

# Approaches to the Typology of Word Classes

*edited by*

Petra M. Vogel  
Bernard Comrie

Mouton de Gruyter  
Berlin · New York 2000

Empirical Approaches  
to Language Typology

23

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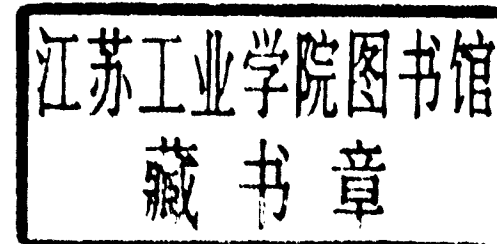
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Mouton de Gruyter (formerly Mouton, The Hague)  
is a Division of Walter de Gruyter & Co., Berlin.

⊗ Printed on acid-free paper which falls within the guidelines of the  
ANSI to ensure permanence and durability.

*Library of Congress Cataloging-in-Publication-Data*

Approaches to the typology of word classes / edited by Petra M. Vogel,  
Bernard Comrie.  
p. cm. – (Empirical approaches to language typology ; 23)  
Includes bibliographical references and index.  
ISBN 3-11-016102-8 (hardcover: alk. paper). – ISBN 3-11-016783-2  
(pbk.: alk. paper)  
1. Parts of speech. 2. Grammar, Comparative and general – Gram-  
matical categories. 3. Universals (Linguistics) I. Vogel, Petra Maria.  
II. Comrie, Bernard, 1947. III. Series.  
P270 A76 2000 99-055227  
415–dc21

*Die Deutsche Bibliothek – Cataloging-in-Publication-Data*

Approaches to the typology of word classes / ed. by Petra M. Vogel ; Bernard  
Comrie. – Berlin ; New York : Mouton de Gruyter, 2000  
(Empirical approaches to language typology ; 23)  
ISBN 3-11-016783-2 brosch.  
ISBN 3-11-016102-8 Gb.

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from the publisher.  
Printing: Werner Hildebrand, Berlin  
Binding: Lüderitz & Bauer-GmbH, Berlin  
Printed in Germany.

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## Abbreviations

1	first person	DU	dual
2	second person	DUPL(IC)	uplicative
3	third person	DUR	durative
ABS	absolutive	EMPH	emphatic
ACC	accusative	EP	epenthetic
ACT	actor	ERG	ergative
A(DJ)	adjective	ESS	essive
ADV	adverb	EVENT	eventuative
ADVERS	adversative	EXCL	exclusive
ADVL	adverbial, adverbialiser		
AGT	agent	FACILIT	facilitative
AL	alienable	FACT	factual
ALL	allative	F(EM)	feminine
ART	article	FOC	focus
ASSERT	assertative	FUT	future
ATTR	attributive		
		G(EN)	genitive
BEN	benefactive		
		HAB	habitual
CAUS	causative	H.O	higher object
CISLOC(AT)	cislocative	HUM	human
CL(ASS)	classifier		
COINC	coincident	IMP(ERF)	imperfective
COLL	collective	IN	inalienable
COM	comitative	INCH(OAT)	inchoative
COMP	comparative	INCL	inclusive
CONJ	conjunction	INDEF	indefinite
CONTIN	continuative	INDIC	indicative
CONTR(AST)	contrastive	INF(IN)	infinitive
COP	copula, copular	INFL	inflection
		INTENS	intensive
DEF	definite	IRR(EAL)	irrealis
DEM	demonstrative		
DIR.OBJ	direct object	LINK	linker
DIM	diminutive	LOC	locative
DISTR(IBUT)	distributive		

M(ASC)/(EAS)	masculine; measure	PROGR	progressive
MOM	momentaneous	PRON	pronoun
		PROX	proximate
N	noun	PRST	presentative
NEG	negative	PUNCT	punctual
NEUT	neuter		
NOM	nominative	QUOT	quotative
NOM(INALIS)	nominaliser		
NP	nominal phrase	REAL	realis
NUM	numeral	REC	reciprocal
NUMT	numerative	REDUP	reduplication
		REF	referentialiser
O(BJ)	object	REFL	reflexive
OPT	optative	REL	relativiser, relative
		RR	reflexive-reciprocal
P	particle		
PART	partitive	SBJNCT	subjunctive
PARTIC	participle	SG	singular
PASS	passive	SP	specific
PAST	past	STAT	stative
PAT	patient	S(UBJ)	subject
PERF	perfect(ive)	SUBST	substantive
PERS	person, personal	SUF	suffix
PHENOM	phenomenological	SUPERL	superlative
PL	plural		
POL	polarity	TAM	tense/aspect/mood
POSS	possessive	TOP	topic
POSSD	possessed	TR	transitive
POSSR	possessor	TRANSLOC	translocative
PP	past perfective		
PRED	predication/predicator	UNCERT	uncertainty
PREF	prefix	USP	unspecific
PREP	preposition		
PRES	present	V	verb
PREV	preverbal	VP	verbal phrase

## Preface

The history of word class research is characterised by two extreme positions. Up to the 19th century it was believed that word classes were invariably of the Latin or Greek type and universal. In contrast to that, in the 20th century the view prevailed that every language had its own specific and unique word class system. In the last decades, however, it has become apparent that despite the large number of word classes and word-class systems there are typological restrictions with regard to the conceptualisation of semantic features and morphosyntactic structures.

This book approaches word classes and their categorial manifestations from the perspective of typology and language universals research. The authors in this volume discuss word class categorisation in general (Part I) as well as word classes and word class systems of individual languages (Part II) from a typological-universal viewpoint and from diachronic and cross-linguistic perspectives.

*Part I, General studies*, contains articles by *Jan Anward* on part-of-speech differentiation and flexibility, *D.N.S. Bhat* on sentential functions and lexicalisation, *William Croft* on parts of speech as language universals, *Nicholas Evans* on kinship verbs, *David Gil* on syntactic categories and eurocentricity, *Jan Rijkhoff* on the question when a language can have adjectives, *Petra M. Vogel* on grammaticalisation and parts of speech and *Anna Wierzbicka* on lexical prototypes as a basis for identification of parts of speech.

*Jan Anward* develops a dynamic model of part-of-speech differentiation, where the “deep” organising factors of part-of-speech systems are motivated not by properties internal to such systems, but are factors which drive language development in general: maximisation of meaning, and minimisation of effort. Part-of-speech systems are what “happen” as a result of processes of successive syntagmatic and paradigmatic expansion, in which optimal use is made of lexical resources, through recycling of items in several functions. But new functions of old items must be identifiable. This means that each language must strike a balance between flexibility (recycling) and contrast (identification). The model draws its empirical evidence mainly from Swedish, but also from a small pilot sample of nine additional languages.

*D.N.S. Bhat* argues that word classes represent lexicalisations of different sentential functions. The function of modifying the head noun in a noun phrase, for example, gets lexicalised into a word class of adjectives, whereas that of referring to persons, objects or entities gets lexicalised into a word class of nouns. The characteristics that these word classes manifest are derivable from the sentential functions for which they have been lexicalised, and further, the word classes manifest these char-



acteristics maximally only when they are used in their respective sentential functions. Languages which fail to have one or the other of these word classes do not make use of the corresponding sentential functions, as they use alternative sentence strategies for which those sentential functions are not needed.

In the paper by *William Croft* it is maintained that the major parts of speech (noun, verb, adjective) are not categories of particular languages, but are language universals. Linguists have used distribution of words in constructions to justify part-of-speech membership. But no sound theoretical basis has been provided to justify choice of tests for membership, leading to disagreement and confusion. In fact, the variation in the occurrence of constructions and in the distribution patterns of words across languages and within languages demonstrates that lexical classes are language-specific and construction-specific. A radical construction grammar model is proposed to represent this state of affairs. The universals of parts of speech are manifested in conceptual space, with principles such as typological markedness defining prototypes in the formal expression of conceptual categories found in conceptual space.

*Nicholas Evans* starts from the assumption that kinship relations are expressed by verbs in a number of head-marking languages of North America and northern Australia. Kinship verbs are interesting for word class studies because it is their relational (two-place) semantic structure, rather than the more familiar ontological contrast between “things” and “actions”, which motivates their lexicalisation as verbs. This in turn skews the likelihood with which particular inflectional categories are grammaticalised, as compared to “normal verbs”. After surveying some typical kinship verb systems, he looks at how “verby” kinship verbs are, and then examines a number of factors responsible for splits between nominal and verbal encoding, including address vs. reference, actual vs. classificatory kin, kin type, and person combinations between the two arguments. Overall, kinship verbs emphasise the need to pay greater attention to interpersonal pragmatics as a determinant of word class membership.

*David Gil* proposes a theory of syntactic categories accounting for both the differences and the similarities that may be observed to obtain between languages. The theory takes as its starting point the autonomy of syntax and the existence of distinct morphological, syntactic and semantic levels of representation: syntactic categories are defined solely in terms of syntactic properties, such as distributional privileges, and participation in syntactic relations such as binding, government and agreement. In the spirit of categorial grammar, the theory posits a single initial category and two category formation rules with which other categories can be derived: the familiar “slash” rule, plus a rule derived from x-bar theory. Constraints on syntactic category inventories distinguish between inventories that are possible and others that are im-

possible. Finally, the traditional parts of speech such as noun, adjective and verb are defined as syntactic categories which are prototypically associated with other, semantic categories.

*Jan Rijkhoff* rightly maintains that not every language has a distinct class of adjectives. In his article he argues that the occurrence of adjectives as a major, distinct word class depends on a semantic (lexical) property of the nouns. A language can only have adjectives if the nouns in that language are lexically specified for the feature [+Shape], which means that the properties that are designated by these nouns are characterised as having a spatial boundary. The theory focuses on Hmong Njua but also draws evidence from other languages.

*Petra M. Vogel* presents a model for ungrammaticalised, grammaticalised, and degrammaticalised parts of speech systems exemplified by Tongan, German, and English, respectively. This model is based on the assumptions made in Broschart 1997 that the main difference between parts of speech systems in languages like Tongan and German is due to the distribution of the features [+/-pred] (predicability) and [+/-ref] (reference in discourse) in lexicon and syntax. On the one hand she argues that the “fixed” presence or absence of the feature [+pred] with regard to a lexeme makes for a grammaticalised (German) or ungrammaticalised parts of speech system (Tongan). On the other hand, the acquisition or loss of the feature [+pred] in the parts of speech system of a language is called a grammaticalisation or degrammaticalisation process, respectively. The latter process is exemplified by the case of English.

*Anna Wierzbicka* proposes that it is generally agreed in modern linguistics (and rightly so) that it makes sense to establish word-classes for any language on the basis of language-specific, formal (morphosyntactic) criteria. It is also widely agreed that some word-classes established in this way in different languages “match” to some extent, and that, in particular, the distinction between “nouns” and “verbs” is universal or near universal. But if word-classes are set up on language-internal formal grounds, how can they be matched across languages? She argues that this can be done on the basis of empirically established linguistic universals, that is, concepts which can be found in an identifiable form in all languages, and which can also be accepted as intuitively intelligible (non-technical) conceptual primitives. For example, “nouns” can be matched via the universal lexical prototypes PEOPLE and THINGS, “verbs”—via DO and HAPPEN, and “adjectives”—via BIG and SMALL. She shows how the set of lexico-grammatical universals, which has been established within the “NSM” (“Natural Semantic Metalanguage”) linguistic theory, can be used as a framework for investigating linguistic typology and universal grammar.

*Part II*, Language-specific studies, contains articles by *Werner Abraham* on German modal particles, *Jürgen Broschart* on Tongan preverentials, *Monika Budde* on

German pronouns, *Marianne Mithun* on the morphosyntax of nouns and verbs in Iroquoian, *Robin Sackmann* on numeratives in Mandarin Chinese and *Arfinn Muruvik Vonen* on Polynesian multifunctionality.

*Werner Abraham* deals with what has been called an uncategorisable class of lexicals, the *modal particles (MPs)*. They occur characteristically, and to all appearances only, in the continental West Germanic languages. The data presented here are limited to German. The meaning of MPs is typically vague to indiscriminable, but their illocutionary force and distributional constraints are nevertheless considerable and sharply delineated. The main goal of the paper is to delineate more sharply this “non-category” in distributional terms and, above all, explain the source of its specific illocutionary force and distributional behaviour.

The paper by *Jürgen Broschart* discusses a special class of function words in Tongan grammar which are called “preverbials”. The grammatical characteristics of this class are contrasted with the behaviour of semantically similar items in order to determine the typological status of this class relative to established means for the expression of the notions of aspectuality, temporality, modality, and manner of action. He addresses synchronic questions of syntactic function as well as historical developments leading from superordinate predicates to the essentially adverbial category in question.

*Monika Budde* argues that identifying the lexical words of a particular language is one of the major tasks of the language’s grammar. Such an identification is presupposed in both the identification of the language’s word classes and the comparison of classifications of different languages’ lexical items. In practice, the main problem is to justify which entities should qualify as words. Using Integrational Linguistics and especially Hans-Heinrich Lieb’s explication of “word paradigm”, the paper develops a general method for justifying particular lexical words. First, the paradigms and the lexical meanings of German possessive pronouns are determined in a systematic way. Then, the method used in this sample analysis is applied to other pronouns of German. Finally, the results are generalised by focusing on those aspects of the argumentation that are independent of the sample word class and the sample language.

*Marianne Mithun* takes as a starting-point that certain typologies of lexical categories have pointed to the Iroquoian languages as counterexamples to the universality of the noun-verb distinction. In fact the distinction is particularly robust in these languages. The languages do show, however, that morphological, syntactic, and semantic criteria do not always yield the same classifications of lexical items. Iroquoian verbs, nouns, and particles show strikingly different morphological structures. Morphological nouns function syntactically as nominals, identifying arguments of clauses. They also show the semantic characteristics expected of nouns,

denoting objects and persons. Morphological verbs typically function syntactically as predicates. Semantically they denote events and states. But both particles and verbs are also used syntactically and semantically as nominals. Once their morphological, syntactic, and semantic properties are distinguished, their classification is straightforward.

*Robin Sackmann* attempts to determine the syntactic properties of numeratives (classifiers and measures) in Mandarin Chinese, understood as a distinct word class. Using Hans-Heinrich Lieb’s theory of Integrational Linguistics as a theoretical background, the essay focuses on three topics: the syntactic structure of numerative expressions, the position that numeratives and their subclasses occupy in the part-of-speech system of Mandarin Chinese, and the syntactic basis of Chinese ‘noun classification’ conceived as a relationship between classifiers and certain sets of substantives, so-called ‘noun classes’. A number of key concepts needed for describing any numeral classifier language are formally defined, in particular, a concept of numeral classifier language itself.

*Arfinn Muruvik Vonen* starts from the assumption that there is a long-standing debate concerning the distinction between nouns and verbs in Polynesian languages. He points out that some of the apparent disagreements in this debate, and possibly in similar debates concerning other language groups such as Wakashan, Salishan and signed languages, may stem from differences in the ambitions of linguistic description rather than from real differences in understanding the data. A distinction is made between two motivations for rejecting a noun-verb distinction on the lexical level in Polynesian and adopting the notion of multifunctional lexical items: a principled motivation and a methodological motivation. In the latter case, the rejection of the distinction may be due to low descriptive ambitions.

Osnabrück/Leipzig, September 1999

Petra M. Vogel and Bernard Comrie

## **I. General studies**



# A dynamic model of part-of-speech differentiation

Jan Anward

## 1. Introduction\*

Most, if not all, natural languages organise their lexical items into a system of broad lexical classes, whose members share unique clusters of semantic, syntactic, and morphological properties.

Such part-of-speech systems are not of one kind, but vary from language to language, along a number of parameters.

Curiously, however, one common feature of naturally occurring part-of-speech systems seems to be that they are not “well-designed”, at least not qua part-of-speech systems. It is characteristic for part-of-speech systems to be complex and opaque. Whatever identifying criteria we use for parts of speech—meaning, syntactic function, or inflection—the relationship between particular criteria and particular parts of speech is typically many-to-many.<sup>1</sup>

The medieval *modistae* (Robins 1990: chapter 4; Covington 1979, 1984; Itkonen 1991: 219–252) demonstrated that part-of-speech membership cannot be predicted from lexical meaning. A telling quadruple was devised by Boëthius Dacus to show the nature of the problem: *dolor* ‘pain’, *doleo* ‘I feel pain’, *dolenter* ‘painfully’, and *heu* ‘ouch’ have very similar meanings, but belong to four different parts of speech: noun, verb, adverb, and interjection, respectively (Covington 1984: 26).<sup>2</sup>

Conversely, most parts of speech accommodate several semantic categories. For example, nouns are not only person or thing expressions, they also express event notions, such as *scandal* and *war*, place notions, such as *rear*, *way*, *left*, and *north*, temporal notions, such as *day*, *week*, and *winter*, and in fact most other kinds of notions. Likewise, verbs are not only event expressions, but also express, for example, place (*inhabit*), time (*elapse*), relation (*resemble*), and quantity (*multiply*).

A similar story can be told of syntactic functions and parts of speech. Nouns, verbs, and adjectives can all be used as arguments, predicates, and modifiers as will be shown in this article.

Not even inflection, the last resort for the weak-hearted, escapes the many-to-many pattern. In Swedish, for example, not only nouns, but also adjectives, some

quantifiers, and past participles take nominal inflection. Conversely, in all these parts of speech, there are members that, for various reasons, do not inflect at all.

Thus, part-of-speech systems present us with three theoretical problems:

1. Why do most, if not all, languages have a part-of-speech system, rather than just a homogeneous set of lexical items?
2. Why do part-of-speech systems vary from language to language, rather than being of one make for all languages?
3. Why are part-of-speech systems not “well-designed” one-to-one mappings of semantic categories onto functional and formal categories (one meaning—one function—one form)?

In this paper, I will present a model of language structure in which these problems can begin to be resolved. The model has two basic premises.

The first premise is that a natural language is not learnt in one fell swoop, but is the result of a series of successive expansions of an originally very simple system. Language acquisition is a prime example of a learning process that, in Elman's (1993) terms, “starts small”, in order to organise the data on which “structural couplings” (Varela—Thompson—Rosch 1991) between behaviour and environment are based in a manageable way. Otherwise, the learner is overwhelmed by evidence and does not learn effectively. Elman, as well as Plunkett—Marchman (1993), make the further point that starting small may be better implemented on the capacity side than on the evidence side. An organism with a limited initial capacity must start small, irrespective of how its environment is organised.

The second premise is that the process of expansion can be modelled as a process of successive syntagmatic and paradigmatic expansion, driven by a need for increased expressive capacity, and constrained by considerations of economy and contrast. A particularly important economic principle is the “green” principle that recycling of already available resources is to be preferred to introduction of new resources (Anward—Lindblom forthcoming).

In this kind of model, the “deep” organising factors of part-of-speech systems are not motivated by properties of such systems. They are instantiations of factors which drive language development in general: maximisation of meaning, minimisation of effort. Speakers do not set out to acquire part-of-speech systems, well-designed or not. Part-of-speech systems are what “happen”, as language users engage in processes of successive syntagmatic and paradigmatic expansion.

I will start with a much simpler, but quite successful, model of part-of-speech differentiation, which has the double attraction of being the basis of a typology and being easily interpretable in terms of syntagmatic and paradigmatic expansion: the Amsterdam model of part-of-speech systems, proposed by Hengeveld (1992: 47–72)

and since elaborated by De Groot (1997) and Hengeveld—Rijkhoff—Siewierska (1997).

After having presented the Amsterdam model and a dynamic re-interpretation of it, I invoke the forefathers of our craft, the classical Greek and Latin grammarians, to broaden the perspective.

After that, I develop a more complete model, using empirical evidence mainly from Swedish, but also from a small pilot sample of nine additional languages.<sup>3</sup>

<b>Africa</b>	Khoisan Niger-Congo	<i>Nama</i> <i>Yoruba</i>
<b>Eurasia</b>	Indo-European Uralic NE Caucasian Chukchi-Kamchatkan Isolate	<i>Swedish</i> <i>Finnish</i> <i>Archi</i> <i>Chukchi</i> <i>Ainu</i>
<b>Oceania</b>	Austronesian Papuan	<i>Maori</i> <i>Kobon</i>
<b>America</b>	Macro-Ge	<i>Bororo</i>

Figure 1. Pilot sample

## 2. The Amsterdam typology

### 2.1. Parts of speech

In the Amsterdam model of part-of-speech systems, classes of lexical items are differentiated by the syntactic functions they can serve. Functions recognised by the model are predicate, term (subject or object), term modifier (attribute) and predicate or modifier modifier (adverbial), and lexical items are thus categorised by means of the following functional properties (based on the part-of-speech definitions in Hengeveld 1992: 58):

- |                               |  |
|-------------------------------|--|
| A 1. <i>predicate use</i> :   | can, without special marking, be used as a predicate,                      |
| 2. <i>term use</i> :          | can, without special marking, be used as the head of a term,               |
| 3. <i>term modifier use</i> : | can, without special marking, be used as a modifier of the head of a term, |

4. *predicate modifier use*: can, without special marking, be used as a modifier of a predicate or of another modifier.

If each non-null combination of functions defines a possible part of speech, there is a total of 15 possible parts of speech. But Hengeveld argues that only six of these are actually attested in his empirical database, a principled sample of 40 languages. First, all major lexical items have a predicate use. Thus, property (A1) is not discriminating. Secondly, Hengeveld does not find items that have a term use and a predicate modifier use, but not a term modifier use, or items that have a term use and a term modifier use, but not a predicate modifier use. In other words, an item with a term use has either both modifier uses or no modifier use.

When it comes to naming the six remaining parts of speech, Hengeveld proposes the following: an item that has a predicate use only is a verb (V); an item that has a term use is a noun (N); an item that has a term modifier use is an adjective (A); and an item that has a predicate modifier use is an adverb (D). Like Whorf (1945), Hengeveld allows items to have compound names. An item that has both modifier uses is consequently both an adjective and an adverb (A/D).

The six parts of speech that this model makes available to natural languages are then the following ones:

part of speech	predicate use (p)	term use (t)	term modifier use (tm)	predicate modifier use (pm)
V	+			
N	+	+		
A	+		+	
D	+			+
A/D	+		+	+
N/A/D	+	+	+	+

Figure 2. The six parts of speech of Hengeveld (1992)

The six parts of speech of Figure 2 can be exemplified by means of the skeletal sentences of (1). A V is an item with the distribution of *run* in (1), an N is an item with the distribution of *horse* in (1), an D is an item with the distribution of *around* in (1), an A is an item with the distribution of *strong* in (1c, f), an A/D is an item with the distribution of *strong* in (1c, f, g), and an N/A/D is an item with the distribution of *strong* in (1c, f, g, h).

- (1) a. [horse run]            'a horse runs'  
 b. [horse around]        'a horse is around'  
 c. [horse strong]        'a horse is strong'  
 d. [horse horse]         'a horse is a horse'

- e. [horse run around]    'a horse runs around'  
 f. [strong horse run]    'a strong horse runs'  
 g. [horse run strong]    'a horse runs strongly'  
 h. [strong run]            'a strong one runs'

In addition to the parts of speech in Figure 2, Hengeveld (1992: 68–69) also recognises a part of speech V/N/A/D. However, apparently he fails to notice that such a part of speech is incoherent, according to his own definitions. A V can not have any other use beside predicate use. A four-use-item should be an N/A/D and nothing else. Nevertheless, in what follows, I will conform to Hengeveld's usage, rather than to his definitions, and use V/N/A/D for an N/A/D which does not contrast with a V.

## 2.2. Part-of-speech systems

There are  $63 (2^6 - 1)$  possible non-null combinations of the parts of speech in Figure 2. Of these, only seven are actually attested, according to Hengeveld (1992: 69–71):

	p	t	tm	pm
1	V/N/A/D			
2	V	N/A/D		
3	V	N	A/D	
4	V	N	A	D
5	V	N	A	
6	V	N		
7	V			

Figure 3. Part-of-speech systems

System 4 is maximally differentiated, with separate classes of items serving the functions of term, term modifier, and predicate modifier. Hengeveld's example of a language with such a system is English. This kind of system contrasts with less differentiated systems, in two ways. In one direction (5–7), items retain their specialised functions, but the number of functions is reduced. In the other direction (3–1), the number of functions is retained, but items become more polyfunctional, or flexible.

In languages of type 5, there are no predicate modifiers. Instead, dependent predications, such as serial verbs, are used. In languages of types 6 and 7, first term modifiers and then also terms are absent, again with dependent predications taking over their rôles. Examples of languages of type 5, 6, and 7 are Wambon, Hausa, and Tuscarora, respectively.

In languages of type 3, there is a class of flexible items serving both modifier functions. In languages of type 2, the class of flexible items also serve the function of term. In addition, there is a class of verbs, reserved for predicate use only. In languages of type 1, even such a class of verbs is absent, and all words can be used in all functions. Examples of languages of type 3, 2, and 1 are Dutch, Quechua, and Tongan, respectively.

### 3. A dynamic interpretation of the Amsterdam typology

The Amsterdam typology of part-of-speech systems has a straightforward interpretation as the outcome of a process of successive syntagmatic and paradigmatic expansion.

The process is simple enough, a successive iteration of the following moves:

- D1. Introduce a new function, F, and
- D2. Introduce a new class of items in F, or
- D3. Use an old class of items in F.

We start by introducing the function of predicate, or head of an independent S, and a class of items to serve that function. Since items in that class have a predicate use only, they are naturally called verbs. This step is common to all the seven types of systems recognised in the typology, and has the following outcome:

	p
1-7	V

Figure 4. Step 1

In the second step, the function of term is introduced. Here, there are three possible outcomes. A language may abstain from this step, and stick with step 1, which results in a system of type 7. If a language takes the step, a new class of items, nouns, may be introduced to serve the function of term, or the old class of verbs may be used in that function as well. In the first case, we get systems of types 2 to 6, systems with a verb-noun split. In the second case, the old V class gets both a predicate use and a term use, which transforms it into a V/N class. This outcome will eventually result in a system of type 1.

	p	t
1	V/N	V/N
2-6	V	N
7	V	

Figure 5. Step 2

In the third step, the function of term modifier is introduced, and the simple function of term is reanalysed as head of term. This step can only be taken by a language that has taken the second step. Thus, a system of type 7 is unaffected by the third step. A language may abstain from the third step, which gives us a system of type 6. If the step is taken, there are three possible outcomes. Either a new class, adjectives, is introduced, resulting in systems of types 3 to 5, or the old term class is used in term modifier function as well, resulting in the new classes of V/N/A and N/A, and systems of types 1 and 2.

	p	t	tm
1	V/N/A	V/N/A	V/N/A
2	V	N/A	N/A
3-5	V	N	A
6	V	N	
7	V		

Figure 6. Step 3

The Part-of-speech Hierarchy in Figure 6 constrains the process in such a way that only the option of using the old class of nouns is available, if there is no previous verb-noun differentiation.

#### B Verb > Noun > Adjective > Adverb

This hierarchy sums up a series of implicational statements, where the existence of a part of speech in a language entails the existence in the same language of all parts of speech to the left of it on the hierarchy. The hierarchy can also be restated as a constraint on successive differentiations, allowing adjectives to be differentiated from nouns only if nouns have been differentiated from verbs, and adverbs to be differentiated from adjectives only if adjectives have been differentiated from nouns.

In the fourth and final step, the function of predicate modifier is introduced. This step can only be taken by a language that has taken the third step. Systems of types 6 and 7 are unaffected by the fourth step. A language may abstain from the fourth step, which gives us a system of type 5. If the step is taken, there are three possible

outcomes. Either a new class, adverbs, is introduced, resulting in systems of type 4, or the old classes of A, N/A or V/N/A are used in predicate modifier function as well, resulting in the new classes of A/D, N/A/D, and V/N/A/D, and systems of types 3, 2, and 1. The hierarchy can also be restated as a constraint on successive differentiations, allowing adjectives, only if nouns have been differentiated from verbs, and adverbs, only if adjectives have been differentiated from nouns.

	p	t	tm	pm
1	V/N/A/D	V/N/A/D	V/N/A/D	V/N/A/D
2	V	N/A/D	N/A/D	N/A/D
3	V	N	A/D	A/D
4	V	N	A	D
5	V	N	A	
6	V	N		
7	V			

Figure 7. Step 4

A priori, there is no reason why a budding system of type 1 might not abstain from the third step or the fourth step, but apparently Hengeveld found no such systems.

#### 4. Broadening the perspective

The Amsterdam typology constrains linguistic diversity in a powerful way. However, it is based on a very impoverished model of part-of-speech systems. Compared to most other models of part-of-speech systems, the Amsterdam model recognises very few parts of speech.<sup>4</sup> Pronoun, article, preposition, conjunction, quantifier, numeral, and interjection have no place in the typology. Moreover, the model does not take into account formal differentiation of parts of speech by means of inflectional, function-indicating, and derivational morphology. Nor does it take into account the interaction of functional and formal differentiation with semantic differentiation.

It is useful to compare the Amsterdam model to the list of *μέροι λόγου* (*méroi lógou*, parts of speech) posited for Classical Greek by Dionysios Thrax (Robins 1990: 39) (see Table 1) and the list of Latin *partes orationis*, derived from the Greek list by Apollonios Dyscolos (Itkonen 1991: 201–216) and Priscian by omitting article, which Latin lacks, and adding interjection (Robins 1990: 66) (see Table 2).

Table 1. Μέροι λόγου

<i>ónoma</i> (noun)	a part of speech inflected for case, signifying a concrete or abstract entity
<i>rhēma</i> (verb)	a part of speech without case inflection, but inflected for tense, person, and number, signifying an activity or process performed or undergone
<i>metoché</i> (participle)	a part of speech sharing the features of the verb and the noun
<i>árhron</i> (article)	a part of speech inflected for case, preposed or postposed to nouns
<i>antónymía</i> (pronoun)	a part of speech substitutable for a noun and marked for person
<i>próthesis</i> (preposition)	a part of speech placed before other words in composition and in syntax
<i>epírrhēma</i> (adverb)	a part of speech without inflection, in modification or in addition to a verb
<i>sýndesmos</i> (conjunction)	a part of speech binding together the discourse and filling gaps in its interpretation

Table 2. Partes orationis

<i>nōmen</i> (noun)	the property of the noun is to indicate a substance and a quality, and it assigns a common or a particular quality to every body or thing
<i>verbum</i> (verb)	the property of a verb is to indicate an action or a being acted on; it has tense and mood forms, but is not case inflected
<i>participium</i> (participle)	a class of words always derivationally referable to verbs, sharing the categories of verbs and nouns (tenses and cases), and therefore distinct from both
<i>prōnōmen</i> (pronoun)	the property of the pronoun is its substitutability for proper nouns and its specificity as to person (first, second, or third)
<i>adverbium</i> (adverb)	the property of the adverb is to be used in construction with a verb, to which it is syntactically and semantically subordinate
<i>praepositiō</i> (preposition)	the property of the preposition is to be used as a separate word before case-inflected words, and in composition before both case-inflected and non-case-inflected words
<i>interiectiō</i> (interjection)	a class of words syntactically independent of verbs, and indicating a feeling or a state of mind
<i>coniunctiō</i> (conjunction)	the property of conjunctions is to join syntactically two or more members of any other word class, indicating a relationship between them

Priscian insists that his list of *partes orationis* presents them in their “natural order” (Covington 1984: 5–6), and the order in which Dionysios’ and Priscian’s systems of parts of speech are presented is in fact quite systematic.

Robins (1990: 39) suggests that Dionysios’ and Priscian’s systems of parts of speech are primarily based on a morphological classification of words, which is most clearly described by Varro (Robins 1990: 58–59), who distinguishes words inflected for case, but not for tense, words inflected for tense, but not for case, words inflected for both case and tense, and uninflected words. In feature notation:

1. [+case; –tense]
2. [–case; +tense]
3. [+case; +tense]
4. [–case; –tense]

However, if we spell out these features for the parts of speech recognised by Dionysios, we see that Varro’s morphological classification does not constitute the only organising principle of the system. If it did, article and pronoun should immediately follow noun in Dionysios’ list.

- |                    |                    |
|--------------------|--------------------|
| 1. [+case; –tense] | <b>noun</b>        |
| 2. [–case; +tense] | <b>verb</b>        |
| 3. [+case; +tense] | <b>participle</b>  |
| 4. [+case; –tense] | <b>article</b>     |
| 5. [+case; –tense] | <b>pronoun</b>     |
| 6. [–case; –tense] | <b>preposition</b> |
| 7. [–case; –tense] | <b>adverb</b>      |
| 8. [–case; –tense] | <b>conjunction</b> |

Rather, the morphological classification is combined with and partially overridden by a syntactic classification. The syntactic functions of nouns as subjects and verbs (and participles) as predicates are only presupposed (for this point, see e.g. Itkonen 1991: 177–178, 186–187), but the other parts of speech are explicitly characterised as to syntactic function. Thus, there is a progression of the following kind in Dionysios’ list: nouns, verbs and participles, words which modify nouns or substitute for nouns (article, pronoun), words which modify both nouns and verbs (preposition), words which modify verbs (adverb), and words which join other words together (conjunction).

Priscian’s system is a slight variation on this system, with article missing, words which modify both nouns and verbs after words which modify only verbs, and another non-modifier part of speech, interjection, added before conjunction.

Finally, the systems are grounded in a semantic interpretation of nouns and verbs as words which denote substance and action, respectively. This grounding justifies the ordering of nouns, which denote a semantically and ontologically primary category, before verbs, which denote a semantically and ontologically secondary category—and of adnominals before adverbials. Possibly, the syntactic functions of noun and verb are held to follow from the semantic interpretations of these parts of speech and need not be explicitly mentioned. The complete Dionysian system is thus as follows:

- |                 |                 |                    |
|-----------------|-----------------|--------------------|
| 1. substance    | [+case; –tense] | <b>noun</b>        |
| 2. action       | [–case; +tense] | <b>verb</b>        |
| 3.              | [+case; +tense] | <b>participle</b>  |
| 4. N modifier   | [+case; –tense] | <b>article</b>     |
| 5. N substitute | [+case; –tense] | <b>pronoun</b>     |
| 6. X modifier   | [–case; –tense] | <b>preposition</b> |
| 7. V modifier   | [–case; –tense] | <b>adverb</b>      |
| 8. conjoiner    | [–case; –tense] | <b>conjunction</b> |

In other words, in Dionysios’ and Priscian’s systems, a part of speech is individuated by a characteristic combination of a *syntactic function*, an *inflectional pattern*, and a *semantic category*. For example, a full characterisation of the class of nouns, including the presupposed notion of subject, is given by the combination:

- (2) Subject,  
inflected for case, not for tense,  
signifying person or thing.

Thus, instead of the Amsterdam model’s single dimension of differentiation—syntactic function—the classical models recognise three dimensions of differentiation: semantic category, syntactic function, and inflection. In what follows, I will show that the higher resolution permitted by the classical models is descriptively desirable (see also Anward—Moravcsik—Stassen 1997).

## 5. An elaborated model

The dynamic model presented in section 3 is basically a stylised model of language acquisition. However, as such, it is not entirely realistic. Syntactic functions do not



seem to be introduced one by one in the manner suggested by steps one through four.

Rather, the development of syntactic complexity passes through three stages of a quite different kind. In the first stage, the one-word stage, utterances are co-extensive with single words. In this stage, the utterances in (3a) are possible utterances, but not the utterances in (3b) or (3c). In the second stage, the two-word stage, a word can be construed with exactly one more word. Thus, (3a) and (3b) are possible utterances in this stage, but not (3c). Finally, in the third stage, constructions can be embedded within other constructions, allowing for all of (3a), (3b), and (3c).

- (3) a. Banana; Yellow; Good  
 b. Yellow banana; Banana good; Very good  
 c. The yellow banana is very good

These stages can be roughly characterised in the following way. In the first stage, words are used as complete utterances. In the second stage, a word may also be construed with a modifier or a term. In the third stage, terms and modifiers may themselves be construed with their own terms and/or modifiers. In what follows, I will outline a dynamic model of this kind.

## 6. Step one revisited

### 6.1. Semantic background

Let us retrace step 1. To begin with, I make the fairly uncontroversial assumption that words are semantically differentiated, even when used as one-word utterances (see e.g. Schlesinger 1982). I will furthermore use the semantic landscape in (C) (Stassen 1997: chapter 14) to structure this semantic differentiation.

- C event  
 place  
 time  
 property  
 quantity  
 person/thing

The landscape in (C) is based on a one-dimensional projection of the semantic landscape used by Stassen (1997: chapter 14) to model the varieties of intransitive predication in the languages of the world:

- D event  
 place  
 property  
 class  
 entity

Stassen (1997: 578–581) argues that (D) forms “a universally valid semantic or cognitive space. It is a point of departure shared by all natural languages in the encoding of intransitive predication”.

In order to ensure a better coverage of lexical diversity, I have added the additional categories of time and quantity (cf. Anward forthcoming). I also depart from Stassen in collapsing his two categories of class and entity into the single category of person/thing. The distinction is important to Stassen’s investigation (and to a more detailed model), but need not be observed in the present context.

The semantic categories in (C)—and (D)—are ordered along a rough scale of time-stability (Givón 1984: 51–52; see also Stassen 1997: 15–16, 578–581 for a recent assessment), from the least stable entities (event) to the most stable entities (person and thing). In Stassen’s model, there is also an additional scale of spatio-temporal specification, which, however, I will disregard here.

This means that the first step can be more precisely reformulated, as in (E).

- E Introduce an expression for category K in root function, where K is event, place, time, property, quantity, person, or thing.

An expression which by itself constitutes an independent utterance (or root sentence, in the sense of Emonds 1976) is (not yet) a predicate, since it is not construed with a term or modifier. That is why I have used root rather than predicate to designate the syntactic function of holophrastic words.

Using a few examples from the one-word utterances of the Swedish girl Embla (Lange—Larsson 1973): *oj* ‘oh’, *hjälpa* ‘help’, *ramla* ‘fall’, *där* ‘there’, *nu* ‘now’, *stor* ‘big’, *mera* ‘more’, *mamma* ‘mummy’, and *bil* ‘car’, we can construct a small concrete case of step 1 for Swedish:

semantic category	root function (r)
event	<i>oj</i> <i>hjälpa</i> <i>ramla</i>
time	<i>nu</i>
place	<i>där</i>
property	<i>stor</i>
quantity	<i>mera</i>
person/ thing	<i>mamma/</i> <i>bil</i>

Figure 8. Step 1 in Swedish

## 6.2. Identification

An interesting question is whether lexical items are ever introduced more than once at this stage, if they ever lexicalise more than one of the categories in (C). Available evidence on early stages of language acquisition indicates that multiple lexicalisation of this kind is uncommon. There are reported cases where early items lexicalise more than one category (reported as mistakes in part-of-speech assignment in Schlesinger 1982: 222–223), but these are neither frequent nor systematic. Even the oft-discussed cases of over-extension in the one-word stage typically respect semantic category (see e.g. De Villiers—De Villiers 1979: 35–42).

We can make sense of this by means of the following—almost banal—condition on the use of linguistic expressions:

### F Identification

An expression must be identifiable as to semantic category and syntactic function.

Syntactic function of expressions used in one-word utterances is of course no problem. Semantic category of such expressions may be determined either by contextual priming or by previous use. Since previous use tends to block new contextual priming (Bichsel 1969), it follows that expressions used in one-word utterances tend to get “stuck” in the semantic category they are originally placed in.

## 7. Syntagmatic expansion

### 7.1. Terms and modifiers

Further functions are introduced through a process of syntagmatic expansion. Basically, this process involves the following two moves:

#### G Syntagmatic expansion

1. Construe an expression for category K in function F with a term expression.
2. Construe an expression for category K in function F with a modifier expression

The distinction between term and modifier is essentially that established already by the modistae (Covington 1979). In modern terms, the contrast amounts to the following: in a head–term construction, such as verb–object, the head is predicated of the term; in a head–modifier expression, such as noun–adjective, the modifier is predicated of the head. Thus, a head requires terms to be saturated, and can only be construed with as many terms as can saturate it. Modifiers, on the other hand, are not required by a head, and there can be an indefinite number of modifiers of a single head.

When a root expression is construed with a term expression, we get a subject–predicate construction. A predicate expression can then in turn be construed with a term expression, with a transitive predicate–object construction as result. Finally, a term expression can itself be construed with a term expression, giving rise to possessor–head constructions.

Predicate and term expressions can then be construed with modifiers, giving rise to predicate modifiers (adverbials) and term modifiers (attributes), and such modifiers can themselves in turn be construed with terms and modifiers.

### 7.2. Dependent predicates

In Swedish, as in English, words such as *nu*, *där*, *stor*, *mera*, *mamma*, and *bil*, i.e. adverbs, adjectives, quantifiers, and nouns, cannot be directly construed as predicates:

- (4) a. \**Det nu*            ‘It now’  
 b. \**Hon där*            ‘She there’  
 c. \**Han stor*            ‘He big’

- d. \**Det mera* 'That more'  
e. \**Det bil* 'That car'

Instead, adverbs, adjectives, quantifiers, and nouns are construed as dependent predicates, or predicatives, of another predicate, with which they "share" a term.

- (5) a. *Det är nu.* 'It is now.'  
b. *Hon är där.* 'She is there.'  
c. *Han är stor.* 'He is big.'  
d. *Det är mera.* 'That is more.'  
e. *Det är en bil.* 'That is a car.'

A dependent predicate, such as *hungry* in *John was hungry* and *Joan kept John hungry*, is predicated of a term of its head. The semantic operation involved is functional composition (Steedman 1985: 530–533), whereby the predicates expressed by head and dependent form a composite predicate: 'is(x)' and 'hungry(y)' become 'is(hungry(y))', 'keep(x, y)' and 'hungry(z)' become 'keep(x, hungry(z))'.

There are also cases such as *Joan wrote the book hungry*, where a dependent expresses an additional predication about the subject or object of its head. In this case, functional composition results in a conjoined predicate: 'wrote(x, the-book) & hungry(x)'.

Obviously, then, we need a third move of syntagmatic expansion:

- H *Syntagmatic expansion*  
Construe an expression in predicate function with a dependent predicate expression.

### 7.3. Functional licensing

As pointed out by Jespersen (1924), part-of-speech distinctions are licensed only by "shallow" positions in a sentence: predicate, subject/object, adverbial, attribute in main clauses. Thus, we would be surprised if a language would use a particular class of lexical items which, like the nonce-word *meddy* in (6b), can only be used as modifiers of attributes in subordinate clauses.

- (6) a. *She made a very good suggestion.*  
b. *It is evident that she made a meddy good suggestion.*

This restriction is of course already incorporated in the Amsterdam model, where only term, term modifier, and predicate modifier functions may trigger part-of-speech distinctions.

There is reason though to relax the restriction slightly. It is true that different types of terms do not seem to license distinct lexical classes. There is no known language where one class of words is used for subjects, one class of words is used for objects, and one class of words is used for possessors. However, in the case of pronouns, there might be small tendencies in this direction. Thus, personal pronouns may have suppletive forms in different term functions (e.g. *I-me*), reflexive pronouns cannot be used as subjects, and logophoric pronouns are restricted to subordinate clauses.

When it comes to modifiers, it is fairly usual for predicate modifiers and term modifiers to license distinct classes of lexical items. However, there are also items which are licensed by other modifier functions. For example, the word *ganska* 'rather' in Swedish can be used neither as term modifier nor as predicate modifier, but only as modifier of another modifier:

- (7) a. \**Han sprang ganska* 'He ran rather'  
b. \**Han är en ganska löpare* 'He is a rather runner'  
c. *Han sprang ganska snabbt* 'He ran rather fast'  
d. *Han är en ganska snabb löpare* 'A rather fast runner'

As a preliminary generalisation, we can use (I).

- I A lexical item can be licensed only by its immediate syntactic function, that function being specified as either 'φ' (root, predicate, term, or modifier) or 'modifier of φ'.

### 7.4. Optional functions

A further ingredient of the Amsterdam model is the notion that a language need not use all of the syntactic functions made possible by (G) and (H). Indeed, there seem to be languages which lack predicate modifiers, using serial or medial verbs—i.e. verbs in dependent predicate function—instead, as predicted by the Amsterdam model. Contrary to the predictions of the model, there also seem to be languages which lack term modifiers, using predicate modifiers (or something equivalent) to express term modification. Hixkaryana and other Carib languages are examples of languages that approximate this type (Derbyshire 1979). Following Whorf (1945) and Sasse (1988), Hengeveld (1992: 67) also proposes that there are languages which lack terms altogether and express everything through series of predicates.