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## Parts of speech and dependent clauses: A typological study

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# Dependent Clauses

# 3

## 3.1 Introduction

In the previous chapter, parts of speech classes were defined as mappings onto a space consisting of four propositional functions, defined in terms of two hierarchically ordered implicational parameters: the *predication–reference* parameter and the *head–modifier* parameter. The aim of the present chapter is two-fold. First, it demonstrates that *dependent clauses* (henceforth DCs) can be defined in the same way as parts of speech (PoS), namely as mappings onto this functional space. Second, on the basis of many earlier functional-typological studies, it is shown how DCs can be classified according to their internal morpho-syntactic properties.

The central point of section 3.2 is that propositional functions constitute the common ground between PoS classes and DC constructions. More specifically, *complement clauses* have referential function, like lexical nouns; *relative clauses* function as modifiers in referential phrases, like adjectives; and *adverbial clauses* function as modifiers of predicates, predicate phrases or clauses, in the same way as lexical adverbs[32]. Based on this parallelism, I show in section 3.2.1 that DCs can be defined, like PoS, in terms of the (set of) propositional function(s) that they express.

This implies that the notions of flexibility and rigidity, as introduced for PoS in Chapter 2, can also be applied to DCs. Recall that, according to

[32] Apart from these three traditional types of DCs, there are so-called *predicate clauses* which function predicatively, like lexical verbs. I will come to these shortly.

the Hengeveldian approach, these notions depend crucially on the presence versus absence of structural coding accompanying the use of a particular construction in a particular propositional function. In order to arrive at parallel definitions for PoS and DCs, a definition is required of structural coding of DCs. This issue is addressed in section 3.2.2. Subsequently, in section 3.2.3, I define a number of rigid and flexible DC types, in parallel with the various types of PoS classes that figure in the PoS systems predicted in Chapter 2.

In section 3.3 I turn to the internal morpho-syntactic properties of DCs, i.e. their behavioural potential. In section 3.3.1 I explain that these properties are, at least in part, motivated by the fact that DCs involve a marked combination of semantic class and propositional function. In particular, DCs denote states of affairs (henceforth SoAs), or propositional contents[33]. As such, they are marked as expressions of reference and modification, since these propositional functions are prototypically expressed by object-denoting and property-denoting (lexical) constructions, such as nouns, adjectives, and manner adverbs (see Chapter 2, section 2.4.2). The marked combination of semantic class and propositional function displayed by DCs is reflected in their formal encoding, which in many cases shows a certain mixture of morpho-syntactic characteristics of independent clauses on the one hand, and features of lexical or phrasal constructions on the other hand.

There are cross-linguistic differences as regards the set of possible features that may be involved in the behavioural potential of DCs in the first place; not all languages display the same morpho-syntactic distinctions. In addition, language-specific DC constructions may differ in the amount and type of features that is selected from the available set. However, the variation is not random, and functional-typological research has come a long way in bringing to light universals in these areas. Among other factors, the possible combinations of morpho-syntactic features in the DCs of the world's languages are constrained in terms of universal hierarchical ordering patterns displayed by certain feature sets. In section 3.3.2 I give a general overview of the research on these patterns, which are usually referred to as verbal and nominal *feature hierarchies* (Bybee 1985; Dik 1997; Lehmann & Moravcsik 2000; Rijkhoff 2002). Subsequently, in section 3.3.2, I will discuss studies that focus particularly on the impact of these hierarchies on

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[33] There are also DCs that do denote objects or individuals (i.e. first order entities), such as headless relative clauses and actor/object nominalizations. However, the present study is not concerned with these.

mixing patterns of verbal and nominal features in DCs, and the functional motivations underlying these effects (Cristofaro 2003; Malchukov 2004).

At the end of this chapter, in section 3.4, I present a typological framework for DCs that combines the parameters of internal morpho-syntactic properties (as discussed in section 3.3) with the classification system of rigid and flexible DCs (as developed in section 3.2). This integrated typology will be applied in Chapter 6 to the DCs of the sample languages. Finally, section 3.5 is a brief summary of the present chapter.

## 3.2    Dependent clauses and propositional functions

### 3.2.1    Slots and fillers

Traditionally, as mentioned in the introduction to this chapter, three types of DCs are distinguished: complement clauses, relative clauses, and adverbial clauses (Thompson et al. 2007: 238). They can be defined in terms of their respective pragmatic-syntactic functions: A complement clause functions as a referential unit, expressing an argument of the matrix clause predicate; a relative clause functions as a modifier of a matrix clause argument; and an adverbial clause functions as a modifier of the main predicate of the matrix clause. As such, the functions of these DC types correspond to the defining propositional functions of lexical nouns, adjectives, and manner adverbs, as presented in Chapter 2, section 2.2[34].

In addition to these three DC types, there are also clausal constructions that function predicatively. Such constructions are usually called *predicate clauses*. Recall from Chapter 2 that the use of non-verbal *lexemes* in predicative function may trigger one of three expression strategies: (i) a copula, (ii) a zero-2 strategy (i.e. no copula and no verbal behavioural potential), or (iii) a zero-1 strategy (i.e. no copula but full expression of verbal behavioural potential). Only when a particular PoS class triggers the third, zero-1 strategy, it is regarded as having the possibility to function predicatively, in addition to its defining, non-predicative use(s) (see also Chapter 5, section 5.5).

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[34] Note that, as far as adverbial clauses are concerned, this study is restricted to adverbial *manner* clauses (cf. lexical manner adverbs in Chapter 2, section 2.3.1), excluding other types of adverbial clauses, such as purposive, temporal, and conditional clauses. This means that, in terms of DCs, I will take into account only adverbial clauses that specify *how* the event expressed by the predicate of the matrix clause is performed (Kortmann 1998: 467). However, the borderline between adverbial manner clauses and other, semantically related types of adverbial clauses is not always easily drawn. This issue is taken up in Chapter 6, where the actual DCs of individual languages are discussed.

In the present chapter (and in Chapter 6) the same procedure will be followed for DCs[35].

In Chapter 2 an implicational map model was developed to formulate restrictions on the typology of PoS classes and PoS systems. The functional space pertaining to this model is re-presented in Figure 3.1a. In Figure 3.1b, the four functional slots of the space are filled with the four DC types mentioned above, instead of with lexeme classes, as was the case in Chapter 2. In other words: lexical units are substituted by *configurational units*. The term 'configurational' refers to a complex linguistic construction, in which the elements stand in a nucleus-dependent (or predicate-argument) relationship (cf. Hengeveld & Van Lier 2008: 769-770).

|  | Head | Modifier |
|---|---|---|
| Predicate phrase |  |  |
| Referential phrase |  |  |

*Figure 3.1a: The space of propositional functions*

|  | Head | Modifier |
|---|---|---|
| Predicate phrase | Predicate clause | Adverbial manner clause |
| Referential phrase | Complement clause | Relative clause |

*Figure 3.1b: Propositional functions and dependent clause types*

The definitions of the four types of dependent clauses in Figure 3.1b can now be formulated as in (1):

(1)
  (i)   A predicate clause is a configurational unit that can be used as the head of a predicate phrase;
  (ii)  A complement clause is a configurational unit that is used as the head of a referential phrase;
  (iii) A relative clause is a configurational unit that is used as a modifier in a referential phrase;
  (iv)  An adverbial manner clause is a configurational unit that is used as a modifier in a predicate phrase.

[35] In Chapter 6 it will become clear that zero-1 strategies are hardly if ever attested in combination with clausal constructions. Nevertheless, in the present discussion the possibility of a predicate clause triggering a zero-1 strategy is included for reasons of theoretical consistency.

The parallel between these definitions and the definitions of nouns, adjectives, and manner adverbs presented in Chapter 2 will be obvious: DCs are regarded as the clausal equivalents of PoS classes, as far as their respective functions in the matrix clause are concerned.

Recall, however, that in the definition of the PoS classes in Chapter 2 the phrase '*without further morpho-syntactic measures*' was included (see section 2.3.1). As was explained, these further measures make reference to structural coding rather than to behavioural potential. In order to complete the parallelism between PoS and DCs, the notion of structural coding needs to be defined with reference to the latter construction type. This is the topic of the next subsection.

### 3.2.2 Structural coding in dependent clauses: Subordinating conjunctions and dependent verb forms

Two general types of structural coding of DCs can be distinguished:

(i)  Subordinating conjunctions, further sub-divided into complementizers, relativizers, and adverbial conjunctions;

(ii)  Special markers on the dependent predicate, further sub-divided into nominalizers and infinitive markers, participles, and converbs[36].

These two groups of markers are regarded as structural coding because they function primarily as indicators of subordination, and, when they are specialized markers, of the function in which the DC appears. In the case of subordinating conjunctions, the structural coding occurs at the level of the DC construction as a whole, and the internal morpho-syntactic structure of the DC remains the same as in independent clauses (in the particular language under analysis). In contrast, special morphemes on the dependent predicate mark the construction at the level of its nucleus. This affects the categorial status of the predicate, which is reflected in a certain degree of deviation of the internal morpho-syntax of the DC from the structure of an independent clause. Structural coding by means of a subordinating conjunction is illustrated in (2a) below with the English *that*-construction. Example (2b) shows structural coding with a dependent predicate marker, namely the English *-ing* form. Note that in the DC in (2b) there is no tense expression, and that the subordinate subject is encoded as a possessor.

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[36] The term *converb* refers to "*a non-finite verb form whose main function is to mark adverbial subordination*" (Haspelmath 1995: 3).

(2)  a.  John regrets [**that** Paul will move to Finland].
    b.  John regrets [Paul's mov**ing** to Finland].

A number of issues concerning the two types of structural coding of DCs require some discussion. First, examples (2a-b) show that subordinating conjunctions are typically freestanding forms, which appear at the periphery (i.e. either the beginning or the end) of a DC, whereas dependent predicate markers are (obviously) bound forms that attach to the predicate. However, as Cristofaro (2003) explains, in some languages this distinction between the two types of structural coding is somewhat obscured, namely when subordinating conjunctions are clitics. These *clitics* may appear attached to the dependent predicate for one of the following independent reasons:

  (i)   They can be attached to any constituent in the clause and so may happen to be attached to verbs;
  (ii)  They are usually placed close to verbs because of word order rules;
  (iii) There is a rule stating that they have to be attached to verbs.
        (Cristofaro 2003: 58)

In such cases one might be tempted to regard the complex [dependent predicate + cliticized conjunction] as an instance of structural coding by means of a special marker on the dependent predicate. However, special markers on the dependent predicate, as mentioned above, affect the internal morpho-syntactic structure of the DC, while subordinating conjunctions do not. Therefore, Cristofaro argues, a cliticized subordinating conjunction can be recognized as such when the structure of the DC remains unaltered. Consider example (3), from Cofán. The relativizer =*'cho* cliticizes to the dependent predicate because (i) it must attach to the final element of the unit on which it operates, and (ii) DCs in Cofán are obligatorily predicate-final. Despite its position, =*'cho* can be identified as a conjunction because the internal structure of the DC is the same as in an independent clause[37]. Note that the DC in (3) is marked off by square brackets. This will be done in examples of DC constructions throughout the rest of the book

*Cofán* (Fischer & Van Lier, forthcoming)
(3)  *Ingi=ta*      [*avuja-tsh=e*      *canse='cho*]  *a'i-'fa=gi.*
     we=INDEF    happy-STAT=ADVR    live=REL      person-PL=FOC.1
     'As for us, we were people that lived happily.'

Second, it should be mentioned that not all DCs are overtly structurally coded by means of a subordinating conjunction or a special marker on the dependent predicate. Rather, DCs can also be zero-marked[38]. Consider for instance example (4) from Bukiyip:

*Bukiyip* (Conrad & Wogiga 1991: 179)
(4)  *Énan n-a-kli*    [*yek  i-wich      umu  énaniny  moul*]
     he    he-REAL-say   I     I-IRR-enter   BEN   his       work
     'He said that I would have his job.'

Third, structural coding may be fused with the expression of a category that pertains to behavioural potential. For instance, determiners may function as complementizers. This occurs in Dhaasanac, as illustrated in (5):

*Dhaasanac* (Tosco 2001: 288)
(5)   *yú* [*kúun*   *ʰí*      *fudɗu=a*]      *fedè*
      I     you      3(PRON)    open.DEP=DET     want.IPFV
      'I want you to open it.'

Another common case of accumulation of structural coding and behavioural potential is the fusion of a TAM marker with a special dependent predicate marker. This is attested in Imbabura Quechua, where different forms of the nominalization suffix express different relative tenses, as shown in (6):

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[37] Clauses marked with =*'cho* can also be used as object complements. In that function they are marked for accusative case, as illustrated in (1):

(1)   *Atesu-mbi*    *ke*    *ña=nga  tevaen='cho=ma*
      know-NEG       you    I=DAT    write=COMP=ACC
      'I didn't know that you had written to me.'

According to Cristofaro, the expression of case would be evidence of categorial change and would as such be a reason to analyze =*'cho* as a special dependent predicate marker. However, following Malchukov (2004; see section 3.3.3.3 of the present chapter and Fischer & Van Lier (forthcoming)), I regard case as an external category, which is in principle independent of the categorial status of the construction on which it operates.

[38] DCs without morpho-syntactic marking may be marked through prosody. For practical reasons however, the latter coding strategy is not taken into account in the present study. Another possibility is of course structural coding by means of fixed constituent order.

*Imbabura* Quechua (Cole 1982: 33)

(6)  *ñuka-ka*  [*Juan kay-pi  ka-j/-shka/-na*]*-ta*        *ya-ni*
     I-TOP    Juan this-in be-NMZL.PRS/PST/FUT-ACC  think-I
     'I think that Juan is/was/will be here.'

Finally, as mentioned above, DCs marked by subordinating conjunctions typically have an internal structure that resembles the structure of independent clauses, while the internal structure of DCs marked by means of a special dependent predicate form deviates from the structure of independent clauses. However, this correlation between structural coding type and internal morpho-syntax is not absolute. In particular, the structure of DCs marked with subordinating conjunctions may differ in certain respects from that of independent clauses. Typically, this involves the use of dependent or subjunctive forms for the expression of verbal categories. Consider for instance example (7), which shows a Georgian complement clause marked with the complementizer *rom* and with a predicate that bears a subjunctive aorist suffix.

*Georgian* (Hewitt 1995: 628)

(7)  *Masp'injel-s u-nd-a,*      [*rom     male  c'a-vid-e*]
     host-DAT   ov-want-it COMP    soon PREV-go-AOR.SUBJ
     'The host wants me to go soon.'

Subjunctive constructions tend to have fewer inflectional possibilities than their indicative counterparts, but this is not necessarily the case. As will become clear in section 3.4, I will regard subjunctive constructions as sentence-like DCs, i.e. as DCs with roughly the same syntactic form as independent clauses (cf. Hengeveld 1998; Malchukov 2006: 974; Noonan 2007: 59-63).

Taking these issues into account, I round off the discussion of structural coding of DCs and proceed to the next step: applying the notions of flexibility and rigidity to DC constructions.

### 3.2.3  Rigid and flexible dependent clauses

In Chapter 2, it was shown that PoS can either be *rigid*, i.e. specialized for the expression of a single propositional function, or *flexible*, i.e. usable in two or more functions. If DCs are assumed to be the configurational equivalents of PoS, then it follows that there are also rigid and flexible DCs. Like PoS, DCs are regarded as rigid when they are used in only one propositional

function, and as flexible when they can fulfil two or more functions without further measures, i.e. without any change in their structural coding. In this section I will define a number of possible flexible and rigid DC types. These DCs are the functional counterparts of the different types of PoS classes that figure in the systems predicted in Chapter 2, section 2.3.2.2[39].

The four predicted rigid DC types were in fact already presented in Figure 3.1b above, since they correspond to the three traditional DC types, plus predicate clauses. For the sake of completeness, these DCs are represented separately in (8)-(11) below. Notice that, as in Chapter 2, rigid constructions are presented with light shading and flexible ones (as in shown in (12) and further) with darker shading.

(8)

| | Head | Modifier |
|---|---|---|
| Predication | Predicate clause | |
| Reference | | |

(9)

| | Head | Modifier |
|---|---|---|
| Predication | | |
| Reference | Complement clause | |

(10)

| | Head | Modifier |
|---|---|---|
| Predication | | |
| Reference | | Relative clause |

[39] As shown in Chapter 2, PoS classes enter into larger PoS systems. If DCs indeed mirror the functional possibilities of PoS classes, then it may be expected that the former are subject to the same restrictions as the latter in terms of the types of systems into which they may combine. However, DC *systems* are as such not the focus of this study. Rather, I will be more generally concerned with the question whether flexibility/rigidity in the realm of lexical classification is reflected in flexibility/rigidity in the realm of DC constructions. In addition, I will investigate whether particular PoS *classes* have DC counterparts with the same functional possibilities. Neither of these two research questions requires the definition of specific systems of DC constructions. Moreover, as I will argue shortly, languages often display a range of different DCs that can be used in (partly) the same propositional function(s).

(11)

| | Head | Modifier |
|---|---|---|
| Predication | | Manner adverbial clause |
| Reference | | |

Turning to flexible DCs, the predicted types are represented in (12)-(20). The first flexible DC-type can be used in all four functions of the space. This type will be called a *contentive clause*, in accordance with the term *contentive* used for maximally flexible lexemes. The functional potential of contentive clauses is represented in (12):

(12)

| | Head | Modifier |
|---|---|---|
| Predication | Contentive clause | |
| Reference | | |

The second flexible DC type can be used in all functions except the head of a predicate phrase. Thus, it has the same functional potential as lexical non-verbs. However, the term 'non-verbal clause' seems counter-intuitive, since dependent clauses typically do contain a verb. Therefore, I will use *multifunctional clause* instead. This type is represented in (13):

(13)

| | Head | Modifier |
|---|---|---|
| Predication | | |
| Reference | Multi-functional clause | |

Third, a flexible DC type is predicted that can be used to express both modifier functions, in the same way as lexical modifiers. This type will therefore be termed a *modifier clause*. It is represented in (14):

(14)

| | Head | Modifier |
|---|---|---|
| Predication | | Modifier clause |
| Reference | | |

Fourth, a DC type is predicted that can be used as the head and modifier in a referential phrase, in parallel with lexical *nominals*. This type, termed *nominal clause*, is represented in (15):

(15)

| | Head | Modifier |
|---|---|---|
| Predication | | |
| Reference | Nominal clause | |

The DC type in (16) represents the clausal counterpart of the PoS class of *predicatives*. This DC type, which will be called *predicative clause*, can express the functions of head and modifier in a predicate phrase:

(16)

| | Head | Modifier |
|---|---|---|
| Predication | Predicative clause | |
| Reference | | |

The DC type represented in (17) parallels the distribution of lexical flexible *heads*. This *head clause* can function as the head of both predicative and referential phrases.

(17)

| | Head | Modifier |
|---|---|---|
| Predication | Head clause | |
| Reference | | |

Finally, in (18)-(21) I represent four types of flexible clauses with the same distribution as four types of PoS classes predicted in Chapter 2 and indicated there as *Flex A, B, C,* and *D*. As the representations show, I have simply named the corresponding DC types *Flex clause A, B, C,* and *D*, respectively.

(18)

| | Head | Modifier |
|---|---|---|
| Predication | Flex clause A | – |
| Reference | | |

(19)

| | Head | Modifier |
|---|---|---|
| Predication | Flex clause B | |
| Reference | | – |

(20)

| | Head | Modifier |
|---|---|---|
| Predication | | Flex clause C |
| Reference | Flex clause C | |

(21)

| | Head | Modifier |
|---|---|---|
| Predication | Flex clause D | |
| Reference | | Flex clause D |

Note that there is one logically possible type of flexible DCs that is expected *not* to occur in actual languages. It is represented in (22)* below (the asterix indicates that that this type of DC is a 'forbidden' type). This system is the functional counterpart of a PoS class that figures only in systems that violate one or more of the constraints formulated in Chapter 2 (cf. Appendix II: (2)*/(3)*).

(22)*

| | Head | Modifier |
|---|---|---|
| Predication | | Flex clause |
| Reference | | |

Having defined these DC types in terms of propositional functions, in parallel with the PoS classes in Chapter 2, a difference between DCs and PoS should be noted. In particular, subordination relations are semantically complex and this is reflected by structural variation in the DCs that express them. A consequence of this is that in many languages there are multiple DC constructions that can be used in the same or partly the same propositional function(s) (cf. note 39). For instance, Turkish has two types of nominal clause constructions: One in which the predicate is marked with *-AcAK*, and another that takes the suffix *-DIK*. Examples (23) and (24) show that both constructions can be used as complement clauses and as (object) relative clauses. The choice between the two forms is semantically motivated and concerns tense: *-DIK* indicates past and *-(y)AcAK* future tense.

*Turkish* (Göksel & Kerslake 2005: 423, 442)

(23)  a.  [*Orhan –ın    bir şey     yap-ma-**yacağ**-ı*]
          Orhan-GEN    anything   do-NEG-NMLZ-3SG.POSS
          *belliydi*.
          it.was.obvious
          'It was obvious that Orhan wouldn't do/wasn't going to do anything.'

      b.  [*Fatma-'nın    yarın       gör-**eceğ**-i*]          *film*
          Fatma-GEN    tomorrow    see-PTC-3SG.POSS     film
          'the film that Fatma is going to/will be seeing tomorrow'

*Turkish* (Kornfilt 1997: 50)

(24)  a.  (*ben*)  [*Ahmed-in     öl-**düg**-ün*]-*ü*         *duy-du-m*
          I       Ahmed-GEN    die-NMLZ-3SG-ACC       hear-PST-1SG
          'I heard that Ahmed died.'

b.  [*adam-ın   git-**tiğ**-i*]    *okul*
    man-GEN   go-PTC-3SG   school
    'the school that the man goes/went to'

It is also possible that two DC constructions in the same language show partial overlap in terms of the propositional functions that they can express. For instance, Turkish has, apart from relative clauses marked by *-DIK/-AcAK*, another participial construction with the suffix *-An*. Unlike the *-DIK/-AcAK* construction, however, *-An* clauses cannot function as complement clauses. Moreover, *-An* clauses express subject relative clauses, whereas *-DIK/-AcAK* clauses express object relative clauses. An example of an *-An* clause is given in (25):

*Turkish* (Göksel & Kerslake 2005: 440)
(25)  [*ögretmen   ol-**an***]    *haydar*
      teacher     be-PTC     Haydar
      'Haydar, who is a teacher'

These examples show that, when there are multiple DC constructions that can express (partly) the same propositional function(s), the choice between these constructions depends on the specific semantic and/or syntactic characteristics of the subordination relation that holds between the DC and the matrix clause.

### 3.2.4  Summary

In this section I have established the first part of a typology of DC constructions, namely the part that makes reference to the functional possibilities of DCs. These functional possibilities have been defined in parallel with the PoS classes in Chapter 2, i.e. in terms of the number and type of propositional function(s) that a particular DC can express without any difference in structural coding. In the next section I turn to the second part of the typology, namely the part that is concerned with the internal morpho-syntactic properties or the *behavioural potential* of DC constructions.

## 3.3 Behavioural potential in dependent clauses: De-categorization and re-categorization

### 3.3.1 Introduction

The internal structure of DC constructions has been investigated in a fair number of functional-typological studies. Many of these studies focus on the 'mixed' patterns of behavioural potential attested in DCs across languages, i.e. on the various combinations of morpho-syntactic properties typical of independent clauses on the one hand, and of lexical or phrasal constructions on the other hand.

These mixed patterns of morpho-syntactic properties can be understood as the outcome of two functionally motivated processes: *de-categorization* and *re-categorization*. The former process involves the non-expression of behavioural potential associated with the *primary* propositional function of a construction (Hopper & Thompson 1984). For a DC, i.e. a clausal construction denoting a SoA or a proposition, this primary function would be a predication. The categories that belong to this primary function, and which may be lost as a result of de-categorization, are often called *verbal categories*. The obvious reason for this is that the nucleus of a clause or predication – the predicate – is prototypically a verb, which expresses the relevant categories in the form of inflectional markers. Such verbal categories include tense-aspect-mood (TAM) distinctions and/or person marking (including agreement and cross-reference)[40].

The process of re-categorization, on the other hand, is reflected by the expression of behavioural potential associated with the *secondary* propositional function in which a construction appears (Bhat 1994). In the case of a DC, this secondary function is reference or modification. As we have seen, reference and modification are prototypically expressed by object-denoting and property-denoting constructions, i.e. nouns, adjectives, and manner adverbs (or phrases headed by these PoS). Cross-linguistically, the range of categories associated with nouns and NPs is more extensive than the range of adjectival or adverbial categories. Accordingly, the features that are expressed in a DC as a result of re-categorization are often termed *nominal* categories. They include gender, number, case, and definiteness. There are also some typical *adjectival* features, such as degree of comparison and head-modifier agreement. However, the former category is semantically marked

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[40] The process of de-categorization in DCs has alternatively been termed *desententialization* (Lehmann 1988: 193) and *deverbalization* (Croft 1991: 79).

with respect to event-denoting DCs, while the latter is cross-linguistically not very common (Haspelmath 2001: 16541). For manner adverbs there seem to be no prototypical features at all. This asymmetrical distribution of features over lexeme classes is also reflected in the literature on the internal structure of DCs, which is often concerned with clausal *nominalizations*.

Both verbal and nominal features have been shown to display universal patterns as regards the order in which they are expressed relative to their base unit, a verbal or nominal head. In what follows I first discuss functional-typological studies that provide evidence for these hierarchical ordering patterns (section 3.3.2). Subsequently, I turn to studies that investigate how these hierarchies motivate the particular mixtures of verbal and nominal features attested in DCs across languages (section 3.3.3).

### 3.3.2   Verbal and nominal feature hierarchies

#### 3.3.2.1   Introduction
Different studies have taken into account somewhat varied sets of verbal and nominal features, depending on their theoretical orientation and on whether or not they distinguish between morphological and lexical expressions of categories. In this section I adopt the versions of the feature hierarchies proposed by Malchukov (2004), since they explicitly integrate various strands of functional-typological work[41].

#### 3.3.2.2   The verbal feature hierarchy
Starting with (Malchukov's version of) the verbal feature hierarchy, its most important ingredients are the work of Bybee (1985), combined with insights from research carried out in the framework of Functional Grammar (FG). Bybee's well-known study shows that bound morphemes expressing verbal categories exhibit a universally preferred order in relation to their stem. This order is iconically motivated: it reflects the degree of relevance of each category for the interpretation of the verbal stem. In particular, those categories that occur more closely to the stem – the *internal* categories – affect the verb's *semantics*, whereas those that are expressed further away from the stem – the *external* categories, in particular agreement phenomena – do not affect the meaning of the stem but are rather relevant to its *syntactic*

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[41] I will adopt the visual representations of the hierarchies that are used by Nikitina (2007) in her review of Malchukov's work.

and/or *pragmatic* function[42]. The verbal feature hierarchy as proposed by Bybee is represented in (26):

(26)
STEM ⊂ Valency ⊂ Voice ⊂ Aspect ⊂ Tense ⊂ Mood ⊂ Agreement

Considering the hierarchy in some more detail, the most external category, agreement, is purely inflectional to the extent that its sole *raison d'être* is the existence of a syntactic relation between the verb and its argument(s) (Haspelmath 2002: 72). Agreement does not have any impact on the semantics of the verb. In contrast, the categories of tense, aspect and mood are not directly triggered by syntactic relations. These categories can be ordered with respect to each other in terms of their degree of semantic relevance to the verbal stem. Mood and tense have relatively little impact on the meaning of the verb, because the nature of the expressed action is in principle independent of the speaker's evaluation of that action (mood), and of its temporal relation to the speech event (tense). Nevertheless, the categories of mood and tense do convey a certain amount of independent semantic content; a property that agreement typically does not have. The category of aspect is again of a different type: since aspectual distinctions modify the internal temporal constituency of an event, they directly affect the semantics of the verb. Finally, the two most internal categories, valency and voice, have an even higher amount of semantic impact on the verb, since they relate to the number and orientation of the participants involved in the event expressed by the verb.

Clearly, the functional difference between internal and external categories relates to the traditional distinction between derivation and inflection. However, this distinction is notoriously hard to make, since many of the criteria proposed to distinguish between the two types of morphological processes do not involve absolute properties. This is reflected in Bybee's treatment of verbal categories as points on a scale ranging from typically inflectional (external) to increasingly derivational (internal).

The hierarchical structure of verbal categories also forms part of the theory of Functional Grammar (FG; Dik 1997), and its successor: Functional

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[42] In fact, the way in which verbal categories are expressed is also iconically motivated: More internal features tend to reveal more fusion with the stem. I will return to the functional principle of Iconicity in section 3.3.3.2.

Discourse Grammar (FDG; Hengeveld & Mackenzie 2008). According to F(D)G, utterances consist of several representational layers. The innermost layer hosts the predicate with its arguments. On each higher layer a new set of semantic distinctions is added, pertaining respectively to the domains of aspect, tense, modality, and illocutionary force[43].

As Malchukov (2004: 16) remarks, the verbal feature hierarchy used in F(D)G's layered model of the clause is quite similar to the hierarchy proposed by Bybee (1985), but there are also some differences. First, the F(D)G approach takes into account both morpho-syntactic and lexical expressions of TAM categories, whereas Bybee considers bound morphemes only. In F(D)G, morpho-syntactic expressions of categories are termed *operators*, whereas lexical expressions are called *satellites*. The inclusion of the latter implies that adverbs of manner, time, etcetera, count as expressions of verbal TAM categories.

A second difference between Bybee's hierarchy and the framework of F(D)G is that agreement is included as a verbal category in the former but not in the latter. F(D)G represents agreement at a different grammatical level than TAM categories, because, as mentioned above, agreement reflects the syntactic relation between the predicate and its argument(s). As such, it has no semantic representation and belongs to the level of morpho-syntactic encoding. In contrast, TAM distinctions concern the semantics of their base and therefore belong to the representational level of grammar. As we will presently see, Malchukov includes agreement as a category in his version of the verbal feature hierarchy, and he applies the F(D)G distinction between operators and satellites to it. In particular, Malchukov regards an agreement marker as an operator expressing argument realization, and the actual encoding of the corresponding argument as the satellite-type expression of the same category.

A complicating factor in this respect is that the category of agreement can be decomposed into subject agreement and object agreement. According to Malchukov (2004: 19), these two sub-categories occupy different locations on the verbal feature hierarchy. Object agreement pertains to verbal valency, i.e. to the innermost level of the feature hierarchy. Subject agreement, on

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[43] The FDG model rather works top-down and outside-in. Thus, the structural building of an utterance starts from the speaker's communicative intention, and works down to its actual morpho-syntactic and phonological encoding. In addition, the underlying representation of an utterance is build up starting with the most external categories, while FG representations start with the innermost categories followed by the more external ones.

the other hand, is more relevant to perspectivization, i.e. to the pragmatics of the base unit, and as such qualifies as an external category. Moreover, as just mentioned, the morphological expression of agreement is linked to the lexical expression of the corresponding argument(s). This means that lexical subject and object expression occupy the same respective locations on the verbal feature hierarchy as the concomitant agreement morphology.

A final, less important difference between Bybee's feature hierarchy and FG's layered clause structure involves illocutionary force. The fact that FG includes this category is a consequence of the fact that this framework takes the clause as its basic unit of analysis, whereas Bybee looks more narrowly at the verb phrase[44].

Integrating the points discussed above, Malchukov (2004: 20) proposes the verbal hierarchy represented in (27). This is the version of the hierarchy that will be adopted in the remainder of this chapter.

(27) **VERB stem**
⊂
voice/valency, direct object, object agreement
⊂
aspectual operators, adverbial satellites with aspectual value
(manner adverbs)
⊂
tense and mood operators and corresponding satellites
(temporal/modal adverbs)
⊂
subject agreement, clausal subject
⊂
illocutionary force markers

### 3.3.2.3   The nominal feature hierarchy

As regards the nominal feature hierarchy, Malchukov (2004) again integrates several earlier proposals. One of them is the hierarchy of Lehmann and Moravcsik (2000: 753), which is represented in (28):

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[44] In FDG, the basic unit of analysis is a communicative Move, which may consist of several discourse Acts. These discourse acts do not necessarily correspond to clauses at the morpho-syntactic level. For a full discussion, see Hengeveld & Mackenzie 2008.

(28)
STEM ⊏ gender/noun class ⊏ number ⊏ possessive ⊏ determiners ⊏ case

As in the case of Bybee's verbal feature hierarchy, the ordering of the nominal features is presumably motivated in terms of iconicity: it reflects the relative degree of relevance of the morphological categories for the interpretation of the stem.

This becomes clearer when considering a second, more detailed proposal, namely Rijkhoff's (2002, 2008a, b) hierarchical model of the noun phrase. This model consists of five concentric layers at which nominal features may operate. Working in the F(D)G framework, Rijkhoff includes both morpho-syntactic and lexical expressions of nominal categories, i.e. both operators and satellites. Furthermore, he proposes a basic distinction between *descriptive modification* of the nominal base, which involves the four most internal levels of nominal features, and one external level of *discourse-referential modification*. In other words: the features belonging to the four internal levels influence the semantic meaning of the base, while the most external features are relevant to its pragmatics, i.e. "*the status of the thing (or event) as a discourse entity*" (Rijkhoff 2008a: 67). First, consider in more detail the four layers of descriptive modification:

(i)  The *kind* layer, which has scope over the lexical head noun and accommodates classifying modifiers that further specify what *kind* of entity is being referred to by the speaker. In other words, they specify a particular subclass of the entity denoted by the base. They can be satellites, as in '*a corporate lawyer*' or '*an electric toothbrush*'. Classifying operators are so-called 'nominal aspect markers', such as singulative/collective markers.

(ii)  The *quality* layer, which has scope over the kind layer and accommodates lexical modifiers (satellites) that specify properties concerning size, color, weight, value, age, etcetera[45].

(iii)  The *quantity* layer, which has scope over the quality layer and accommodates grammatical and lexical expressions of number.

(iv)  The *location* layer, which has scope over the quantity layer and accommodates modifiers that specify properties concerning the

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[45] According to Rijkhoff (2008a: 794), qualifying *operators*, i.e. grammatical expressions of quality do not exist.

location of the referent. These can be satellites and take the form of case-marked or adpositional phrases, including possessive phrases[46]. Operators that belong to the locational level are demonstratives.

The highest or outermost layer distinguished in Rijkoff's model is the layer of discourse-referential modification. Operators at this layer are markers of definiteness, i.e. articles or determiners. Examples of discourse-referential satellites in English would be *same* or *other*, i.e. lexical expressions that "*provide the addressee with information about the referent as a discourse entity*" (Rijkhoff 2008a: 789). The five layers of nominal features are represented in (29):

(29)   [N-STEM]

| | | |
|---|---|---|
| | KIND: | Nominal aspect, quantifying adjectives] |
| DESCRIPTIVE | QUALITY: | Qualifying adjectives]] |
| MODIFICATION | QUANTITY: | Lexical/grammatical Number]]] |
| | LOCATION: | Demonstratives, Locative/possessive phrases]]]] |
| DISCOURSE-REFERENTIAL MODIFICATION: | | Determiners, lexical discourse-related modifiers]]]]] |

Note that Rijkhoff, unlike Lehmann and Moravcsik (2000), does not take into account case marking as a nominal feature. This is because (core) case marking reflects the syntactic function of the unit it operates on. Therefore, like verbal agreement, it is represented at the level of morpho-syntactic encoding in F(D)G.

   The empirical justification for the iconic ordering of nominal features is somewhat fragmented. Early evidence for the hierarchy comes from Greenberg in the form of his Universals 20 and 39, which refer to the relative orderings of case markers, demonstratives, numerals and adjectives (Greenberg 1966: 87, 95). These findings are further supported by Hawkins's research (1983) based on a sample of more than 300 languages, as well as by

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[46] Rijkhoff (2008a: 797) notes that (adnominal, restrictive) relative clauses can also be used for modification at the the locational level, as in *the book, **that's lying on the table***. For the purpose of the present study, however, it is assumed that relative clauses are equivalent to lexical adjectives in terms of their propositional function.

Rijkhoff's (2002) study of a balanced sample of 52 languages. Malchukov (2004: 23) also tests the full range of nominal features on his 50-language sample and reports confirmation of the hierarchical pattern.

Malchukov (2004: 47) integrates the findings from the studies discussed above into the nominal feature hierarchy represented in (30)[47]:

(30)   **NOUN stem**
⊂
classifying/qualitative operators/satellites: singulative/collective markers, noun classifiers, nominal class markers, adjectives
⊂
quantitative operators/satellites: number markers, numerals
⊂
locative/possessive phrases
⊂
determiners
⊂
case markers/adpositions

### 3.3.2.4   Summary, outlook

Having introduced the hierarchies of verbal and nominal categories, the next question is how these hierarchies are reflected in the behavioural potential of DC constructions. In other words, what kinds of mixing patterns of verbal and nominal features are actually displayed by DC constructions of the world's languages? This is the topic of the next subsection.

### 3.3.3   Feature mixing in DCs across languages: Cross-linguistic generalizations and functional motivations

### 3.3.3.1   Introduction

Since the 1970s, a considerable number of typological studies have been carried out on the behavioural potential of DCs (e.g. Comrie 1976; Noonan 1985/2007; Lehmann 1988; Koptjevskaja-Tamm 1993; Mackenzie 1996; Croft 1991, 2001; Dik 1997; Cristofaro 2003; Malchukov 2004, 2006; Dixon & Aikhenvald

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[47] Note that the most recent version of Rijkhoff's model, as presented in Rijkhof 2008a/b, is not incorporated in Malchukov's 2004 study. This is why the latter does not distinguish the innermost level of classifying modification. Since the distinction is not directly relevant to my research, I have not added it to Malchukov's model as represented in (30).

2006). Together, these studies provide a body of evidence showing that the cross-linguistic variation in DC constructions takes the form of a continuum, ranging from DCs that express the full set of available verbal categories and no nominal features, to DCs that have lost (almost) all verbal features and express (almost) all nominal features. In the literature, starting with Stassen (1985), DCs of the first type are called *balanced*; they can express the same set of verbal features as independent clauses in the particular language under analysis. All other DC types are called *deranked*, meaning that their behavioural potential deviates to a greater or lesser extent from the coding of an independent clause, in terms of de-categorization (i.e. elimination of verbal categories) and/or re-categorization (i.e. expression of nominal categories). As already anticipated by the discussion of the verbal and nominal feature hierarchies in the previous subsection, formal deviation from independent-clause-coding may affect different elements of the DC. The individual structural phenomena that may obtain are listed in (31a-f) (cf. Croft 2001):

(31)   a.   (Partial) elimination of tense/mood/aspect marking (operators and/or satellites);
       b.   (Partial) elimination of person marking;
       c.   Expression of definiteness (determiners) and/or case/adpositions;
       d.   Expression of number and/or class;
       e.   Non-expression of argument(s) in the dependent clause, or expression of argument(s) in a different manner than in an independent clause;
       f.   Adjectival rather than adverbial expression of lexical modifier(s)[48,49].

Even though there are some minor differences, the typological studies mentioned above reveal broadly the same generalizations as regards the (co-)occurrence in DC constructions of the features listed in (31). In what follows I will not give an overview of this literature[50]. Rather, I will discuss two of its

[48] For the time being I ignore the possibility that TAM and/or agreement are coded by means of dependent/subjunctive forms. This phenomenon is of minor importance to the present discussion, but I will return to it in section 3.4.
[49] Usage of different word order than in simple main clauses is another possible form of structural deviation. However, since it is quite marginal and usually occurs in combination with some other strategy, I do not take it into account in the present study.
[50] See Malchukov (2004: 9-12) for a brief overview of this kind.

most recent exponents in some detail, namely the work of Cristofaro (2003), and Malchukov (2004).

### 3.3.3.2  The typology of subordination (Cristofaro 2003)

First, Cristofaro's work probably represents the broadest typological study of subordination to date: It takes into account complement clauses, relative clauses, and adverbial clauses in a sample of 80 languages. Cristofaro identifies a number of correlations between various deranking phenomena in DCs. These correlations are listed in (32a-h) (Cristofaro 2003, chapter 10)[51]:

(32)  a.  Agreement not expressed     ➜  TAM not expressed
      b.  Case/adposition marking     ➜  TAM not expressed
      c.  Case/adposition marking     ➜  Agreement not expressed
      d.  Arguments expressed as POSS ➜  TAM not expressed
      e.  Arguments expressed as POSS ➜  Agreement not expressed
      f.  Arguments expressed as POSS ➜  Case/adposition marking
      g.  Arguments not expressed     ➜  TAM not expressed
      h.  Arguments not expressed     ➜  Agreement not expressed

Cristofaro proposes three types of functional factors underlying these correlations, two of which are the general functional principles of *(Syntagmatic) Economy* and *Iconicity* (Haiman 1983). These principles account for the non-expression of verbal features in DCs, including the non-expression of arguments.

First, consider the principle of Economy, which refers to "*the tendency to reduce as much as possible the length or complexity of any utterance*" (Cristofaro 2003: 9). As Cristofaro shows, in some subordination relations the semantics of the matrix clause *predetermine* certain TAM values and/or a participant of the SoA expressed by the dependent clause. There are three possibilities in this respect:

(i)  The matrix clause predetermines both TAM value(s) and a participant of the dependent clause;

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[51] The generalizations in (32b) and (32c) are not supported by my data. In addition, as I will become clear shortly, they are not in accordance with the typology proposed by Malchukov (2004). See Lehmann (1988) for a proposal similar to Malchukov's, and Mackenzie (1996) for a proposal that supports Cristofaro's findings. See also Fischer & Van Lier (forthcoming) for more discussion.

(ii)   The matrix clause predetermines TAM value(s) (but no participant)
        of the dependent clause;
(iii)  The matrix clause predetermines neither TAM value(s) nor any
        participant of the dependent clause.

There are no subordination relations in which TAM values are predetermined, while participants are not, which means that predetermination of participants implies predetermination of TAM values. The Economy principle predicts that predetermined information may be left unexpressed (this is called the *Principle of Information Recoverability* by Cristofaro (2003: 258)). Thus, this principle explains the correlation mentioned under (32g) above, namely that non-expression of arguments implies non-expression of TAM distinctions. Moreover, the non-expression of arguments in turn implies the non-expression of concomitant agreement morphology, as is reflected in the correlation mentioned under (32h) above.

The principle of Iconicity refers to "*the tendency to shape linguistic structure in conformity with the structure of conceptual experience*" (Cristofaro 2003: 8). Iconicity explains the same structural phenomena as the principle of Economy, namely non-expression of verbal categories and arguments in DCs, but it does so in terms of *semantic integration*, rather than in terms of semantic predetermination[52]. Increased semantic integration between the SoAs expressed by the two linked clauses arguably leads to reduced linguistic independence of the DC, which is in turn reflected in the non-expression of verbal features and/or arguments in the latter. This point was already made by Givón (1980 and later work), who proposed the so-called *binding hierarchy or scale of event integration*, stating that "*the stronger the semantic bond between two events, the more extensive will be the syntactic integration of the two clauses into a single though complex clause.*" (Givón 2001: 40)

However, neither Economy nor Iconicity can account for the expression of *nominal* features in DCs. Therefore, Cristofaro proposes a third explanatory principle, which has a basis in Cognitive Linguistics (Langacker 1987). According to this principle, DCs are conceptually not

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[52] This suggests that the principle of Iconicity is superfluous, to the extent that it does not explain any more than the Economy principle does. Indeed, Haspelmath (2008) argues that Iconicity is irrelevant for the explanation of cross-linguistic generalizations found in the coding of DCs. In his view, they should rather be explained in terms of frequency of use. Since frequency implies predictability, this amounts to an explanation in terms of the Economy principle.

construed as independent processes, and may instead be construed as things or properties. This means that they are interpreted 'as wholes', without any internal temporal development (cf. Chapter 2, section 2.2). Using the terminology of Cognitive Linguistics, DCs are said to be "*summarily rather than sequentially scanned.*" (Cristofaro 2003: 284)

In fact, according to Cristofaro, this principle of cognitive thing-construal explains both the non-expression of verbal features and the expression of nominal features in DCs[53]. First, verbal categories such as TAM values express meanings that are semantically relevant to processes or SoAs, but not to things. Therefore, if a DC is construed as a thing, then TAM distinctions can be omitted. A similar argument can be made for verbal agreement: It marks the relationship between a predicate and its arguments, and as such it is relevant to an SoA, but not to a thing. The fact that non-expression of TAM and non-expression of agreement have a parallel motivation accounts for the correlation between these two phenomena, mentioned under (32a) above and repeated here for convenience as (33):

(33)   Agreement not expressed   ➡   TAM not expressed

Second, Cristofaro claims that the conceptualization of DCs as things explains the expression of nominal properties such as case or adposition marking, and the coding of arguments as possessors. In particular, she argues that a DC may "*display the same properties as the grammatical entities that prototypically code things, that is, nouns.*" (Cristofaro 2003: 262-63)

Now, conceptualization as a thing presupposes non-sequential scanning. Thing-construal is formally reflected by the expression of nominal categories, while non-sequential scanning is reflected by non-expression of verbal categories. This explains the universals of co-occurrence, as listed under (32b-f) and repeated here as (34a-e) (Cristofaro 2003: 284-285). Specifically, the expression of the nominal features of case/adposition and possessive argument coding implies the *non*-expression of the verbal features TAM and agreement. The correlation between coding of arguments as possessors and the expression of case/adpositions (see 34e) is explained by the fact that these phenomena both reflect conceptualization of the DC as a thing.

[53] For ease of reference, in the remainder of the discussion I will use *thing-construal*, rather than to *thing- or property-construal*. Basically, however, the same claims are made for DCs that are cognitively construed as properties as for those that are construed as things. For further details on property-construal see Cristofaro (2003).

(34) a.  Case/adposition marking      ➡  TAM not expressed
     b.  Case/adposition marking      ➡  Agreement not expressed
     c.  Arguments expressed as POSS   ➡  TAM not expressed
     d.  Arguments expressed as POSS   ➡  Agreement not expressed
     e.  Arguments expressed as POSS   ➡  Case/adposition marking

Clearly, this third explanatory principle – thing-construal of DCs – is most relevant to the present study, since it hinges on a functional parallel between DCs and PoS. Specifically, Cristofaro's explanation makes reference to the notional similarity between nouns and DCs to explain the attested formal patterns: both are construed as 'things'. However, recall from Chapter 2 that Croft defines prototypical nouns as lexical constructions that combine the semantic denotation of thing (or 'object' in Croft's terms) with the pragmatic function of reference (see section 2.4.2). Recall further that, as argued in section 3.2, it is the pragmatic or propositional function, rather than the semantic denotation that DCs have in common with PoS. In fact, DCs do not denote things or properties; they denote higher order entities such as SoAs and propositions[54,55]. Therefore, it seems that the expression of nominal (or other non-verbal) features in DCs should be explained in terms of the fact that DCs share the propositional function of reference or modification with prototypical nouns, adjectives, and manner adverbs. Such a pragmatic explanation for patterns of nominal and verbal feature mixing in DCs is proposed in the second typological study of subordination that I want to discuss: Malchukov's work on nominalizations, as outlined in the next subsection.

### 3.3.3.3  The typology of nominalization (Malchukov 2004)

Malchukov's typological study of clausal nominalizations shows that verbal and nominal categories at the external end of their respective feature hierarchies (as discussed in section 3.3.2.3 above) are more readily affected by processes of de-categorization and re-categorization in DCs than

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[54] cf. Noonan, who defines complementation the as situation in which "*a notional sentence or predication is an argument of a predicate*" (Noonan 2007: 52; emphasis added, EvL).
[55] It may be argued that cognitive thing-construal is not the same semantic thing-denotation. However, as Cristofaro (2003: 302-303) herself admits, there is no independent evidence for cognitive thing-construal. Cristofaro argues that the cross-linguistic generalizations attested in her study can be regarded as supporting her cognitive explanation. I would argue, however, that the linguistic facts to be explained in terms of cognitive construal cannot at the same time function as evidence for such cognitive construal.

internal features. According to Malchukov, the functional explanation for this generalization must be sought in the fact that external categories reflect the syntactic and/or pragmatic function of the linguistic unit on which they operate, while internal categories are relevant for the semantic interpretation of their base. Specifically, since "*the ultimate task of nominalization is to produce a referential expression*" (Malchukov 2004: 26), this explains why external nominal features, which are relevant to the pragmatic function of reference, are expressed in nominalizations before internal ones. In addition, it explains why external verbal features, which are relevant to pragmatic and syntactic aspects of (independent) predications, are the most likely ones to be lost in nominalization processes.

At this point, it should be mentioned that the idea of a pragmatic motivation for feature mixing in DCs ties in with Dik's *Principle of Formal Adjustment* (PFA). This principle states that:

"Derived, secondary constructions of type X will be formally assimilated (adjusted) to non-derived, primary constructions of type X."
(Dik 1997: 158)

Applying the PFA to the case at hand, we can say that DCs are derived, secondary referential or modifying constructions (rather than derived, secondary thing-denoting or property-denoting constructions). Their primary, non-derived referential or modifying counterparts are lexical nouns, adjectives, and adverbs. Thus, Dik's PFA predicts that DCs, as secondary constructions, will adopt formal features of primary lexical constructions.

Turning back to Malchukov's study, his finding that external features are affected in nominalizations before internal ones is further specified in terms of two implicational hierarchies. These implicational hierarchies are based directly on the feature hierarchies discussed in section 3.3.2 above. Regarding nominal categories, the generalization is that the expression of a particular feature in a nominalization implies the expression of any feature that occupies a more external position on the nominal feature hierarchy. Regarding verbal categories, in contrast, the loss (or non-expression) of a particular feature in a nominalization construction entails the loss of any feature that occupies a more external position on the verbal feature hierarchy.

In addition to these implicational effects of the verbal and nominal feature hierarchies, Malchukov claims that there are other factors that constrain cross-linguistic variation in verbal and nominal feature combinations. The most

important factor involves so-called *blocking-effects*. Basically, 'blocking' refers to the fact that certain combinations of nominal and verbal categories are incompatible as a result of their functional equivalence. In particular, arguments and modifiers can be expressed either verbally or nominally, but not in both ways at the same time. Therefore, the verbal expression of an argument or a modifier blocks the nominal expression of that element, and vice versa.

Malchukov (2004: 66-67) distinguishes three types of blocking effects: subject blocking, object blocking, and modifier blocking. In combination with the implicational effects of the verbal and nominal feature hierarchies, this yields a three-way typology of nominalizations, consisting of the following types:

(i)   *nominalizations with **no** blocking;*
(ii)  *nominalizations with **subject** blocking;*
(iii) *nominalizations with **object** blocking or **modifier** blocking.*

First consider nominalizations with no blocking. As far as nominal features are concerned, this type of nominalization may express only the two outermost nominal categories (in terms of the feature hierarchy), i.e. determiners and case markers. This is because these categories create no blocking effects, as they have no verbal functional counterparts. This means that all verbal features can be retained (with the exception of illocutionary force, which is unexpressed by definition in dependent clauses), including the expression of arguments and modifiers as in independent clauses[56]. The feature combination that thus characterizes nominalizations with no blocking is represented in (35) below, where the dashed line indicates the boundary between verbal features (above the line) and nominal features (below the line), i.e. the point where the two feature hierarchies intersect. The brackets around the nominal features indicate optionality: case/adposition and determiners can but need not be expressed in nominalizations of this type.

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[56] Note that this is contra Cristofaro's generalizations in (34a) and (34b) above, according to which case or adposition marking implies the loss of verbal features (TAM and AGR).

(35)   **Nominalizations with no blocking:**
       **STEM**
       ⊏
       voice/valency, direct object, object agreement
       ⊏
       aspect
       ⊏
       tense and mood
       ⊏
       subject agreement, clausal subject                              V
----------------------------------------------------------------------
       ⌈ determiners                                                   N
       | ⊏
       ⌊ case markers/adpositions

The second type of nominalization involves subject blocking. This means that one argument – the subject or agent – is expressed as a possessor. This nominal subject encoding blocks verbal subject encoding and as such also disrupts concomitant verbal subject agreement. This in turn implies the non-expression of any verbal features external to subject agreement, i.e. the category of illocutionary force. All other verbal categories can be retained, and any arguments other than the subject/agent are expressed as in independent clauses. The feature combination of nominalizations with subject blocking is represented in (36), again with a dashed line marking the boundary between the verbal and the nominal feature hierarchies:

(36) **Nominalizations with subject-blocking:**
**STEM**
⊂
voice/valency, direct object, object agreement
⊂
aspect
⊂
tense and mood                                                    V

------------------------------------------------------------------------

possessive subject                                                N
⊂
determiners
⊂
case markers/adpositions

The third and final type concerns *nominalizations with object blocking or modifier blocking*. As its label makes clear, this type is in fact a combination of two types, which are merged because they look formally very much alike. In these nominalizations, the object or patient argument is coded as a possessor and/or modification is adjectival. These two features involve blocking effects that pertain to the innermost layers of both hierarchies: Object blocking affects the valency layer of the verbal hierarchy, while modifier blocking affects the qualitative layer of the nominal hierarchy. Therefore, they imply the loss of all other verbal categories and the expression of all other nominal categories, respectively. The morpho-syntactic effects of both types of blocking are thus quite similar. The only difference is that in the case of adjectival modification the valency layer of the verbal hierarchy need not be affected, as it always is in the case of possessive object expression. The feature combination of nominalizations with object/modifier blocking is represented in (37):

(37)   **Nominalizations with object/modifier-blocking:**
       **STEM**
       ⊂
       [voice/valency, direct object, object agreement]                    V

       ------------------------------------------------------------------------

       classifying/qualifying operators/satellites (adjectival modification) N
       ⊂
       quantitative operators/satellites: number marking/numerals
       ⊂
       possessive subject
       ⊂
       determiners
       ⊂
       case markers/adpositions

Malchukov's framework thus predicts a three-way typology of nominalization constructions. However, not all nominalizations attested in the languages of his sample fit the above typology. According to Malchukov, this is because there are several structural factors that may complicate the combined effects of blocking and implicational hierarchies.

First, there is a difference between the behaviour of morpho-syntactic versus lexical instantiations of the same categories, i.e. between operators and satellites. In particular, the possibility to express a specific nominal or verbal category by means of an operator implies the possibility to express that category with a satellite, but not vice versa: the expression of a satellite does not mean that the corresponding operator is also available. Malchukov (2004: 37) calls this the *Operator-Satellite Asymmetry principle* (henceforth OSAP). Recall from section 3.3.2.2 that Malchukov regards lexical arguments and agreement morphology as, respectively, the satellite and the operator type expressions of the same category. Thus, since nominal argument expression blocks verbal argument expression (satellites), the OSAP predicts the loss of concomitant verbal agreement (operators). In contrast, verbal expression of arguments (satellites) can go together with either retention or loss of verbal agreement (operators). With respect to modifier expression, the OSAP explains why adverbial modification (satellites) does not entail the availability of morphologically expressed TAM distinctions (operators). This means that for nominalizations without modifier blocking no strong predictions can be made about TAM operators; they may be either lost or retained.

Second, the outcome of feature mixing in nominalization constructions can be complicated by cumulative expression of multiple categories through a single morpheme. If such categories belong to different levels of either the verbal or the nominal feature hierarchy, then a conflict arises that will result in either the retention or the loss of all categories expressed by the relevant morpheme. (See Malchukov (2004: 111) for more discussion and examples, and Malchukov (2007) for an Optimality Theory implementation of the interaction between functional and structural factors in determining the expression of nominalization constructions.)

It is noteworthy in the context of the present study that Malchukov explicitly claims his typology of nominalizations to be applicable to languages without a lexical distinction between nouns and verbs. He argues that the model works as long as a noun-verb distinction is present on the syntactic level, i.e. as long as verb phrases and noun phrases involve different categories (Malchukov 2004: 126). In other words, the expression of 'nominal' categories in a DC does not necessarily imply the existence of a class of rigid lexical nouns; it merely means that there is a certain phrase type – headed by a lexical element whose categorial value may be indeterminate in isolation – that is used to express the function of reference.

This is also the reason why in the present study the relevant set of DC constructions is initially determined on the basis of structural coding, rather than behavioural potential. The expression of behavioural potential in a DC reflects its non-prototypical combination of propositional function and semantic denotation; it does not have a direct connection with the lexical categories available in a particular language. However, once a particular DC construction is determined on the basis of the structural coding criterion, it may be further classified according to its behavioural potential. This allows one to address a second question, namely whether the internal structure of DC constructions is a factor of influence on the relation between DCs and PoS, in terms of their ability to express particular propositional functions.

### 3.3.4 Summary, outlook

In this section I discussed the typology of the internal morpho-syntax of DCs. Starting out with a presentation of verbal and nominal feature hierarchies, I subsequently discussed cross-linguistic patterns pertaining to the mixing of these two feature types in DC constructions, and the functional motivations that have been proposed to explain these patterns. This section thus provides the basis for the second part of the typology that I will present

in the next section, and that will be used in Chapter 6 to classify the DCs of the languages in my sample.

## 3.4 A two-step typology of dependent clauses

The classification of DCs that I propose involves a two-step procedure, which integrates the two types of characteristics of DCs that have been at stake in the present chapter: structural coding and behavioural potential. First, DCs are identified purely on the basis of their structural coding, i.e. the form of either the subordinating conjunction or the special marker on the dependent predicate. For every DC construction identified in this way, it is determined which propositional function(s) it can express. This yields a classification of DCs in terms of the rigid and flexible types presented in section 3.2.2.

Secondly, every rigid or flexible DC construction can be classified according to its internal morpho-syntactic properties, i.e. its behavioural potential. For this part of the typology I will adopt a three-way distinction between DC types, to be presented shortly. This typology is quite similar to Malchukov's classification of nominalizations discussed above, but also differs from it in some respects. A first difference is that Malchukov's study does not include fully balanced DCs as a separate category. His nominalization type with no blocking must have verbal arguments, but it does not necessarily express all TAM/agreement categories. In contrast, I will distinguish between:

(i) DCs that express their arguments as in independent clauses (i.e. verbally) *and* retain all verbal (TAM/person) categories that can be expressed in independent clauses;

(ii) DCs that express their arguments as in independent clauses (i.e. verbally) but do *not* retain (all) the verbal (TAM/person) categories that can be expressed in independent clauses.

Note that both these DC types may or may not combine with case markers or determiners, an issue to which I return below.

Second, Malchukov uses the verbal versus nominal encoding of subject and object arguments as one of the decisive criteria for his classification of nominalizations. This means that his model does not provide an obvious locus for DCs in which one or more argument(s) remain un-expressed. The typology that will be used here does take this possibility into account, as I will explain below.

Third, while Malchukov makes a principled distinction between constructions with one possessive argument (*nominalizations with subject blocking*) and constructions with two possessive arguments (*nominalizations with object blocking*), I will regard these two types as belonging to a single DC type, in which *at least one* argument is expressed nominally.

In line with previous studies on subordination, the three-way typology of DCs that I will adopt is based on three formal parameters, as listed in (38):

(38)  a.   The (partial) (non-)expression of TAM operators and/or person marking[57];
      b.   The (non-)expression of the nominal categories Determiner and/or Case/adposition;
      c.   The coding of the argument(s).

Some remarks are required concerning these three parameters. First, it may be noted that the verbal versus nominal expression of lexical modifiers (i.e. adverbial versus adjectival modifiers) is not taken into account. This is because this feature is not often well-documented in reference grammars.

Second, in terms of verbal operators (parameter (38a)), the following features will be taken into account: voice and valency marking; tense, aspect, and mood marking; person marking; and illocutionary force. Following Malchukov (2004; and see also Noonan 2007: 68), object marking will be regarded as pertaining to the innermost level of verbal valency.

Third, with regard to nominal features (parameter (38b)), I take into account only the expression of determiners and case markers or adpositions. Like Cristofaro (2003), but unlike Malchukov (2004), I do not systematically consider other nominal features, such as number and gender/class marking, since they are very infrequently attested in the DCs of the sample languages (cf. Chapter 6).

Finally, consider parameter (38c) in some more detail. Argument coding in DCs can take three possible forms, as listed in (39):

(39)  a.   An argument is expressed as it would be in an independent clause;

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[57] As mentioned earlier, I use the term *person marking* to include both agreement and cross-referencing on the predicate.

b.   An argument is expressed in a different way than it would be in an independent clause;

c.   An argument is not expressed.

The possibilities in (39a) and (39c) are straightforward enough. Following the terminological convention of Koptjevskaja-Tamm (1993), I will call the type of expression in (39a) 'sentential', abbreviated as *SENT*, and the type in (39c) 'zero', indicated by Ø. The parameter value in (39b), however, may manifest itself in several different forms. Most typically, it involves coding of the argument as a possessor, as in example (40) from Turkish (note that the possessive subject triggers concomitant nominal agreement on the dependent predicate).

*Turkish* (Göksel & Kerslake 2005: 420)

(40)   [*Kerkes-in*         *birier*        *kikaye*    *anlat-ma-sı*]
        everyone-GEN    one.each    story      tell-NMLZ-3SG.POSS
        *iste-n-iyor-muş*
        want-PASS-IPFV-EV.COP
        'It seems that they want everyone to tell a story.'

In other cases, however, the argument may be coded as an oblique. This may involve an adposition, as in example (41) from Georgian, or a special case marker, such as the dative in example (42), also from Georgian.

*Georgian* (Hewitt 1995: 542, 609)

(41)   [*mokalake-ta*         **mier** *upleb-eb-is*
        citizen-PL(GEN  )   **by**    rights-PL-GEN
        *ga-mo-q'en-eb-a*]
        PREV-PREV-use-THS-NMLZ
        'the making use of their rights by the citizens'

(42)   [*salit'eraturo ena-s*              *sa-upl-eb-ul-i*]
        literary    language-DAT    PREV-master-THS-PST.PTC-NOM
        '(he) who has mastered the literary language'

A third possibility is the encoding of an argument in the form of an attributive or associative (nominal) modifier, as in example (43) from Lango.

*Lango* (Noonan 1992: 214)

(43) [*Nè-kkò    gwôkk  à       dákô*]   *ràc*
     kill-NMLZ  dog    ATTR.PRT  woman   3SG-bad-HAB
     'The killing of a dog by a woman is bad.'

Finally, an argument may be incorporated into the dependent predicate, as in the Ket example in (44):

*Ket* (Vajda 2004: 78)

(44) [*ə́k-nà*                *qús-bèt*]      *bínùt*
     1PL-ANIM.PL.GEN          tent-make.INF   it.ended
     'We finished making the tent.' (lit. 'Our tent making ended.')

In this study, all sub-types of non-sentential argument coding illustrated in examples (40)-(44) – possessor-coding, oblique-coding, attributive/associative coding, and incorporation – will be regarded as a single strategy. This strategy is characterized by the fact that it deviates from argument coding in independent clauses, and will be called *alternative coding*, abbreviated as ALT[58].

A final issue, related to argument coding, concerns alignment patterns. In this study I will distinguish between first and second arguments only. In this way I generalize over constructions with nominative-accusative and ergative-absolutive alignment. This is unlike the approach taken by Koptjevskaja-Tamm (1993, 2003, 2005), who distinguishes between so-called *possessive-accusative* and *ergative-possessive* constructions. In the former type, the S and A arguments are expressed as possessors, while the P argument is expressed as in an independent clause (i.e. with accusative coding). In the latter case, the S and P arguments are expressed as possessors, in contrast to the A, which is coded as in an independent clause (i.e. with ergative coding). In my classification, these two types of alignment are collapsed into a single strategy, characterized by the fact that in a transitive DC construction one argument gets alternative coding (ALT), while the other one retains sentential coding (SENT).

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[58] cf. Koptjevskaja-Tamm (1993, 2003, 2005), who treats possessive coding, oblique coding, and incorporation all as separate types. Note that initially I have followed this more finegrained distinction, but abandoned it again in a later stage, as it did not influence the results in any interesting way.

Taking these remarks into account, I present below the three-way typology of DC constructions to be used in this study. Note that each type is indicated with both a number and a mnemonic label.

- *Type 1: Balanced constructions* (abbreviated as *B*)
  Characterized by the following three parameter values:
    a. All TAM distinctions and person marking are expressed as in independent clauses;
    b. All overt arguments are coded as in independent clauses (SENT-SENT);
    c. Determiners (DET) and/or case markers/adpositions (CASE)[59] can but need not be expressed.

With respect to the second parameter value (argument expression), I regard relative clause constructions with a gap-strategy as balanced, even though one of the arguments (the relativized one) of the DC remains unexpressed. Relative clauses with a gap are defined by Comrie & Kuteva (2005: 494) as those involving "*no overt case-marked reference to the head noun within the relative clause*".

The third parameter value, according to which balanced DCs may combine with determiners and/or case markers/adpositions, also requires some clarification. Recall that in Malchukov's typology a balanced clause with a case marker or adposition would be a nominalization with no blocking, which allows for the retention of all verbal categories (see (35) above). This type of construction would constitute a counterexample to the universal claimed by Cristofaro (2003), namely that the expression of case or adposition marking implies the loss of TAM and agreement (see (32b-c)/(34a-b) above). Nonetheless, there are several instances of this type of construction in my sample. For instance, Guaraní has a complement clause construction that takes a determiner but is otherwise completely balanced, as can be seen in (45). Basque has balanced complement clauses with bound complementizers and determiners, as is illustrated in (46). A similar construction, with a bound complementizer and a case marker, is attested in Cofán, as shown in (47).

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[59] The abbreviation CASE is meant to include both case markers and adpositions.

*Guaraní* (Gregores & Suárez 1967:158)

(45)  *ai-kwaá*  [*la*  [*n*  *o-ù*  *moʔã*  *i*  *há*]]
      I-know  ART  NEG  he-go MOD  NEG  COMP
      'I know that he does not intend to go.'

*Basque* (Hualde & Ortiz de Urbina 2003: 646)

(46)  *Entzun dut*  [[*Amaiaren*  *neba*  *hil d-en*]*-a*]
      hear  AUX  Amaia.GEN  brother  die AUX-COMP-DET
      'I heard that Amaia's brother died.'

*Cofan* (Fischer & Van Lier, forthcoming)

(47)  *Atesu-mbi*  [[*ke*  *ña=nga*  *tevaen='cho*]*=ma*]
      know-NEG  you  I=DAT  write=COMP=ACC
      'I didn't know that you had written to me.'

The fact that these constructions are fully balanced, apart from the expression of a determiner or case marker, is in accordance with the nominal feature hierarchy and with Malchukov's typology: Determiners and case-markers are external features that mark the syntactic-pragmatic function of their base unit, without affecting its internal morpho-syntactic structure.

Note that determiners and case markers may also be expressed on balanced DCs that are not marked by a complementizer[60]. For determiners this was already illustrated with an example from Dhaasanac (see (5)) in section 3.2.2. A similar construction is attested in Cofán, as is illustrated in (48):

*Cofán* (Fischer & Van Lier: forthcoming)

(48)  [*Doscientos*  *ochenta dolar=ma*  *gana-'je-'fa*]*=ma*
      two.hundred  eighty  dollar=ACC  earn-IPFV-PL=ACC
      *in'jan kan-'se.*
      think  try-MIT
      'Imagine that they earn 280 dollars.'

Finally, it must be noted that I take balanced clauses (type 1) to include two sub-types that are strictly speaking not fully balanced. Both deviate slightly from independent clause coding, particularly in terms of the expression of verbal features. These two subtypes are:

[60] In fact, case markers and adpositions are a common historical source for complementizers.

(i) DCs that are fully balanced except for the fact that they cannot express illocutionary force marking, while this is an obligatory category in independent clauses.

(ii) DCs in which the same or almost the same range of verbal categories can be expressed as independent clauses, but by means of dependent or subjunctive forms.

The first sub-type is attested for instance in Nama. In this language, the declarative marker *ke* occurs in every independent clause, while it cannot be expressed in DCs. In all other respects, however, DCs and independent clauses have the same structure. Abkhaz presents an example of the second subtype. In this language, certain DC constructions make use of the so-called 'non-finite' verbal paradigm, as illustrated in (49). This paradigm includes almost the same distinctions as the independent paradigm, but expresses them with different forms. As already mentioned in section 3.2.2 (see example (7)), I will regard DCs with dependent or subjunctive forms as belonging to the group of balanced DCs.

*Abkhaz* (Hewitt 1987: 238)

(49)  [*d-ṣaa-wà*]                    (Ø-)*xà-s-c'a-wa-yt'*.
      he-come-DYN(N.FIN.PRS)          it-head.in-I-put-DYN-FIN(PRS)
      'I believe that he will come.'

We have now rounded off the discussion of the first DC type, and may consider the second one:

- *Type 2: Deranked DCs with SENT arguments* (Abbreviated as *D-SENT*)
  Characterized by the following parameter-values:
  d. (Partial) non-expression of TAM distinctions and/or Person marking;
  e. All overt arguments are expressed as in independent clauses (SENT-SENT);
  f. DET/CASE can but need not be expressed.

This D-SENT type also (like type 1) resembles Malchukov's nominalizations with no blocking (see (35) above), but differs from it in two respects, namely:

(i)   Malchukov's Nominalizations with no blocking do not necessarily involve (partial) loss of TAM and/or person distinctions, whereas my Type 2 D-SENT DCs do;

(ii)  Malchukov's Nominalizations with no blocking do not explicitly include constructions in which one or more arguments remain un-expressed, whereas my Type 2 D-SENT DCs do.

An example of a D-SENT construction with two overt arguments is given in (50). This Tamil nominalization involves loss of agreement and partial loss of aspect and mood distinctions, but it retains tense.

*Tamil* (Asher 1982: 20)

(50)   [*tiruṭan*    *nakeyellaam*     *eṭuttukkiṭṭirukkar-**ate***]
       thief        jewellery.ALL     take.PROGR.PRS-NMLZ:ACC
       *naan*   *patteen*
       I       see-PST-1SG
       'I saw the thief taking the jewels.'

D-SENT constructions can but need not be marked for CASE or DET. Some D-SENT constructions are never marked for CASE/DET, such as the Polish infinitive construction illustrated in (51):

*Polish* (Bielec 1998: 19)

(51)   *Postaniwiłem* [*kupić*   *dom*].
       I.decided      buy.INF house
       'I decided to buy a house.'

Other D-SENT constructions are marked for case in some functions but not in others. For instance, Imbabura Quechua has a flexible D-SENT construction, which is case-marked in the function of complement clause (52a), but not in the function of relative clause (52b); except if the relative clause is extra-posed, then the head and the relative clause are both marked for case (52c).

*Imbabura Quechua* (Cole 1982: 14, 47, 51)

(52) a. *Marya nin-n* [*Juzi jatun wasi-ta   cari-shka*]*-ta*
    María say-3 José big  house-ACC have-NMLZ:PST-ACC
    'Maria says that José had a big house.'

   b. [*Marya riku-shka*]   *runa*
     María  see-PTC:PST   man
     'the man whom Maria saw'

   c. *Kwitsa-ta juya-ni*  [*Juan-wan tushu-shka*
     girl-ACC  love-1   Juan-with dance-PTC:PST
     *ka-shka*]*-ta*
     be-PTC.PST-ACC
     'I love the girl who had danced with Juan.'

These Polish and Imbabura Quechua examples also show that in D-SENT constructions one argument may remain unexpressed: Example (51) illustrates the zero-expression of a co-referential subject argument, and (52b-c) illustrate the use of a gap strategy in a D-SENT construction. Other D-SENT constructions with an unexpressed argument include converbal constructions with co-referential subjects, such as the one illustrated in (53) from Turkish:

*Turkish* (Kornfilt 1997: 73)

(53) *Ben* [*etraf-ım-a*   *bak-arak*]  *yür-ür-üm*
   I  around-1SG-DAT look-CONV walk-AOR-1SG
   'I walk looking around (myself).'

Finally, D-SENT constructions may lack arguments altogether, even if they are derived from transitive clauses. Such cases typically involve past/passive or future participles, in which the agent argument is demoted and the patient is gapped (Haspelmath 1994). This is illustrated in (54) with a future participle construction from Georgian.

*Georgian* (Hewitt 1995: 609)

(54)  *Ager   m–i–k'av–i–a*
    here   I-ov-hold-PRS.STAT-3
    [*xel-mo-**sa**-c'er*]–*i*         *kagald-eb-i*
    hand-PREV-**FUT.PTC**-sign-NOM    paper-PL-NOM
    'I am holding here the papers which are to be signed.'

Having discussed DC constructions of type 2, I turn now to the third type:

- *Type 3: Deranked DCs with at least one alternatively coded argument* (Abbreviated as D-ALT)
  Characterized by the following parameter-values:
  - (Partial) non-expression of TAM distinctions and/or person marking;
  - At least one argument gets alternative (ALT) expression; the other one, if available/overt, gets either sentential (SENT) or alternative (ALT) expression;
  - DET/CASE are expressed (if relevant in the language).

The Turkish example in (40) above illustrates a DC of type 3 with two overt arguments, one of which has ALT coding, while the other remains SENT.

An example of a Type 3 DC with two ALT-coded arguments appears in (41) above; a Georgian nominalization construction, in which the (transitive) subject takes genitive case, and the object takes oblique coding, with the proposition *mier* 'by' (which also requires genitive case). Tense, mood, and person/number agreement are lost, but aspect is retained. This construction can be case-marked or combined with a postposition according to its function in the matrix clause.

Non-expression of an argument may also occur in a Type 3 DC, namely when it combines with a gap strategy. An example is given in (55); a participial construction (again from Georgian), in which the agent argument is in the genitive case and the relativized patient is gapped:

*Georgian* (Hewitt 1995: 611-612)

(55)  [*razik'ašvil–**is**      ča–c'er–**il**]–i*          *varian'-i*
    Razikashvili-GEN    PREV-record-PST-PTC-NOM   variant-NOM
    'the variant recorded by Razikashvili.'

We have now defined three structural types of DCs. In Table 3.1, these three types and their respective parameter values are summarized:

| DC type | | Argument expression | | TAM/Person | DET/CASE |
|---|---|---|---|---|---|
| number | label | 1 | 2 | | |
| Type 1 | B | SENT/∅ | SENT/∅ | + | +/− |
| Type 2 | D-SENT | SENT/∅ | SENT/∅ | − | +/− |
| Type 3 | D-ALT | ALT | SENT/ALT/∅ | − | + |

*Table 3.1: DC types and their internal formal properties*

## 3.5    Summary

In this chapter I have discussed two approaches to the typology of dependent clauses: One based on structural coding of DC constructions and their possibilities to express certain propositional functions; the other based on the internal morpho-syntactic properties of DCs, i.e. their behavioural potential.

Concerning the first approach, I showed that DCs can be defined as mappings onto a space of four propositional functions, in parallel with the definitions of PoS classes developed in Chapter 2. This involved the application of the notions of flexibility and rigidity to the domain of DC constructions, which in turn required a definition of structural coding of these constructions: subordinating conjunctions and dependent predicate markers. A number of expected rigid and flexible DC types were defined in this way.

Second, I discussed the internal morpho-syntax of DCs against the background of the functional-typological literature on verbal and nominal feature hierarchies, and the way they interact in DC constructions across languages. Based on this literature, I developed a classification system of three structural DC types, defined in terms of the (non-)expression of TAM distinctions and Person marking, the type of argument encoding, and the (non-)expression of determiners and/or case markers.

In Chapter 6 the integrated DC typology, based on structural coding and behavioural potential, will be used to classify the DC constructions attested in the languages of the sample.