must be decomposed into a universal core (Classification, anchoring, and typing) and language-specific substantive content. Whether the latter is taken from a universally available pool of features or else emerges as a language specific property is still an open question. As for the question about the nature of the principles of projecting functional categories, I conclude that this is universally determined by the core functions. And finally, the nature of functional categories appears to be compositional: it consists of

   i)   the core function (classification, anchoring, and typing)
   ii) nominalization or verbalization
   iii) language specific substantive content

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