Parts of speech and dependent clauses: A typological study

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Summary in English

Linguistic typology is concerned with cross-linguistic comparison. The basic problem encountered by typologists is that, in order to compare language-specific structures, a *tertium comparationis* is needed that is independent of structure. Therefore, typologists choose a particular *functional* domain, and then examine the *formal* structures that languages use to express certain distinctions within that domain. When they have identified the range of cross-linguistic formal variation, typologists search for *universals*: dependency relations between certain structural traits that apply to all human languages. Within the *functionalist* approach to typology, adhered to in the present study, it is assumed that such universals can ultimately be explained in terms of the function of languages, namely to encode communication (Croft 2003).

Three basic communicative or *propositional* functions may be distinguished: Reference, predication, and modification. *To refer* means to identify a referent, i.e. an entity that one wants to talk about. *To predicate* is to ascribe something to a referent, i.e. to report that this referent is involved in some state of affairs. *To modify* is to enrich either reference or predication, by means of expressing an additional feature of either a referent or a predication (Searle 1969, Croft 2001: 66).

The basic propositional functions of reference, predication, and modification may be expressed by linguistic forms or constructions of various types. Example (1) shows that a referential expression such as the

object argument of the predicate *saw* can take the form of a simple lexical construction (*a car* in (1a)), or of a more complex clause-like construction (*that John has bought a new car* in (1b)):

(1)   a.   I saw a car.
       b.   I saw that John has bought a new car.

This study is concerned with the two construction types illustrated in (1): lexical constructions or *parts of speech* and clause-like constructions or *dependent clauses*.

    Parts of Speech (henceforth PoS) is the traditional term used to refer to the major classes of lexemes or content words that are distinguished in a particular language (Schachter & Shopen 2007: 1). Typically, the class of *nouns* is used to express the function of reference (cf. *car* in example (2a)); *verbs* are used for predication (cf. *wash* in (2b)); *adjectives* for modification of referential expressions (cf. *red* in (2c)); and *adverbs* for modification of predications (cf. *quickly* in (2d)).

(2)   a.   I wash the **car**.
       b.   I **wash** the car.
       c.   I wash the **red** car.
       d.   I **quickly** wash the car.

However, not all languages follow this particular pattern, in which every PoS class is dedicated to the expression of a single function. Alternatively, languages may display PoS classifications in which two or more functions can be expressed by members of the same class. In Turkish, for instance, there is one class of lexemes that may be used to express a referential unit (cf. example (3a) below), or to modify a referential or a predicative expression (cf. examples (3b) and (3c), respectively). The translations of examples (3b) and (3c) show that in English the use of the lexical noun *beautiful* in modifying functions requires derivation with the suffixes –*ful* and –*ly*.

Turkish (Göksel & Kerslake 2005: 49)
(3)   a.   *güzel–im*
            beauty-1POSS
            'my beauty'

b. **güzel** *bir kopek*
beauty ART dog
'a beautiful dog'

c. **güzel** *konuştu*
beauty s/he.spoke
'S/he spoke beautifully'

Adopting a terminology proposed by Hengeveld (1992), I call parts of speech that are functionally specialized *rigid*, and those that can express multiple functions *flexible*.

As regards *dependent clauses* (henceforth DCs), three types are traditionally distinguished: A *complement clause* functions as a referential unit, expressing an arguments of the main clause predicate (cf. (1b) above); A *relative clause* functions as a modifier of a main clause argument; and an *adverbial clause* functions as a modifier of the main clause predicate (Thompson et al. 2007: 238).

Like PoS classes however, DCs can be rigid, i.e. specialized for the expression of a single function, or flexible, i.e. able to express more than one function. For instance, the DC construction marked by *do* in the West-Papuan language Abun can only be used in referential function, i.e. as a complement clause (cf. example (4)). In contrast, the Basque DC construction marked by *-en* can be used in both referential and modifying function, i.e. as a complement clause and as a relative clause (cf. examples (5a) and (5b), respectively).

Abun (Berry & Berry 1999: 167)
(4) *Ji nut* [***do*** *an bi obat ne nggi wa*
1SG think COMP 3SG POSS magic DET strong for
be an gu hi ré.]
later 3SG kill 1SG this
'I thought that his magic was strong [enough] for him to kill me.' (167)

Basque (Hualde & Ortiz de Urbina 2003: 646, 764)
(5) a. *Banekien* [*Mikel berandu etoriko z-**en**]-a*
knew Mikel late arrive.FUT AUX-COMP-DET
'I knew that Mikel would arrive late.'

b. [*Pellok   ekarri du-**en***]   *dirua*   *galdu dut*
Peter.ERG   bring AUX-REL   money.DET   lose AUX
'I lost the money that Peter brought.'

Apart from their possibilities with regard to the expression of propositional function(s), DCs – being complex constructions – can also be studied from the perspective of their internal morpho-syntactic properties. Usually, these properties are described in comparison to the properties of ordinary *in*dependent clauses in the particular language under analysis. Consider the difference between examples (6a) and (6b):

(6) a. John regrets [that Paul will move to Finland].
     b. John regrets [Paul's moving to Finland].

The dependent clause in (6a), marked with the subordinator *that*, expresses future tense and the subject *Paul* is encoded in the same way as it would be in an independent clause. This type of dependent clause, which structurally resembles an independent clause, is called *balanced*. In contrast, the dependent clause in (6b) is marked by the special *-ing* form of the predicate, it cannot express tense, and it has a subject that is encoded as a possessor (*Paul's*). This second type of dependent clause, the structure of which deviates to a certain extent from the structure of an independent clause, is called *deranked* (Stassen 1985).

The aim of the present research is to investigate the relationship between the functional flexibility or rigidity as displayed by a particular language's PoS classes on the one hand, and by its balanced/deranked DC constructions on the other hand. More specifically, this study tries to discover to what extent it is possible to predict, on the basis of a language's PoS system, what the functional potential of its DC constructions will be. This goal is approached by means of an investigation of the PoS classes and DC constructions of a genealogically and geographically balanced sample of 50 languages (see Appendix 1).

The first part of this book (Chapters 2 – 4) provides the theoretical and methodological background of the study. Chapter 2 outlines a number of theoretical issues related to the definition and comparison of PoS classes within and across languages. It starts out with a characterization of possible approaches to PoS typology in terms of the type of criteria on which PoS class definitions are primarily based, distinguishing between semantic,

morphological, syntactic, and pragmatic criteria (Givón 2001: 49; Sasse 1993b:196).

Chapter 2 continues with a detailed discussion of two (relatively) recent approaches to PoS typology: Hengeveld's pragmatic-syntactic theory of parts of speech and Croft's universal-typological theory of parts of speech. The former defines PoS exclusively in terms of the propositional function(s) that they can express (Hengeveld 1992, Hengeveld et al. 2004, Hengeveld & Van Lier 2008, 2009). The Hengeveldian model defines a functional space in terms of two interacting dimensions. The first dimension involves the distinction between predication and reference; the second concerns the opposition between heads and modifiers. As regards the first parameter, the function of predication is assumed to be privileged in relation to the function of reference, since the communicative act of referring presupposes that something is predicated of a referent. With respect to the second parameter, the assumption is that obligatory heads are privileged in relation to optional modifiers. In addition, these two hierarchical parameters are ranked with respect to one another: Since all languages apparently have a predication-reference distinction at some level of the grammar, while the function of modification does not seems to be relevant in the grammar of all languages, it is expected that the predication-reference parameter is primary in relation to the head-modifier parameter. On the basis of this hierarchical model, a number of predictions are made concerning possible and impossible types of PoS classifications, in terms of the type and amount of propositional functions that they can express.

The Hengeveldian approach to PoS typology can thus be characterized as taking into account *syntactic-pragmatic* criteria only. This narrow approach has been criticized by Croft (2000, 2001, 2005), who defines PoS in terms of a broader set of criteria, including semantic meaning and the ability to express certain morphological categories. In particular, Croft defines PoS classes as prototypical combinations of semantic classes and propositional functions: A prototypical noun denotes an *object* and functions referentially; a prototypical adjective denotes a *property* and functions as a modifier; and a prototypical verb denotes an *action* and functions predicatively. These typological prototypes are claimed to correlate cross-linguistically with relative degrees of morphological markedness: Categories that represent prototypical combinations take *less* function-indicating markers and can express *more* morphological distinctions than non-prototypical combinations.

Croft's approach yields a typology in which PoS classes are not directly comparable across languages. On the other hand, the cross-linguistic comparability of PoS classes defined according to Hengeveld's approach is achieved at the cost of ignoring specific sets of linguistic facts. As such, the difference between these two approaches touches upon a fundamental issue in linguistic typology, namely the (non-)existence of universal categories (see Haspelmath 2007; Newmeyer 2007).

In addition, the difference between the Hengeveldian and the Croftian approaches has important repercussions for the debate about so-called *flexible languages*, i.e. languages that presumably lack all parts of speech distinctions, most significantly a basic distinction between nouns and verbs. The most thorny issue in this discussion probably concerns *semantic shift* in flexible lexemes, i.e. the phenomenon that such lexemes may have slightly different meanings in each of the multiple functions in which they can be used. According to some authors the interpretation of flexible lexemes should be fully compositional (Evans & Osada 2005; Croft 2005), while others contend that it may involve idiosyncrasies (Hengeveld & Rijkhoff 2005). At the end of Chapter 2 I propose that, in order to explain the relevant linguistic facts, one must take into account the mismatch between lexical and syntactic categorization in flexible languages: Such languages do have lexical categorization, but of a nature that is irrelevant to the phrase-structural distribution of lexical items (Himmelmann 2007; Don & Van Lier, forthcoming).

Chapter 3 is concerned with the theory and typology of dependent clauses. As already mentioned, DC typology can be approached from two perspectives. First, like PoS, DCs can be defined in terms of the propositional function(s) that they may express. In parallel with the PoS classes predicted by the Hengeveldian model in the previous chapter, in the first part of Chapter 3 I define a number of rigid and flexible DC constructions that are predicted to be possible in actual languages.

Second, DCs can be classified according to their internal morpho-syntactic properties. These properties can be characterized as involving specific combinations of 'verbal' features, which are associated with independent clauses, and 'nominal' features, which are typical of lexical expressions (cf. example (6) above). Earlier functional-typological studies have shown that both verbal and nominal features display certain hierarchical relations (Bybee 1985; Dik 1989, 1997; Rijkhoff 2002). This is reflected, among other things, by universal ordering patterns of these features relative

to their base unit; a verbal or nominal head. These patterns are presumably iconically motivated, to the extent that they reflect the nature and degree of relevance of the various features to the interpretation of the head: Features that occur closest to the head – such as aspect, tense, and mood (TAM) markers for verbs, and class and number markers for nouns – affect the head's *semantics*. In contrast, features that are expressed further away from the stem – in particular verbal agreement, and nominal case and definiteness – do not affect the meaning of the stem but are rather relevant to its *syntactic* and/or *pragmatic* function.

A number of functional-typological studies have investigated the way in which these verbal and nominal feature hierarchies are combined in the morpho-syntactic expression of DCs (Comrie 1976; Noonan 1985/2007; Lehmann 1988; Koptjevskaja-Tamm1993; Mackenzie 1996; Croft 1991, 2001; Dik 1997; Cristofaro 2003; Malchukov 2004, 2006; Dixon & Aikhenvald 2006). In Chapter 3 I focus on two recent exponents of this literature: Cristofaro's (2003) typology of subordination and Malchukov's (2004) typology of nominalizations.

Cristofaro (2003) identifies a number of correlations between various structural phenomena in DCs that can be summarized as follows: (i) the loss TAM marking implies the loss of verbal agreement; and (ii) the expression of nominal features implies the loss of verbal features. Cristofaro proposes three types of functional factors underlying these dependency relations, two of which are the well-known functional principles of *Economy* and *Iconicity* (Haiman 1983). These principles account for the non-expression of verbal features in DCs, including the non-expression of arguments. However, since neither Economy nor Iconicity can account for the expression of *nominal* features in DCs, Cristofaro proposes a third explanatory principle. In particular, she claims that DCs are cognitively not construed as independent processes, but rather as things or properties. Since verbal features are relevant for processes but not for things and properties, Cristofaro argues that cognitive thing/property-construal leads to loss of verbal features. In addition, thing/property-construal may lead to the expression of features associated with the grammatical entities that prototypically code things and properties, i.e. nouns and adjectives.

Broadly speaking, Malchukov's (2004) typological study of clausal nominalizations identifies the same range of cross-linguistic generalizations as Cristofaro's, but proposes a different functional explanation, which is adopted in the present study. Malchukov shows that verbal and nominal

features at the external end of their respective hierarchies are affected in DC constructions before 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. DCs can have referential or modifying pragmatic functions, but they do *not* semantically denote things or properties (rather, they denote higher order entities such as states of affairs or propositions). This explains why external nominal (or adjectival) features, which are relevant to the function of reference (or modification), are expressed in DCs before internal ones, which are relevant to thing/property-denoting entities. In addition, this explains why external verbal features, which are relevant to pragmatic and syntactic aspects of (independent) predications, are the firsts to be lost in DCs.

At the end of Chapter 3, and taking the earlier typological studies as a basis, I define three types of DC constructions, in terms of their particular combination of verbal and nominal features. One type corresponds to *balanced* DCs, the other two represent different types of *deranked* DCs (see above). This three-way distinction is combined with the classification of DCs in terms of their functional possibilities, as defined earlier in the same chapter. Thus, I arrive at a typological framework for DC constructions that takes into account both their functional and their internal formal properties.

Chapter 4 rounds off the theoretical part of the book. In this chapter, I first present the composition of the sample of 50 languages that are investigated. Second, I formulate and operationalize the specific hypotheses that are tested on this sample. These hypotheses take the form of predictions about dependency relations between the functional patterns displayed by the PoS classes of particular languages, and the functional patterns of their (different structural types of) DC constructions. Some predictions are formulated in general terms, i.e. they make reference to languages with some flexibility versus no flexibility in their PoS system, and the expected reflection of this difference on the functional properties of DCs in these languages. Other predictions are more specific; they aim at the identification of one-to-one matches between the functional possibilities of particular types of PoS classes and DC constructions. In addition, both types of predictions are formulated first without differentiation for dependent clauses in terms of their internal formal properties, and then in sets of sub-predictions that

make specific reference to balanced clauses, as opposed to (different types of) deranked clauses.

Finally, Chapter 4 presents the method that is used to test these predictions. Each prediction involves two binary parameters; one concerning PoS, the other DCs. In order to test the predictions, the observed frequencies (the number of languages that display a particular value combination of the PoS and the DC parameter) are compared to the expected frequencies (the number of languages with this feature combination that would be expected if the co-occurrence of the PoS and DC features would be purely coincidental). Fischer's Exact tests are used to calculate whether the deviations between observed and expected frequencies are statistically significant. Whenever a significant result is found, the particular nature of the dependency relation between the PoS and DC traits is further assessed by means of a statistical method developed by Maslova (2003).

The second part of the book (Chapters 5-7) contains the actual typological data. First, Chapter 5 presents the typology of PoS classes as displayed by the languages of the sample. The attested PoS systems are evaluated in light of the predictions made in Chapter 2. It is shown that most predicted PoS systems are found in actual languages, either in their 'pure' form, or in combination with another predicted system. In general, these data suggest a reasonable typological adequacy of the implicational map model of PoS as outlined in Chapter 2.

The remainder of Chapter 5 addresses a variety of issues regarding the identification of PoS classes in individual languages, and their cross-linguistic comparison. These issues, which are also touched upon in the theoretical discussion on PoS typology in Chapter 2, include the problem of fuzzy boundaries between PoS classes, the phenomenon of variable distributional patterns displayed by sub-groups of lexical items, and the occurrence of 'restricted' lexeme classes, i.e. small, closed classes and classes consisting of derived lexemes. I also discuss the expression of non-verbal predication in the sample languages. In the final section of Chapter 5 I apply the theoretical notions about lexical flexibility, as proposed in Chapter 2, to the relevant languages of the sample.

Chapter 6 presents the classification of the DC constructions attested in the sample languages, in terms of the typological framework developed in Chapter 3. First, the DCs are classified according to the propositional function(s) that they can express. The attested DC types are compared with the DC types predicted in Chapter 3. It is shown that all predicted types

occur in the languages of the sample, except those involving the functional slot for head of a predicate phrase. I suggest that this latter finding may be explained in terms of cognitive-semantic markedness of DCs with respect to the function of independent predication, and/or a structural constraint on the expression of finite verbal morphology on DCs. Second, the DCs of the sample languages are classified according to their internal morpho-syntactic properties. On the basis of these data, every DC construction is assigned to one of the three structural DC types defined in Chapter 3. At the end of Chapter 6 these data are combined with the DC classification based on functional distribution into an integrated typology.

Subsequently, in Chapter 7, the data sets presented in Chapter 5 (PoS) and Chapter 6 (DCs) are linked in order to test the predictions about their functional interrelationship, as formulated in Chapter 4. The analyses reveal significant dependency relations between flexible (rather than rigid) PoS and DCs; between very flexible (rather than less flexible) PoS and DCs; and between PoS and deranked (rather than balanced) DCs. The relevant dependency relations are shown to be asymmetrical in nature, and can as such be interpreted as statistical bases for implicational universals.

More specifically, it is shown that the presence of a pervasively flexible deranked DC construction in a particular language requires the presence of a pervasively flexible PoS class in that language. This does not mean, however, that all languages with a large degree of flexibility in their PoS system also display flexible deranked DC constructions. In fact, the results make clear that pervasively flexible PoS classes and deranked DCs are both, i.e. independently of each other, cross-linguistically rare phenomena. Therefore, the generalization that maximal flexibility in the domain of deranked DCs depends upon maximal flexibility in the lexical domain does not have much explanatory power. More interestingly, it is shown that whenever maximal lexical flexibility does occur in a language, this strongly increases the chances of also finding the other rare phenomenon: maximally flexible deranked DCs This shows that there is indeed a strong tendency for the PoS and DC parameters to have the same value.

In contrast to the result obtained for pervasively flexible PoS and deranked DCs, no significant dependency relations can be established between the presence of less flexible and rigid PoS classes on the one hand and deranked DCs with the same functional behaviour on the other hand. In addition, it is shown that the functional patterns of balanced DCs are not related to those of PoS classes.

In the third and final part of the book (Chapters 8 and 9) I further discuss the results of the study and present its conclusions. First, In Chapter 8, the findings of Chapter 7 are reconsidered, taking a specific functionalist perspective that makes reference to the overall complexity of language systems and the various ways in which this level of complexity can be attained. More specifically, the proposed explanatory framework builds upon recent functional-typological research, which has advanced the idea that flexibility and rigidity are relative rather than absolute notions that may be applicable in various degrees to specific construction types pertaining to different levels of the grammar. These studies suggest that the categorial specificity of linguistic constructions increases – or their flexibility decreases – when they become structurally more complex. This generalization has been termed the *Principle of Increasing Categoriality or the Principle of Staggering Level-dependent Categoriality* (Haig 2006, Lehmann 2008). This principle can be regarded as a specific instance of an even more general functional principle regarding complexity in language systems, namely that flexibility or multi-functionality in one area of the grammar must be counterbalanced or 'traded off' by rigidity or categorial specificity in another area, in order to guarantee the identifiability of the function of any linguistic unit within an actual utterance. This has been termed the *Principle of Functional Transparency* (Frajzyngier & Shay 2003, cf. Hengeveld et al. 2004; Sinnemäki 2008).

In Chapter 8 I argue that deranked (but not balanced) DCs can be regarded as secondary constructions, derived from primary underived lexical constructions. Under this assumption, the Principle of Increasing Categoriality predicts that the degree of functional flexibility of any deranked DC construction should be either equal to or smaller than the flexibility of a PoS class that can express at least one of the same function(s). This prediction is born out for virtually all relevant constructions in the sample languages. Thus, the Principle of Increasing Categoriality explains the finding of Chapter 7 that flexibility in the domain of deranked DCs is dependent on flexibility in the domain of PoS classes. This dependency relation can now be interpreted as a constraint, imposed by the amount of flexibility attested in the PoS system of a particular language, on the maximal amount of flexibility (or minimal amount of categorial specificity) that can be displayed by the deranked DC(s) of that language.

Furthermore, the Principle of Increasing Categoriality sheds light on the unexpected findings of Chapter 7: (1) the lack of correlations between the presence of weakly flexible PoS classes and deranked DCs with the

same functional possibilities in particular languages; and (ii) the lack of correlations between various types of rigid PoS classes and the corresponding rigid deranked DCs.

The first finding can be understood as involving a decrease in flexibility on the part of the DC construction, as compared to the PoS class. In particular, while the relevant PoS classes are weakly flexible to the extent that they can express two propositional functions, the DCs are rigid constructions; they can be used in just a single function. Notably, a similar explanation can be offered for the fact that even languages with pervasively flexible PoS classes display rigid deranked DC (alongside flexible deranked DCs). Both findings are in accordance with the prediction that deranked DCs can be either as flexible as or less flexible than PoS classes, but not *more* flexible.

Second, the lack of a correlation between rigid PoS classes and rigid deranked DCs can be interpreted as follows. As expected, whenever a language has a deranked DC construction that can appear in a function for which a rigid PoS class is available, then the DC construction in question is rigid as well. Again, this confirms that a deranked DC cannot exhibit a greater degree of flexibility than a PoS class. However, instead of rigid deranked DCs, languages may employ balanced DCs. The latter, which are presumably not derived from lexical categories, were shown in Chapter 7 to not display any functional relation with PoS classes.

Despite the fact that balanced DCs and PoS are thus neither formally nor functionally related, I argue at the end of Chapter 8 that the distributional properties of balanced DCs are in accordance with the more general Principle of Functional Transparency. Whereas rigid balanced DCs are functionally transparent by definition, flexible balanced DCs, like any other flexible construction type, are expected to require additional morpho-syntactic means in order to compensate for their inherent functional ambiguity. I show that balanced flexible DC constructions may indeed combine with several types of such disambiguating strategies. Some of these strategies, such as the use of resumptive pronouns, are confined to DC constructions, while others, such as constituent order constraints, are used more generally to establish functional transparency in linguistic (sub-)systems.

Regarding this last point, a particularly interesting finding is that flexible DCs (both balanced and deranked ones) in languages with very flexible PoS systems often make use of the same morpho-syntactic strategies that are used to disambiguate the functions of flexible lexical and phrasal constructions in these languages. This suggests that languages with pervasive

lexical flexibility make use of a kind of 'grid' of morpho-syntactically marked functional slots, which may be filled by formal units of any structural type: not just single lexemes, but also complex phrasal and clausal constituents. All these construction types can (but need not) retain maximal flexibility until they are inserted into a slot corresponding to a particular phrase-structural function.

Finally, Chapter 9 summarizes the main findings of the study. It concludes with the observation that the explanatory principles of Increasing Categoriality and Functional Transparency are ultimately motivated in terms of Economy: Languages divide the task of establishing maximal categorial specificity over the lexical, morphological, and syntactic devices available in their grammatical systems, and complexity-increasing linguistic processes typically produce output structures that are at least as categorially specific as their input structures, in order to maximize processing ease for the participants of a communicative situation.