Linguistic Typology: a short history and some current issues

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1. INTRODUCTION[1]

This issue of *Tidsskrift for Sprogforskning* contains written versions of the four invited presentations for the 7th Research Colloquium 'Sprog på Statsbiblioteket' (30 November 2006), which was devoted to *Linguistic Typology*. Typology is concerned with cross-linguistic variation; more specifically, it investigates the range of possible grammatical phenomena that are attested in human language and informs us about the way these phenomena hang together (tendencies, correlations). Typology also attempts to account for the attested frequency and distribution of grammatical phenomena, and to explain where the variation stops, i.e. why certain logically possible grammatical phenomena do not occur (for example, why there are no languages with basic order numeral-adjective-demonstrative-noun in the noun phrase, as in *three big these dogs*). By way of an introduction to this issue, I will give a brief outline of the history of linguistic typology in the last 50 years (mainly concentrating on syntactic typology) and mention some recent developments and current issues in the field, such as the problem of cross-linguistic identification.

2. A SHORT HISTORY OF (SYNTACTIC) TYPOLOGY

Since Greenberg's (1966) seminal work on language universals, linguistic typology has played an important role in the field of linguistics and especially in the last few decades it has developed into a major area of research with its own

- Professional organizations – e.g. the 'Association for Linguistic Typology' (ALT).
- Journals – e.g. *Linguistic Typology, Studies in Language, Sprachtypologie und Universalienforschung* (STUF).

- Text books – e.g. Comrie (1981), Mallinson/Blake (1981), Whaley (1997), Song (2001), Croft (2003).

- Handbooks – e.g. Haspelmath et al. (2001) (see also Haspelmath et al. 2005), Song forthcoming.

- Book series – e.g. *Typological Studies in Language* [Amsterdam: Benjamins], *Empirical Approaches to Language Typology* [Berlin: Mouton de Gruyter], *Oxford Studies in Typology and Linguistic Theory* [Oxford: OUP].[2]

As was mentioned above, linguistic typology is simultaneously about the diversity and uniformity of languages, as it investigates the range of variation in human languages and attempts to establish constraints and order in the diversity (Comrie 1981: 30-31; Plank 2007b). Research in this field is characterized by the essential stages in scientific analysis (Croft 1995: 87; Moravcsik 2007): classification, generalization, and explanation. Initially, linguistic data are collected in a more or less systematic manner and then categorized on the basis of certain shared properties (e.g. regarding position, form, meaning, or function). In the second stage one formulates generalizations over the data. For example, Greenberg (1966) classified languages on the basis of the unmarked order of nominal subject (S), verb (V) and nominal object (O), which resulted in three classes: languages with basic order VSO, SVO or SOV (Stage 1). This is shown in Table 1, which is based on Hawkins' (1983) expanded sample (notice that he used 'V-1' or 'V-initial' instead of VSO):

1. <u>V-1 & N--</u>	38	5. SVO & N--	56	9. SOV & N--	21
2. V-1 & ANG	13	6. SVO & ANG	17	10. SOV & ANG	0
3. V-1 & --N	2	7. SVO & --N	19	11. <u>SOV & --N</u>	98
4. V-1 & GNA	<u>0</u>	8. SVO & GNA	<u>17</u>	12. SOV & GNA	<u>55</u>
	53 lgs.		109 lgs.		174 lgs.

Table 1. Classification of languages (based on Hawkins 1983; '--' = both A and G precede or follow the noun).

The data in Table 1 show among other things that most SOV languages have both the adjective and the genitive preceding the noun, whereas most VO (i.e. V-1 and SVO) languages have these modifiers following the noun. Greenberg then formulated 45 "universals of grammar with particular reference to the order of meaningful elements" (Stage 2); for example (Greenberg 1966: 85-86):

<u>Universal 16</u>

In languages with dominant order VSO, an inflected auxiliary always precedes the main verb. In languages with dominant order SOV, an inflected auxiliary always follows the main verb.

<u>Universal 17</u>

With overwhelmingly more than chance frequency, languages with dominant order VSO have the adjective after the noun.

<u>Universal 18</u>

When the descriptive adjective precedes the noun, the demonstrative and the numeral, with overwhelmingly more than chance frequency, do likewise.

In the third stage one tries to explain these generalizations. Thus, Greenberg also offered some tentative theoretical observations, suggesting that certain ordering patterns could be explained in terms of the two competing motivations 'dominance' and 'harmony' (for example, he called the pairs VS – VO – NA – NG and SV – OV – AN – GN 'harmonic'), but he added that his theory was far from complete and emphasized that disharmonic patterns and other counterexamples should not be ignored (Greenberg 1966: 96-104).[3]

Subsequently Lehmann (1973, 1978) and Vennemann (1973, 1976) offered more radical accounts for Greenberg's findings, essentially reducing his three-way typology (VSO, SVO, SOV) to two 'word order types':

(a) Lehmann: OV (SOV) and VO (V-1/VSO and SVO) languages. According to Lehmann's <u>Fundamental Principle of Placement</u> it is possible to predict certain ordering pairs (such as the order of adjective and noun), if one knows that the language has OV or VO order.

(b) Vennemann: OPERATOR-OPERAND and OPERAND-OPERATOR languages. According to Vennemann's <u>Principle of Natural Serialization</u> categories are either operators or operands, which tend to be serialized either with operator before operand, or vice versa. Examples of operators are 'object' and 'adverbial', both of which have 'verb' as their operand).

Obviously there are many languages with constituent ordering patterns that deviate from these ideal types, but such languages were largely ignored as they were deemed to be in the process of changing from one type to another due to internal development or contact.

Greenberg's original, tripartite typology (VSO, SVO, SOV) was restored by Hawkins (1983). Using a sample containing over 300 languages, Hawkins formulated some new, often exceptionless universals, such as (Hawkins 1983: 64, 83).[4]

(1)   If a language has OV order, then if the adjective precedes the noun, the genitive precedes the noun; i.e. OV ⊃ (AN ⊃ GN).

(2)   If a language has noun before genitive, then it has noun before relative clause; i.e., NG ⊃ NRel (equivalently: RelN ⊃ GN).

Hawkins (1983: 75, 83) showed that various implications could be collapsed into statistical implications with an adposition (preposition, postposition) as ultimate antecedent; for example:

(3)   <u>Prepositional Noun Modifier Hierarchy</u> (PrNMH):
       Prep ⊃ ((NDem ∪ NNum ⊃ NA) & (NA ⊃ NG) & (NG ⊃ NRel))

(4)   <u>Postpositional Noun Modifier Hierarchy</u> (PoNMH):
       Postp ⊃ ((AN ∪ RelN ⊃ DemN & NumN) & (DemN ∪ NumN ⊃ GN))

He also attempted to account in a more principled way for the many languages with ordering patterns that do not quite fit some 'ideal' two-way classification (head-initial/head-final, VO/OV, operand-operator/operator-operand), which had been the focus of Lehmann's and Vennemann's proposals.[5] For example, Hawkins' <u>Heaviness Serialization Principle</u> is concerned with the fact that in many (if not most) languages noun modifiers occur on both sides of the head noun ($\geq_R$ means (Hawkins 1983: 90-91): "'exhibits more or equal rightward positioning relative to the head noun across languages'. That is heavier noun modifiers occur to the right"):[6]

(5)   <u>Heaviness Serialization Principle</u> (HSP)
       Rel $\geq_R$ Gen $\geq_R$ A $\geq_R$ Dem/Num

Dryer (1992) used an even bigger sample than Hawkins (containing some 600 languages) in an attempt to test which word order pairs actually correlate with the order of object NP and verb (VO/OV). In spite of the proposals by Lehmann

and Vennemann, claims about such correlations had never been substantiated by systematic research.[7] According to Dryer, there are indeed several word order pairs that more or less correlate with the VO/OV distinction, among them the pair HEAD NOUN – POSSESSOR NP (NG/GN) and the pair HEAD NOUN – RELATIVE CLAUSE (NRel/RelN). However, he did not find evidence for a correlation between VO/OV order and, for instance, the order of noun and adjective (NA/AN) or the order of noun and demonstrative (NDem/DemN).

VERB PATTERNERS	OBJECT PATTERNERS	EXAMPLE
verb [V]	subject [S]	*(there) entered + a tall man*
adposition	NP	*on + the table*
copula verb	predicate	*is + a teacher*
'want'	VP	*wants + to see Mary*
tense/aspect auxiliary verb	VP	*has + eaten dinner*
complementizer	sentence	*that + John is sick*
noun [N]	genitive [G]	*father + of John*
noun [N]	relative clause [Rel]	*movies + that we saw*
verb	manner adverb	*ran + slowly*

Table 2. Some of Dryer's correlation pairs (Dryer 1992: 108)

Thus, we tend to find the pairs VS, NG and NRel in VO languages and the pairs SV, GN and RelN in OV languages. To account for the correlation pairs, Dryer proposed the Branching Direction Theory (BDT), according to which there is tendency for phrasal categories to precede non-phrasal categories in OV languages and vice versa in VO languages. The basic version of the BDT reads as follows (Dryer 1992: 87, 109):

(6)   Branching Direction Theory

        Verb patterners are non-phrasal (non-branching, lexical) categories and object patterners phrasal (branching) categories. That is, a pair of elements X and Y will employ the order XY significantly more often among VO languages than among OV languages if and only if X is a non-phrasal category and Y is a phrasal category.

However, the theory fails to account for at least three correlation pairs: the order of verb and manner adverb (both of which are non-phrasal), the order of verb and subject (if one believes that the subject NP actually combines with the VP,

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there would be two phrasal categories), and the order of affix and stem (see Dryer 1992: 125-128 for discussion). Because of these and other difficulties (for instance, the status of adjectives as a non-branching category and the constituent structure of NPs), Dryer then proposed a revised version and ultimately a more elegant 'alternate version' of the BDT. Apart from the fact that all versions of the BDT are based on some version of Chomsky's syntactic theory (which means that BDT works best for those who also accept certain features that are peculiar to Chomsky's theory), there is a more fundamental problem, which concerns the way categories are defined and, more generally, how we can be sure we are comparing the same category or grammatical phenomenon in different languages. The problem is discussed in the next section, which also briefly mentions some recent developments in linguistic typology.

3. SOME CURRENT ISSUES AND RECENT DEVELOPMENTS

3.1. Cross-linguistic identification

The problem of cross-linguistic identification is a rather persistent issue in linguistic typology (Stassen 1985) and basically revolves around the question 'How does one identify the same grammatical phenomenon across languages?' or more concretely 'Should categories be defined in terms of formal ('structural') or semantic properties?' (Croft 1995: 88-89; Song 2001: 10-15). Since formal categories are often deemed to be too language dependent to be useful (i.e. formal criteria cannot be applied to all languages as the structural variation across languages is considered too varied), many typologists prefer semantic categories, which are believed to be 'universal' (Haspelmath 2007: 119). It is true that when Greenberg, Hawkins and Dryer employ category labels such as NOUN, SUBJECT and GENITIVE, they generally use semantic criteria to define category membership. This means, for example, that in practice the category 'adjective' may include more than just members of the word class 'adjective'. Since 'adjectives' are characterized as elements 'designating qualities' (Greenberg 1966: 77), Greenberg's adjectival category also includes other forms or constructions that can be used to designate qualities, such as verbs or relative clauses (Greenberg 1966: 100): "In many languages all adjectival notions are treated as intransitive verbs. The qualifying adjective is then a relative or participle of the verb." In a similar vein Dryer (1992: 96 fn. 12) writes: "As discussed in Dryer (1988), there are many languages in which what I call

adjectives are really verbs, and 'adjectives' modifying nouns are really just a kind of relative clause."

The problem is not so much that semantic criteria are used to define category membership, but rather that it is not always possible to say whether this has been done consistently. Notice, for example, that Dryer's categories are ultimately reclassified as what can only be regarded as formal categories when he divides them into branching vs. non-branching categories in his BDT (see (6)). Since such a division can only be made on the basis of formal, structure internal properties, one might suspect that members of the original ('semantic') categories were at least partly defined in formal terms.

To give another example, we just saw that the semantic category of adjectives also includes what are formally speaking relative clauses. However, relative clauses also occur as a separate category in the major typological studies of Greenberg, Hawkins and Dryer mentioned earlier and in the well-known cross-linguistic investigation of relative clauses by Keenan and Comrie (1977). Here members of the category of Relative Clause [RC] appear to be limited to clausal structures (i.e. formal entities):

> We consider any syntactic object to be an RC if it specifies a set of objects (perhaps a one-member set) in two steps: a larger set is specified, called the *domain* of relativization, and then restricted to some subset of which a certain sentence, the *restricting* sentence, is true. The domain of relativization is expressed in the surface structure by the *head* NP, and the restricting sentence by the *restricting clause*, which may look more or less like a surface sentence depending on the language. (Keenan and Comrie 1977: 63)

Matters become particularly confusing when the two categories Adjective and Relative Clause are combined in the same proposition, as in the case of Hawkins's <u>Heaviness Serialization Principle</u> or Dryer's <u>Branching Direction Theory</u>.[9] In either case, we have of a semantically defined category Adjective (A), which includes members of the word class 'adjective' but also relative clauses, and a separate (presumably not entirely semantically defined) category Relative Clause (Rel). If A is a semantic (or in Haspelmath's words 'substance based') category and Rel is a category that is at least partly defined in terms of formal

characteristics, this would be rather problematic from a methodological perspective.[10]

Whereas some have argued against the usefulness of formal categories in linguistic typology (e.g. Haspelmath 2007), others have claimed that typology also requires formal categories (Newmeyer 2007). Indeed, it seems hard to deny that certain grammatical phenomena can only be adequately described or explained by referring to some formal property, such as structural complexity (e.g. branching, structural depth, nesting, self-embedding). To some degree 'structural complexity' is a theory-internal notion, but it can nevertheless be defined in language-independent terms: one can convert the degree of morphological or syntactic complexity (e.g. utterance length or the number of branches under a certain node) into a value that can be used to compare morpho-syntactic entities across languages (Kirby 1997). In fact, the notion of formal or structural complexity has often been used to explain grammatical phenomena across languages. We have already mentioned Dryer's Branching Direction Theory, which distinguishes between branching and non-branching categories, and Hawkins' Heaviness Serialization Principle, according to which a heavy (i.e. more complex) noun modifier such as a relative clause "exhibits more or equal rightward positioning relative to the head noun across languages" than a demonstrative or a numeral (Hawkins 1983: 90-91; see also Mallinson and Blake 1981: 157). Another case in point is Dryer's (1980) cross-linguistic study that is concerned with differences between the position of simple NPs and the position of sentential (i.e. complex) NPs. Simple and sentential NPs are formal categories, as the distinction between simple and complex is made on the basis of differences regarding the internal syntactic structure (Dryer 1980: 174). As a final example of an explanation for a cross-linguistic phenomenon that crucially refers to formal complexity, take Dik's Principle of Increasing Complexity or a more specific variant, the LIPOC principle:

(7)   The Principle of Increasing Complexity (Dik 1997: 404):

There is preference for ordering constituents in an order of increasing complexity.

(8)   <u>Language-independent preferred order of constituents</u> (LIPOC) (Dik 1997: 411):

Other things being equal, constituents prefer to be placed in an order of increasing complexity, where complexity of constituents is defined as follows:

(i)   clitic < pronoun < NP < adp. phrase < subordinate clause;

(ii)   for any category X: X < X coordinator X;

(iii)   for any categories X and Y: X < X subordinator Y.

Since linguistic signs have a form and a meaning component (Saussure 1916), it is perhaps only to be expected that both formal and meaning or 'content'-based criteria are needed for cross-linguistic research. Furthermore, it seems that both form and content-based categories suffer from the same problem: at a superficial level of analysis there will always be differences between individual languages, both with regard to matters of form <u>and</u> meaning, where 'meaning' covers both <u>coded meaning</u> (semantics) and <u>inferred</u> or <u>contextualized meaning</u> (pragmatics).[11] But since it is possible to abstract away from more or less superficial differences in form or meaning (what counts as 'superficial' largely depends on one's theoretical perspective), one can find always similarities ('universals' if you want) as well at some level of analysis.

We saw that the problem of cross-linguistic identifiability is often attributed to the observation that it is difficult to know that one is dealing with the same or comparable forms or structures across languages. For that reason some have questioned the usefulness of formal categories (e.g. Haspelmath 2007), but others have pointed out that concept or meaning-based categories are not 'universal' either (Song 2001: 11; Newmeyer 2007).[12] Rather than argue for or against the usefulness of formal or semantic categories in typology, I would like to propose that linguistic typology also requires <u>functional</u> categories to describe and explain grammatical phenomena within and across languages. This seems particularly true for syntactic typology, where the functional category label would specify the <u>relation</u> of an element to the construction in which it occurs (Dik 1997: 126-127).[13] For example, certain modifiers in the noun phrase can be given the functional label 'classifying modifier' in that these modifiers serve to (further) specify what <u>kind</u> of entity is denoted by the head noun, such as *annual* in *annual report*, *presidential* in *presidential election*, *electric* in *electric train*, or *social*

in *social security*.[14] These examples all involve members of the word class 'adjective', but notice that classifying adjectives differ from qualifying adjectives (like *nice* in *nice clothes*) in a number of ways (Rijkhoff 2008; Rijkhoff forthcoming). For instance, classifying adjectives do not admit intensifiers, comparison, or predicative position (Quirk et al. 1985: 1339):

(9)   *an electric train*   vs.   **a very electric train*
                                                  (cf. *very nice clothes*)

(10)   *a medical examination*   vs.   **a more medical examination*
                                                  (cf. *nicer clothes*)

(11)   *the corporate lawyer*   vs.   **the lawyer is corporate*
                                                  (cf. *these clothes are nice*)

The following examples show that members of other formal categories, such as prepositional phrases (PPs) or genitives (examples 12-14), can also serve as CLASSIFYING MODIFIERS in English and other languages (Rijkhoff 2008: 84-85):

English
(12)   a. *a <u>dog's</u> tail*

        b. *a house <u>of sin</u>*[15]

Swedish (Koptjevskaja-Tamm 2003: 539-40)
(13)   a. *En   folk-et-s   teater*
           a:C   people-DEF.C-GEN   theatre
           'a theatre for the people'

Lithuanian (Koptjevskaja-Tamm 2002: 155)
(14)   a. *duon-os   peilis*
           bread-GEN   knife
           'a bread knife'

Even though members of the functional category CLASSIFYING MODIFIER may belong to different form classes (adjective, prepositional phrase, case-marked noun), they share certain grammatical properties (Rijkhoff 2008: 84-88). Thus, classifying genitives such as *woman's* in the English examples below (but notice

that the same goes for e.g. Dutch) cannot be modified or used as a predicate either, just like classifying adjectives:

	CLASSIFYING POSSESSIVE	modification:
(15)	a. *the pretty* [*woman's* hat]	b. *the* [*pretty woman's*] *hat*
	('the kind of hat worn by women')	(<u>non</u>-classifying possessive)

	CLASSIFYING POSSESSIVE	predicative position:
(16)	a. *a woman's* hat	b. **that hat is a woman's*

These examples show that functional categories like CLASSIFYING MODIFIER allow us to capture grammatical <u>differences</u> between members of the <u>same</u> form class (e.g. adjectives, as in examples 9-11) and grammatical <u>similarities</u> between members of <u>different</u> form classes (e.g. adjectives, prepositional phrases and genitives, as in examples 9-16), both within and across languages. It has recently been demonstrated that classifying modifiers and members of other functional modifier categories (qualifying modifiers, localizing modifiers) can be successfully characterized by positive or negative values for three grammatical features: MODIFICATION, REFERENCE and PREDICATION (Rijkhoff forthcoming). In sum, typology (and linguistics in general) also requires functional categories to account for grammatical phenomena.

3.2. Some recent developments

This section mentions two recent developments in typology: (1) increased awareness of the importance of language sampling procedures and (2) the use of semantic maps.[16]

In the last few decades, we have seen an increased interest in sampling methods for typological research (Song 2001: 17-41; Croft 2007: 80-82). Bell (1978) is probably the first major systematic discussion of language sampling, followed by Dryer (1989) and Bybee and her associates (Bybee 1985, Bybee et al. 1994), in particular Perkins (1989, 2001). Rijkhoff et al. (1992) and Rijkhoff and Bakker (1998) discuss different kinds of language samples and propose a sampling design procedure for what they call 'variety samples' (as opposed to e.g. 'probability samples' or 'random samples'). Variety samples are particularly useful for explorative research: when little is known about the grammatical

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phenomenon under investigation, it is important that the sample offers a maximum degree of linguistic variation. Probability samples, which are used to find correlation pairs or to establish the probability of occurrence of some linguistic phenomenon, pose special problems because they must be free of genetic, areal, cultural and typological bias (Rijkhoff and Bakker 1998: 265):[17]

> […], even in a relatively small sample it is practically impossible to avoid the inclusion of languages that are not somehow genetically related or spoken in the same region [note omitted]. Several attempts have been made to deal with this problem (Perkins 1980, Dryer 1989, Nichols 1992), but basically there are only two ways out. Either a small sample is used which, however, is not quite representative with respect to the genetic, areal, and/or cultural diversity (cf. Perkins 1980). Or a large sample is used and genetic, areal, and/or cultural relationships are manipulated so as to meet the requirements on statistical tests (e.g. Dryer 1992: 83). Essentially, however, there does not seem to be a real solution.

A more recent development in typology is the employment of semantic maps, which builds on ideas already developed in the context of research on semantic fields and networks (van der Auwera and Temürcü 2006: 131-132). A semantic map model represents all the meanings of some form (often called 'marker'), the essential idea being that "multiple uses of a marker are related in a systematic and universal way" (van der Auwera and Temürcü 2006: 131). Since the various meanings of some formal element are deemed to cover the same ('universal') semantic space in all languages, semantic maps are believed to be powerful tools in the analysis of cross-linguistic variation (van der Auwera and Plungian 1998: 79; see also Haspelmath 2003, 2007).

Since a short introduction is not the place for a detailed presentation of the broad field of linguistic typology, I have only given a few examples of current issues and recent developments in typology.[18] Many more examples could have been given, such as the use of scales or hierarchies (e.g. Greenberg 1966: 102; Silverstein 1976; Dik 1997: 27-41; Harley and Ritter 2002; Filimonova 2005) or the increased interest in other (i.e. non-syntactic) typologies such as areal, lexical, semantic, or prosodic typology.[19]

The four articles of this issue nicely illustrate the wide range of problems that are being addressed in linguistic typology (it must be emphasized, however, that

there is often considerable overlap between the various subareas of linguistic typology). Fortescue's contribution is centrally concerned with polysynthesis and more generally with morphological typology, which has a long tradition that directly goes back to Schlegel, Humboldt and other great linguists of the 18th and 19th century (Evans/Sasse 2002). Mosel investigates the typologically remarkable properties of ditransitive and applicative constructions in Teop, an Oceanic language of Bougainville (Papua New Guinea). Both construction types fall under the notion 'alignment' (the comparison of the properties of arguments across constructions), a phenomenon that typically belongs to lexical typology (Malchukov et al. 2007; Donohue/Wichmann eds. 2008; Haig 2008). The title of Herslund's article about verbs and nouns in Danish and French indicates that his contribution is also a lexical typological investigation. Since his research is firmly based on insights from cognitive approaches to grammar, one could, however, also argue that it is a study in cognitive typology (the first *International Conference on Cognitive Typology* was held in 2000 in Antwerp, Belgium). Canger's article can be regarded as in an instance of semantic typology, as it discusses the meaning and use of certain morphemes in Tacuapan Nawatl (a Mayan language) and investigates to what extent one can identify a 'shared function' for each form.

REFERENCES

Bell, Alan (1978), "Language Samples", in: Greenberg, Joseph H. et al. (eds.) (1978), *Universals of Human Languages,* Vol. 1: *Method – Theory*, Stanford: Stanford University Press, pp. 123-156.

Bybee, Joan L. (1985), *Morphology: a Study of the Relation between Meaning and Form*, Amsterdam: Benjamins.

Bybee, Joan L., Revere D. Perkins, William Pagliuca (1994), *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*, Chicago: The University of Chicago Press.

Comrie, Bernard (1981), *Language Universals and Linguistic Typology*, Oxford: Blackwell.

Croft, William (1990), *Typology and Universals*, Cambridge: Cambridge University Press.

Croft, William (1995), "Modern Syntactic Typology", in: Shibatani, Masayoshi, Theodora Bynon (eds.) (1995), *Approaches to Language Typology*, Oxford: Oxford University Press, pp. 85-145.

Croft, William (2003), *Typology and Universals*, 2nd ed., Cambridge: Cambridge University Press.

Croft, William (2007), "Typology and Linguistic Theory in the Past Decade: A Personal View", *Linguistic Typology* 11/1 (2007), pp. 79-91.

Dahl, Östen (2001), "Principles of Areal Typology", in: Haspelmath, Martin, Ekkehard König, Wulf Oesterreicher, Wolfgang Raible (eds.) (2001), *Language Typology and Linguistic Universals – an International Handbook*, Vol. 1, Berlin/New York: Walter de Gruyter, pp. 1456-1470.

Dik, Simon C. (1997), *The Theory of Functional Grammar* (2nd revised edition, edited by Kees Hengeveld), Part 1, *The Structure of the Clause*, Berlin/New York: Mouton de Gruyter.

Donohue, Mark, Søren Wichmann (eds.) (2008), *The Typology of Semantic Alignment*, Oxford: Oxford University Press.

Dryer, Matthew S. (1980), "The Positional Tendencies of Sentential Noun Phrases in Universal Grammar", *The Canadian Journal of Linguistics* 5/2 (1980), pp. 124-195.

Dryer, Matthew S. (1989), "Large Linguistic Areas and Language Sampling", *Studies in Language* 13/2 (1989), pp. 257-292.

Dryer, Matthew S. (1992), "The Greenbergian Word Order Correlations", *Language* 68/1 (1992), pp. 81-138.

Evans, Nicholas, Hans-Jürgen Sasse (eds.) (2002), *Problems of Polysynthesis*, Berlin: Akademie Verlag.

Filimonova, Elena (2005), "The Noun Phrase Hierarchy and Relational Marking: Problems and Counterevidence", *Linguistic Typology* 9/1 (2005), pp. 77-113.

Gil, David (1986), "Prosodic Typology", *Folia Linguistica* 20 (1986), pp. 165-231.

Greenberg, Joseph H. (1966), "Some Universals of Grammar with Particular Reference to the Order of Meaningful Elements", in: Greenberg, Joseph H. (ed.) (1966), *Universals of Language* (2nd edition), Cambridge: MIT, pp. 73-113.

García Velasco, Daniel, Jan Rijkhoff (2008), "Introduction", in: García Velasco, Daniel, Jan Rijkhoff (eds.) (2008), *The Noun Phrase in Functional Discourse Grammar*, Berlin/New York: Mouton de Gruyter, pp. 1-42.

Haig, Geoffrey (2008), *Alignment Change in Iranian Languages: a Construction Grammar Approach*, Berlin/New York: Mouton de Gruyter.

Harley, Heidi, Elisabeth Ritter (2002), "A Feature-geometric Analysis of Person and Number", *Language* 78/3 (2002), pp. 482-526.

Haspelmath, Martin (2003), "The Geometry of Grammatical Meaning: Semantic Maps and Cross-linguistic Comparison", in: Tomasello, Michael (ed.) (2003), *The New Psychology of Language*, Mahwah, NJ: Erlbaum, pp. 211-242.

Haspelmath, Martin (2007), "Pre-established Categories Don't Exist: Consequences for Language Description and Typology", *Linguistic Typology* 11/1 (2007), pp. 119-132.

Haspelmath, Martin, Ekkehard König, Wulf Oesterreicher, Wolfgang Raible (eds.) (2001), *Language Typology and Linguistic Universals – an International Handbook*, Berlin/New York: Walter de Gruyter.

Haspelmath, Martin, Matthew S. Dryer, David Gil, Bernard Comrie (eds.) (2005), *World Atlas of Language Structures*, Oxford: Oxford University Press.

Hawkins, John A. (1983), *Word Order Universals. Quantitative Analyses of Linguistic Structure*, New York: Academic Press.

Hengeveld, Kees, Jan Rijkhoff, Anna Siewierska (2004), "Parts-of-speech Systems and Word Order", *Journal of Linguistics* 40/3 (2004), pp. 527-570.

Keenan, Edward L., Bernard Comrie (1977), "Noun Phrase Accessibility and Universal Grammar", *Linguistic Inquiry* 8/1 (1977), pp. 63-99.

Koptjevskaja-Tamm, Maria (2002), "Adnominal Possession in the European Languages: Form and Function", *Sprachtypologie und Universalienforschung* 55/2 (2002), pp. 141-172.

Koptjevskaja-Tamm, Maria (2003), "A Woman of Sin, a Man of Duty, and a Hell of a Mess: Non-determiner Genitives in Swedish", in: Plank, Frans (ed.) (2003), *Noun Phrase Structure in the Languages of Europe*, Berlin/New York: Mouton de Gruyter, pp. 515-558.

Lehmann, Christian (1990), "Towards Lexical Typology", in: Croft, William, Keith Denning, Suzanne Kemmer (eds.) (1990), *Studies in Typology and Diachrony: Papers presented to Joseph H. Greenberg on his 75th birthday*, Amsterdam: Benjamins, pp. 161-185.

Lehmann, Winfred P. (1973), "A Structural Principle and its Implications", *Language* 49/1 (1973), pp. 42-66.

Lehmann, Winfred P. (1978), "The Great Underlying Ground-plans", in: Lehmann, Winfred P. (ed.) (1978), *Syntactic Typology: Studies in the Phenomenology of Language*, Austin: University of Texas Press, pp. 3-55.

Levinson, Stephen, Sérgio Meira, The Language & Cognition Group (2003), "'Natural Concepts' in the Spatial Topological Domain – Adpositional Meanings in Cross-linguistic Perspective: An Exercise in Semantic Typology", *Language* 79/3 (2003), pp. 485-516.

Majid, Asifa, Nick Enfield, Miriam van Staden (eds.) (2006), *Parts of the Body: Cross-linguistic Categorization*, Special issue of *Language Sciences* 28, 2006.

Malchukov, Andrej, Martin Haspelmath, Bernard Comrie (2007), "Ditransitive Constructions: a Typological Overview" [first draft, written for the conference on 'Ditransitive Constructions in the World's Languages', which took place at the Dept. of Linguistics of Max Planck Institute for Evolutionary Anthropology in November 2007].

Mallinson, Graham, Barry J. Blake (1981), *Language Typology*, Amsterdam: North Holland.

Maslova, Elena (2000), "A Dynamic Approach to the Verification of Distributional Universals", *Linguistic Typology* 4/3 (2000), pp. 307-333.

Moravcsik, Edith (2007), "What is Universal about Typology?", *Linguistic Typology* 11/1 (2007), pp. 27-41.

Newmeyer, Frederik J. (2007), "Linguistic Typology Requires Crosslinguistic Formal Categories", *Linguistic Typology* 11/1 (2007), pp. 133-157.

Nichols, Johanna (1992), *Linguistic Diversity in Space and Time*, Chicago: University of Chicago Press.

Perkins, Revere D. (1980), *The Evolution of Culture and Grammar*, Ph.D. dissertation, SUNY Buffalo.

Perkins, Revere D. (1989), "Statistical Techniques for Determining Language Sample Size", *Studies in Language* 13/2 (1989), pp. 293-315.

Perkins, Revere D. (2001), "Sampling Procedures and Statistical Methods", in: Haspelmath, Martin, Ekkehard König, Wulf Oesterreicher, Wolfgang Raible (eds.) (2001), *Language Typology and Linguistic Universals – an International Handbook*, Vol. 1, Berlin/New York: Walter de Gruyter, pp. 419-434.

Plank, Frans (2007a), "Preface", *Linguistic Typology* 11/1 (2007), pp. 1-3.

Plank, Frans (2007b), "Extent and Limits of Linguistic Diversity as the Remit of Typology – but through Constraints on WHAT is Diversity Limited?", *Linguistic Typology* 11/1 (2007), pp. 43-68.

Rijkhoff, Jan (2004), *The Noun Phrase*, Oxford: Oxford University Press [revised and expanded paperback edition of the 2002 hardback publication].

Rijkhoff, Jan (2008), "Layers, Levels and Contexts in Functional Discourse Grammar", in: García Velasco, Daniel, Jan Rijkhoff (eds.) (2008), *The Noun Phrase in Functional Discourse Grammar*, Berlin/New York: Mouton de Gruyter, pp. 63-115.

Rijkhoff, Jan (forthcoming), "On the Co-variation between Form and Function of Adnominal Possessive Modifiers in Dutch and English", in: McGregor, William B. (ed.), *The Expression of Possession*, Berlin/New York: Mouton de Gruyter.

Rijkhoff, Jan, Dik Bakker, Kees Hengeveld, Peter Kahrel (1993), "A Method of Language Sampling", *Studies in Language* 17/1 (1993), pp. 169-203.

Rijkhoff, Jan, Dik Bakker (1998), "Language Sampling", *Linguistic Typology* 2/3 (1998), pp. 263-314.

Sampson, Geoffrey (1980), *Schools of Linguistics*, Stanford CA: Stanford University Press.

Saussure, Ferdinand de (1916), *Cours de linguistique générale*, edited by Charles Bally and Albert Sechehaye, with the collaboration of A. Riedlinger, Lausanne/Paris: Payot [transl. Baskin, W. (1977), Course in General Linguistics, Glasgow: Fontana/Collins].

Silverstein, Michael (1976), "Hierarchy of Features and Ergativity", in: Dixon, R. (ed.) (1976), *Grammatical Categories in Australian Languages*, Canberra: Australian Institute of Aboriginal Studies, pp. 112-171.

Song, Jae Jung (2001), *Linguistic Typology: Morphology and Syntax*, Harlow: Pearson.

Song, Jae Jung (ed.) (forthcoming), *The Oxford Handbook of Linguistic Typology*, Oxford: Oxford University Press.

Stassen, Leon (1985), *Comparison and Universal Grammar*, Oxford: Blackwell.

Schmidt, Wilhelm (1919), *Die Gliederung der Australischen Sprachen*, Wien: Mechitharisten-Buchdruckerei.

Schmidt, Wilhelm (1926), *Die Sprachfamilien und Sprachenkreise der Erde*, Heidelberg: Carl Winter Universitätsverlag.

van der Auwera, J., C. Temürcü (2006), "Semantic Maps", in: Brown, Keith (ed.) (2006), *Encyclopedia of Language and Linguistics* (2nd edition), Oxford: Elsevier, pp. 131-134.

van der Auwera, Johan, Vladimir A. Plungian (1998), "Modality's Semantic Map", *Linguistic Typology* 2/1 (1998), pp. 79-124.

Vennemann, Theo (1973), "Explanation in Syntax", in: Kimball, John P. (ed.), *Syntax and Semantics*, New York: Seminar, pp. 1-50.

Vennemann, Theo (1976), "Categorial Grammar and the Order of Meaningful Elements", in: Juilland, Alphonse (ed.) (1976), *Linguistic studies offered to Joseph Greenberg on the occasion of his 60th birthday*, Saratoga, CA: Anma Libri, pp. 615-634.

Whaley, Lindsay J. (1997), *Introduction to Typology: the Unity and Diversity of Language*, Thousand Oaks, CA: Sage.

Widmann, Thomas, Peter Bakker (2006), "Does Sampling Matter? A test in replicability concerning numerals", *Linguistic Typology* 10/1 (2006), pp. 83-95.

NOTES

1   I am grateful to Bill McGregor for helpful comments on an earlier draft. Abbreviations used in this article: A = adjective, adp. phrase = adpositional phrase, BDT = Branching Direction Theory, C = common gender, Def = Definite, Dem = demonstrative, G/Gen = genitive, N = noun, NP = noun phrase, Num = numeral, O = object, Postp = postposition, PP = prepositional phrase, Prep = preposition, Rel/RC = relative clause, S = subject, V = verb, VP = verb phrase.

2   Notice furthermore that Blackwell's *Language and Linguistics Compass* has a special section on typology and that there are grammar series such as the *Mouton Grammar Library*, which provide essential data for the cross-linguistic research.

3   See Croft (1990: 53-63; 2003: 344-346) for a detailed discussion of notions 'dominance' and 'harmony'. As noted in Plank (2007a: 45), Greenberg (1966) was not the first to observe word order correlations (see e.g. Schmidt 1919, 1926).

4   See Dryer (1992) and Rijkhoff (2004: 227) for counter-examples to some of Hawkins' implications.

5   See Hawkins' <u>Principle of Cross-Category Harmony</u> (Hawkins 1983: Chapter 4).

6   Additionally Hawkins (1983: 93) proposed the <u>Mobility Principle</u> according to which demonstratives, numerals, and adjectives can move around the head noun more easily than relative clauses (Rel) and possessor NPs (Gen).

7   See Perkins (2001: 432) for a critical assessment of the statistical aspects of Dryer's sampling technique.

8   The possibility that structural complexity is an iconic reflection of semantic or conceptual complexity is irrelevant here.

9   For a more detailed discussion of categories in the context of Branching Direction Theory, see Rijkhoff (2004: 278-290).

10 See also Song (2001: 12-15) on Keenan and Comrie's (1977) definition of relative clauses.

11 The claim that semantic categories (i.e. what Haspelmath 2007: 119, 126 would call 'substance-based categories') are 'universal' is probably too strong. It may be true for highly abstract grammatical categories like Tense or Mood, but there are considerable problems with the substance approach to categorization in the case of e.g. semantic roles, word classes or, more concretely, 'simple' word meanings.

12 Haspelmath (2003: 212) and others use 'function' to cover both the coded and the contextual meaning. Furthermore, it seems that the terms 'meaning' and 'concept' are often used interchangeably (e.g. Haspelmath 2007: 128). I believe it is important to distinguish between 'meaning' and 'function', and between linguistic and conceptual (i.e. non-linguistic) meanings.

13 Notice that members of formal or semantic categories are NON-RELATIONAL entities like 'NP' ("structure headed by a noun") or 'Recipient' ("the entity into whose possession something is transferred" – Dik 1997: 121).

14 This use of the notion 'functional' is rather similar to the way it was used by linguists of the Prague School, who were "seeking to understand what jobs the various components were doing […]" (Sampson 1980: 104).

15 In fact, *a dog's tail* is ambiguous, meaning either 'a particular kind of tail' (classifying) or 'the tail of an unidentified canine'.

16 Widmann/Bakker (2006) compare several language samples, but the standard that they used to evaluate the samples (or rather: sampling methods) is based on a large number of languages that is not very representative of the world's languages (the complete list can be found at http://www.zompist.com/numbers.shtml). Apparently no selection procedure was used to construct this sample, as the goal was simply to include as many languages as possible.

17 Problems of probability sampling are discussed in Maslova (2000).

18 A recent issue of *Linguistic Typology* (2007, Vol. 11/1) is devoted to the question "where typology stands and where it is, or ought to be, going" (Plank 2007a: 1).

19 See e.g. Dahl (2001), Gil (1986), Hengeveld et al. (2004: 528), Lehmann (1990), Levinson et al. (2003), Majid et al. (2006).