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The nature of parts of speech

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Abstract

Parts of speech have both semantic and structural aspects. The two sets of features are essentially incommensurate, since the semantic features derive from the functions of language in communication and cognition, while the structural features are essentially based in the combinatorial potential of signs in a text. Consequently, the two sets of features are largely independent of each other. Their combination in a language yields sets of parts of speech whose systematicity is largely language-internal

To the extent that there is a functional motivation for parts of speech, three restrictions must be made: 1) It is not, in the first place, a cognitive, but rather a communicative motivation. 2) The functional motivation of word classes is not direct, but mediated by semantic and syntactic categories of higher order. 3) Only the primary word classes (verb and noun) are motivated in this way. The secondary classes (adjectives, adverbs etc.) and the minor word classes (pronouns, subordinators etc.) increasingly have a system-internal structural rather than a universal functional motivation. Given these heterogeneous functions and constraints, there is no uniform nature to all parts of speech.

1 Introduction¹

The problem of the nature of parts of speech may be articulated as the question for the forces which are responsible for

- the existence of parts of speech in general
- particular parts of speech in different languages
- the assignment of a particular part of speech to a lexeme coding a given meaning.

As we shall see, different factors and motivations are behind these three aspects of the nature of parts of speech.

On the one hand, there is a common basis to the part-of-speech systems of the languages of the world; and on the other hand, there is no universal part-of-speech system that was represented in every language. In this, parts of speech behave just like any other linguistic property of a semiotic nature, i.e. one that concerns signs or categories of signs: their conformation is an affair of the particular language as a historical and cultural activity. Such properties are therefore not preassembled at the universal level. They do, however, obey universal principles since every language is a system for the solution of a set of cognitive and communicative problems which, at an appropriate level of abstraction, is the same for all languages and human beings.

¹ This paper was first presented as a keynote lecture at the Second TRIPLE International Conference on Word Classes at Università di Roma III, March 24-26, 2010. I thank Raffaele Simone, the participants of the conference, the Pavia PhD students colloquium, the Erfurt EPPP Sprachbeherrschung, the members of the La Trobe University Research Centre for Linguistic Typology and two anonymous reviewers for helpful discussion.

1.1 Formal constraints vs. cognitive and communicative functions

The language system is a semiotic system. As such, it is the result of the interplay of two essentially independent forces (cf. Prandi 2004, IX-XVIII):

1. **Formal constraints on structure:** The constraints on a semiotic system and on the messages constructed with it are of a heterogenous nature. Laws of logic and information theory determine how signs may be selected and combined. Laws of physics determine the composition and transmission of signs. These are complemented by other laws of nature in the case of semiotic systems used by a particular species, e.g. homo sapiens.
2. **Functions of communication and cognition:** The world surrounding us which we conceptualize is in many respects the same for every speech community; and the same goes for the tasks of communication in such a community. These two domains provide the total of content and its conveyance in the widest sense.

Thus, entities of grammar, including parts of speech, have a purely formal side determined by the constraints imposed on any semiotic system. At the same time, this formal side is not empty, but is laden with cognitive and communicative content. In more concrete terms: Grammatical categories, relations, constructions and operations are necessary for a semiotic system to operate, and they do have some purely formal properties. At the same time, those are categories like tense, relations like the indirect object relation, constructions like the causative construction and operations like nominalization; and none of these is purely formal, all of them have their semantic side. Putting it yet another way: in a semiotic system, everything concerning the sign as a whole is meaningful.

The association of form and function in language is not biunique. A classification of semiotic entities, including grammatical ones, by semantic criteria yields results different from a classification based on formal criteria. This is true for word classes² just as for any other grammatical category. For instance, there is, in English, a distribution class that includes noun phrases (like *a bright girl*), proper nouns (like *Linda*) and certain pronouns, among them personal pronouns (like *she*), while it excludes nominals (like *bright girl*), common nouns (like *girl*) and other pronouns (like *one*; cf. *a bright one* with **a bright she*). The members of that distribution class have no common semantic basis that would not also be shared by other kinds of nominal elements. And on the other hand, a semantic criterion such as denoting an act would subsume members of different word classes such as *ask* and *question*.

The double-sidedness of word classes has many methodological consequences. Two are of immediate relevance here: First, definitions of word classes – just as of any other grammatical category – are mixed definitions, combining semantic and structural criteria. Second, any analysis of word classes aiming at understanding their nature has to take a double approach to them, a formal and a functional approach. In §3, we will take the formal approach, and in §4, the functional approach.

1.2 Interlingual word-class concepts

Grammatical concepts, including parts of speech, may be defined at different levels of generality. The two levels that are of interest here are the language-specific and the interlingual (alias cross-linguistic alias typological) level. These are levels of abstraction. Thus, the English perfect has certain particular properties that it may not share with the perfect of any other language. It

² See §2 for the conceptual relation between ‘part of speech’ and ‘word class’.

nevertheless instantiates an interlingual category of perfect, a concept which must be sufficiently abstract and prototypical in nature in order to fulfill its methodological function of serving in the description and comparison of more than one language.³

Now there is a difference between a single linguistic sign such as a lexeme or a particular tense or case formative, on the one hand, and a category of signs such as the word class ‘adjective’ or the paradigm of tense or case, on the other. The single language sign has a particular significatum which, though general it may be, has its own specificity. The meaning of the category, however, is what all of its members have in common semantically. The larger and more heterogeneous the category, the more elusive becomes the attempt to identify a set of semantic features they all have in common.

Parts of speech of different languages are different; however, the extreme structuralist position according to which they have no common interlingual basis⁴ is untenable. The English and the Yucatec adjective are not just categories that happen to be homonymous in consequence of terminological laziness or European bias; they do instantiate the same interlingual category (as characterized in §4.4.3.1). If so, then a recognition of the parts of speech existing in a particular language presupposes their definition at an interlingual level. That is the position taken here: parts of speech will be conceived as interlingual categories, i.e. categories that may show up in individual languages.

2 Parts of speech and the levels of grammatical structure

In modern linguistics, the traditional concept of ‘part of speech’ has mostly been equated with the word class; and often the latter term is used instead of the former. Now the term *part of speech* is a calque on the Latin *pars orationis*, which is a calque on the Greek *méros lógou*, all of which mean literally ‘part of speech’ or ‘part of sentence’. The word classes of structural linguistics, instead, are defined as lexeme classes. This notion is more abstract because a lexeme is an abstraction corresponding to a class of word-forms and, therefore, a component of the system rather than of the text. Consequently, lexeme classes, too, are essentially components of the language system. Thus, a word class in the sense of ‘lexeme class’ is not actually a ‘part of speech’ (or of the sentence).

One must, however, bring to account that the ancient authors of the concept ‘méros lógou’ alias ‘pars orationis’ lacked a concept of the syntactic category in the sense of ‘category of syntagma’⁵ (“phrasal category”) (s. Himmelmann 2007:261), so that their concept comprised not only the word

³ This is the distinction that Comrie (1976:3) and others mark by initial upper case and lower case, for the names of language-specific and interlingual categories, resp. Haspelmath, in several recent publications, e.g. 2012, emphatically rejects the application of concepts like ‘noun’ and ‘verb’ at the interlingual level. Now it is true that such concepts cannot serve as *tertia comparationis* in language comparison. However, from the fact that such categories are not universal, it does not follow that they cannot be present in more than one language. Haspelmath himself (o.c. p. 118) speaks of a nominative marker in Tagalog, certainly not implying that Tagalog uses a Latin grammatical formative.

⁴ Sapir 1921:125: “no logical scheme of the parts of speech – their number, nature, and necessary confines – is of the slightest interest to the linguist. Each language has its own scheme. Everything depends on the formal demarcations which it recognizes.”

⁵ The term ‘syntagma’ is the immediate hyperonym for ‘phrase’, which is a continuous syntagma. In the following, whenever ‘syntagma’ is meant, the word *phrase* will be used, as a concession to anglophone convention.

category, but also the syntactic category (to the extent the latter concept applies in Greek and Latin). Phrases with their syntactic categories are indeed components of the sentence. We will therefore use the term *part of speech* not as synonymous with *word class*, but as the hyperonym of *word class* and *syntactic category* (similarly as in Vogel 2000, §2). Furthermore, the theoretical complication involved in the concept of lexeme class just mentioned will be avoided, and instead we will consider word classes as **stem classes**. Unlike lexemes, stems do occur in texts.

In languages with well-demarcated word classes, there is a systematic correspondence between some major word classes and certain syntactic categories. This is well-established in structural linguistics and need here only be recalled by way of the examples shown in T1.

T1 *Syntactic categories and word classes in English*

level	category	nominal	verbal	adverbial
syntactic category		noun phrase	verb phrase	adverbial phrase
word class		noun	verb	adverb
subclass		proper noun	intransitive verb	adverbial adverb

The simplest possible relationship between a word class and a syntactic category is identity of distribution. If and where it obtains, an adverb, for instance, can be defined as a word that has the same distribution as an adverbial phrase.⁶ Alternatively, if the theory is based on word classes, an adverbial phrase can be defined as a complex construction that has the same distribution as an adverb. Identity of distribution between a word class and a syntactic category is guaranteed by definition if the construction of that syntactic category is endocentric, with the word class in question as its head (s. §3.2). However, for each of the syntactic categories in T1, there are subtypes that do not fulfill this condition; for instance, a transitive verb phrase is not endocentric. And on the other hand, most of the word classes in use are not so conceived. Actually, every word class splits into a number of subclasses which differ in their distribution. Only one of them has the same distribution as the corresponding syntactic category. In the case of the nominal category, that is – in English and some other languages – the proper noun (see examples in §1.1), which is not even considered a typical representative of the word class ‘noun’. The distinguished subclass is then joined with other distribution classes under a common word class on the basis of semantic criteria and membership of some words in more than one of these classes. For instance, English adjectival (e.g. *very*) and ad-verbal (e.g. *hard*) adverbs are subsumed under one class of adverbs because they appear to be semantically similar and because a couple of adverbs such as *partly* are members of both subclasses.

There are various ways how a biunique correspondence between word class and syntactic category may fail to hold. First of all, there are languages which do not apply syntactic categories at the root or even stem level. In Latin, roots are acategorial (Lehmann 2008). In Late Archaic Chinese

⁶ The idea of conceiving a major class as a class of words that may substitute for one of the major constituents in a clause is first expounded in Lyons 1968, ch. 7.6.2. There is, however, silence on the problem that only a subclass of each major class actually has that potential. In its theoretically strictest form, the idea amounts to the proposition that there is only one set of syntactic categories which apply both to complex syntactic constructions and to words. This has received the name of ‘categorial uniformity hypothesis’ (cf. Himmelmann 2007:249). It underlies X-bar syntax (Jackendoff 1977).

(Bisang 2011, §5.3), Kharia (see below), Tagalog (Himmelmann 2007) and in Polynesian languages like Samoan (Mosel & Hovdhaugen 1992) or Tongan (Broschart 1997), stems are largely uncategorized in terms of syntactically relevant word classes. For a subset of these languages (Chinese, Tagalog, Tongan), the authors claim that lexemes do fall into grammatical classes, but these are not syntactic categories. In all of these cases, it is only the combination with categorized expressions, esp. certain grammatical formatives (such as the tense-voice clitic to be seen in E2 – E4.b below), that categorizes a root or stem in terms of a syntactic category. Such syntactic categories, then, do not lexicalize into root or stem classes, resp. The same is true for particular syntactic constructions in many other languages. For instance, Yucatec Maya has the word classes of numeral (Num) and of numeral classifier (NumCl) and the syntactic category of numeral phrase (NumP), as illustrated in E1. There is, however, no word class of the same distribution as the numeral phrase.⁷

E1	ka'-p'éel	abal
YM	[[two-] _{Num} [CL.INAN] _{NumCl}] _{NumP}	[plum] _N
	'two plums'	

The correspondence between word class and syntactic category may also fail for the opposite reason: certain word classes do not expand into phrases (do not “project”, as some would have it). That is true for the Yucatec numeral and numeral classifier just illustrated. It is typically the case of small closed classes, like the adjective or verb in languages which only have a small closed set of these, and of classes of grammatical formatives like the articles and auxiliaries, in general.

Where categorial uniformity between syntactic categories and word classes does obtain, the relationship between an endocentric construction and the stem that forms its head is reciprocal in a certain way:

1. On the one hand, the construction is an expansion (a “projection”) of its head. Since the head is an item of the inventory, its category is given, and an endocentric expansion aims at a construction that preserves the head’s combinatory potential.
2. On the other hand, the head is a lexical condensation of the construction. The category of the construction is determined by syntactic principles. If the construction reduces to a stem, the latter inherits the syntactic category, so that it becomes a stem category (a word class).

Note that these are not just a scientist’s alternative perspectives on his object, but there are actually linguistic processes running in these converse directions:

1. The syntactic operation of modification affords the endocentric expansion of a stem.
2. Grammaticalization and lexicalization afford the condensation of a phrase into a stem.⁸

That means, in effect, that syntactic category and word class stabilize each other. One may hypothesize that the part-of-speech system of languages such as most SAE languages, and in particular their categorization at the stem level, is diachronically stable because it obeys categorial uniformity.

The relationship, however, is not symmetric. Word classes exist and are such as they are because they come about through grammaticalization of syntactic constructions and word

⁷ Astonishingly, it is the Spanish loan numerals that have approximately the same distribution as a Yucatec numeral phrase.

⁸ More precisely: the transformation of a syntactic category into a word class is a grammaticalization process; the transformation of a particular grammatical construction into a lexical item is a lexicalization process; s. Lehmann 2004.

formations. That is, they are the product of a reductive process. Syntactic categories, instead, have a functional motivation in terms of the propositional operations of reference and predication, as we shall see in more detail in §4.3. It is at the level of the sentence that these operations are situated and marked as such by the speaker. The speaker using an expression clarifies whether he is using it as a referring expression or as a predicate. Markers giving this kind of information essentially specify its category in terms of parts of speech, roughly speaking, as a nominal or verbal category.

This may be seen clearly in languages which do not classify stems in terms of syntactic categories, like the ones mentioned on p. 5. Here are a couple of illustrative examples from Kharia, a strict predicate-final Munda language (Peterson 2005:394f). Clause-final position immediately preceding the tense-voice clitic categorizes the stem as a verb stem. Position preceding the verb, with no markers added, categorizes the stem as a nominal stem.

- E2 a. *lebu* *ɖel=ki*
 KHARIA man come=MED.PST
 ‘the/a man came’
- b. *bhagwan lebu=ki* *ro* *ɖel=ki*
 god man=MED.PST and come=MED.PST
 ‘god became man and came [to earth]’
- E3 a. *aʔghrom*
 KHARIA ‘Aghrom’ [a town]
- b. *aʔghrom=ki*
 Aghrom=MED.PST
 ‘became / came to be called “Aghrom”’
- c. *aʔghrom=oʔ*
 Aghrom=ACT.PST
 ‘he/she made/named it “Aghrom”’
- E4 a. *am i karay=oʔb ?*
 KHARIA 2SG what do=ACT.PST.2SG
 ‘what did you do?’
- b. *am i=yoʔb ?*
 2SG what=ACT.PST.2SG
 ‘what did you do?’

Lebu in E2a is a referring expression, while in #b it is the core of the predicate. *Aʔghrom* in E3a is a toponym; but in #b, it is the core of an intransitive predicate, and in #c, the core of a transitive predicate. Finally, even an interrogative pronoun (*i*) may not only take the position of a nominal dependent of the predicate, as in E4a, but also function as the core of a predicate, as in #b. Thus, subject to semantic compatibility, most Kharia roots can be inserted either in the slot of a verb complement, in which case they are heads of referential expressions, or in the slot of the predicate, in which case they may combine with the middle or active voice clitics, with compositional changes in meaning.

Such data show that the categories of nominal and verbal expression may, in some languages, not be needed at the word level and only be formed at the sentence level.⁹ They may, in fact, even

⁹ Sapir (1921:133f) makes a similar point about Nootka.

be formed at the discourse level. This may perhaps be best grasped in languages with clearly demarcated word classes. In such a language, the category of a stem can be used for the formation of larger constructions, and this is economic in a certain sense. Often, however, the lexically given word class is not taken advantage of, as shown by the following two sets of Spanish examples.

- E5 a. Así formamos lo que es el barro.
 SPAN 'Thus we form what is the clay.' (recorded in Guaitil, Costa Rica, 24/02/2010)
- b. Así formamos el barro.
 'Thus we form the clay.'

The speaker who said E5a could have said E5b instead;¹⁰ the referential meaning would have been the same. The direct object of the main verb is, of needs, a noun phrase. Its lexical head is the stem *barro* 'clay', which is a noun. It only needs to be equipped with an article to form a noun phrase, which is done in E5b. However, the speaker is talking about something that the predicate 'clay' applies to. He therefore first converts the noun *barro* into a predicate by making it depend on the copula; and then he converts this predicating expression back into a referring expression by nominalizing it by means of a free relative clause. He thus assigns the syntactic categories needed to form a referring expression at the sentence level although the item to be used already has the category in question. The functions of this strategy are to be sought in information structure and discourse planning. Ultimately, it is at this level that the speaker decides which components of his utterance he needs in the nominal and which in the verbal category.¹¹

- E6 a. Lo que pasa es que la otra habitación está ocupada.
 SPAN 'What is happening is that the other room is occupied.' (recorded in Heredia, Costa Rica, 08/02/2010)
- b. La otra habitación está ocupada.
 'The other room is occupied.'

The speaker who said E6a could have said E6b instead, with no change in referential meaning. Instead he nominalizes his proposition so that he can ascribe it the predicate of being the case (*pasa*). However, this predicate is nominalized, too, by a free relative clause. So the speaker is left with two nominal expressions which he now puts into a predicative relationship by a copula (*es*).¹² In this copula clause, the idea of being the case forms the syntactic predicate. This, however, is topicalized, so that the core predication, i.e. the one represented by E6b, becomes the comment. We are faced, again, with a strategy of information structure which involves assigning the definitive syntactic categorization of the linguistic units used only at the highest level of structure, the discourse level. At the same time, the examples show what the ultimate function of categorization in terms of syntactic categories is: it is the formation of referential expressions that one wants to talk about, and of predicates that one wants to ascribe these referents.¹³

The conclusion from such examples is that the speaker categorizes his expressions at the highest grammatical level regardless of their categorization at lower levels. In a bottom-up

¹⁰ The speaker produced more tokens of the former construction during the conversation.

¹¹ Cf. Simone 2006:387f, where nominalization is categorized not as a syntactic operation, but as a discourse operation.

¹² What in Spanish is an optional strategy freely employable by combining regular syntactic operations would be completely grammaticalized into the basic principle of clause formation in Tagalog according to Himmelmann 2007.

perspective, expressions are categorized as referring or predicating at the latest at the sentence level. The principal difference among languages, in this perspective, resides in the possibility to anticipate categorization at some lower level (Lehmann 2008). Thus, there are languages like German that categorize already their roots in terms of word classes. Other languages like Latin leave roots uncategorized and instead categorize stems. Yet other languages like Kharia and Tagalog leave even most stems uncategorized and defer syntactic categorization to the level of the phrase. Low-level categorization has the advantage of unburdening the syntax and freeing it for other kinds of operations. However, if categorization is enforced already at the root or the stem level, it has the disadvantage that much of that lower level categorization may not be what is wanted at higher levels and therefore has to be undone by recategorization operations. For such a strategy to work, it is therefore essential that the low-level categorization be “sensible”, a problem that we will come back to in §4.4.2.2.

For typology, the issue is, thus, not whether the noun-verb distinction is universal. The questions are, rather:

1. Which distinctions are required by the constraints introduced in §1.1?
2. Which of these are universally made at the level of grammar, i.e. in linguistic structure?
3. Which of these are universally made at the level of word classes?
4. In particular, given the task of marking the distinction between reference and predication: what are the possibilities and limits of variation for solutions of this task?
5. Yet more in particular: Assuming that distinction #4 is one of the distinctions meant by question #2: what are the conditions and consequences of marking it at different levels of grammar?

The present treatment is meant as a contribution to answering such questions.

3 Formal analysis: paradigmatic and syntagmatic relations among word classes

Like any other linguistic unit, a word bears paradigmatic relations to other words of its class and syntagmatic relations to other words in the construction. A subset of these relations are proper to the word class it belongs to. Therefore one should be able to speak, at a more abstract level, of paradigmatic and syntagmatic relations among word classes. However, things are more complicated than that.

3.1 Paradigmatic relations

The question of a paradigmatic relation between two entities arises only if they have the same distribution. (This entails that they either occupy the same syntagmatic positions, or else they are in complementary distribution, so they may be said to share their distribution in more abstract terms.) This is a condition not generally met by entire *classes* of units if these are distribution classes. A distribution class includes all items that fulfill the condition mentioned. There is, therefore, nothing left outside the distribution class that this class could contract a paradigmatic relation with. Thus, if two word classes were found to be in opposition or complementary distribution (discarding the possibility of free variation), that would be an argument for subsuming them under a more general

¹³ Hopper & Thompson (1984:710) put it like this: “Categoriality ... is thus imposed on linguistic forms by discourse.” The conclusion, however, that Hopper and Thompson draw from this, viz. that lexemes are precategorial (p. 747), does not follow; s. Lehmann 2008.

common denominator; in other words, they would not be seen as distinct word classes in the first place. The (putative) Kharia noun and verb reviewed in §2 provide an example of this.

A general principle of communication says that meaning presupposes choice: by using a certain expression, a speaker can convey something only if he has a choice and might instead use a different expression. On this is based a principle of method in structural linguistics which allows the linguist to pin down a semantic or functional difference between two elements if they contrast in a given context. This principle applies to individual signs. Applying it to categories of signs yields the result that these do not meet the condition of substitutability. The principal *raison d'être* of parts of speech is to combine with each other in the formation of sentences. Thus, the question of a semantic contrast among them does not even arise in any straightforward way.¹⁴ The consequence for the linguist who wants to find out about categorial meanings of word classes by applying the methods of structural semantics is a methodological apory not easily overcome.

In some loose sense, the speaker does have a choice among word classes in certain contexts. In the position of the predicate of a sentence, he may use a verb, or he may verbalize a noun or an adjective by means of the copula. We will come back in §4.4.2 to such a substitution test, as it has to do with the semantic side of word classes. There we will see that perfect minimal pairs of word classes are impossible.

3.2 Syntagmatic relations

Viewed in terms of a formal constraint on a semiotic system, compositionality requires that messages be composed of units that belong to categories that complement each other on the syntagmatic axis. That is, the string must be segmentable into units that instantiate categories which allow them to be grouped into larger units (constructions) by syntagmatic relations based on these categories.

Syntagmatic relations between parts of speech may be conceived in terms of dependency grammar (or its equivalent in other models of syntax, e.g. Gil's (2000) categorial syntax). At the highest taxonomic level, they subdivide into relations of sociation and dependency. The former may serve to assess the role of certain minor parts of speech like the sociative particles, which we will return to below (class 2a). Dependency relations are recognized on the basis of the distribution of the components contracting them. More specifically, each of these components belongs to some category defined as its distribution class; and the resulting complex construction again belongs to some such category. In a dependency relation, one of the members of the relation determines the category of the resulting construction. That member is X in T2. Two cases may be distinguished: either the complex category is simply the category of one of the members of the relation; or it is determined by one of them without being identical to the latter's category. T2 systematizes these two dependency relations for the major parts of speech presently at stake. X' means a category differing from X in its distribution only by not combining with Y. The instantiations listed on the right-hand side of T2 are interlingual categories in the sense of §1.2. The slash separates the phrasal category from the word class as introduced in §2.¹⁵

¹⁴ The case of vowels and consonants in phonology is largely analogous.

¹⁵ A noun phrase is functionally caseless; a cased noun phrase is like an adpositional phrase, falling into the distribution class of the adverbial phrase. Given this distinction, the conception may extend to multivalent verbs beyond bivalent verbs: their first object may be a noun phrase, their second object, a cased noun phrase.

T2 *Dependency relations and parts of speech*

category	syntagmatic relation	instantiations		
		X	Y	complex category
[X Y] _X	Y modifies X	nominal / common noun verb phrase / verb	adjectival phrase / adjective adverbial phrase / adverb	nominal verb phrase
[X Y] _{X'}	X governs Y	bivalent verb relational noun relational adjective adposition	noun phrase / proper noun	monovalent verb phrase nominal adjectival phrase adverbial phrase

Each in the following set of examples illustrates one of the lines of T2:

- E7 [[old]_{Adjective} [house]_{CommonNoun}]_{Nominal}
E8 [[lives]_{Verb} [in the house]_{AdverbialPhrase}]_{VerbPhrase}
E9 [[bought]_{BivalentVerb} [the house]_{NP}]_{VerbPhrase}
E10 [[top]_{RelationalNoun} of [the house]_{NP}]_{Nominal}
E11 [[devoid]_{RelationalAdjective} of [meaning]_{NP}]_{AdjectivalPhrase}
E12 [[in]_{Adposition} [the house]_{NP}]_{AdverbialPhrase}

Given the two configurations of the first column of T2, the two principal categories may be characterized in purely structural terms, like this:

- There is a part of speech whose members can take the position of X, but not of Y in dependency constructions. In other words, they may be modified, but not governed; and they govern, but do not modify other elements. That is the verb phrase / verb.
- There is a part of speech whose members can only function as Y (the dependent) in government. That is the noun phrase / proper noun.

The differential combinatorial potential of parts of speech is reified as their **grammatical relationality** (which, in predicate logic, takes the form of argument places): a governor and a modifier extend a relation to what they govern or modify, whereas a governed or modified element contributes nothing to the relation and, instead, just occupies the argument place opened for it. Grammatical relationality, in turn, is the structural correlate of conceptual relationality: the notion designated by a non-relational noun (a “punctual concept” in the terms of Prandi 2004:122-124) is autonomous, whereas the notions designated by verbs, relational nouns, adjectives, adverbs and adpositions are dependent and refer to an autonomous notion that fills their argument place. This cognitive aspect of grammatical relationality will be developed in §4.4.3.

Dependency relations define ranks for their members (cf. Jespersen 1924, ch. 7): the member that determines the category of the construction is at a higher rank than the dependent. These ranks translate directly into importance of these categories for sentence construction and, thus, for the language system: The category that depends on nothing, viz. the verb, occupies the highest rank. The category that directly depends on the former, but is autonomous in terms of relationality, viz. the noun phrase, occupies the second rank. The category that always depends on something else and is also not autonomous in terms of relationality, viz. the modifier, occupies the third rank.

The concept of modification can, thus, be defined on a purely structural basis, viz. on the basis of an endocentric construction as represented in the first line of T2. As may be seen, for a semiotic

system to have categorial uniformity for some construction presupposes that this be endocentric, and this entails that there must be modification and, thus, modifiers. It may be anticipated here that modification differs in this respect from the two propositional operations, reference and predication (cf. §§4.3 and 4.4.3.3), whose basis is not in T2 and instead in functions of communication.

Government, i.e. governing relationality of the elements to be classified, is a subordinate criterion in the structural classification. Suppose that, instead, the potential to take a complement was a primary criterion in classification. Then transitive verbs, relational nouns and prepositions in an ergative language might form a major distribution class. The class would exclude intransitive verbs, non-relational nouns and adverbs. Such a class is not necessarily useless. There may be grammatical rules that refer to it, and there may be stems that shift from one of the classes to another just on the basis of acquiring or forfeiting the governing potential that is the basis for their distinction. That is actually the case in Yucatec Maya.¹⁶ The #a examples of E13 – E15 illustrate the three subclasses of that major distribution class.

E13	a.	t-in	ch'ul-ech	b.	h	ch'úul-ech
YM		PRFV-SBJ.1.SG	wet(CMPL)-ABS.2.SG		PRFV	wet\DEAG(CMPL)-ABS.2.SG
		'I wetted you'			'you got wet'	
E14	a.	in	watan	b.	hun-túul	atan-tsil
YM		POSS.1.SG	wife		one-CL.AN	wife-DEREL
		'my wife'			'a wife'	
E15	a.	t-in	paach	b.	paach-il	
YM		LOC-POSS.1.SG	back		back-ADVR	
		'behind me'			'behind'	

As may be seen, there is an operation of derelationalization which blocks the governing slot present and occupied in the #a examples to yield the non-relational stems appearing in the #b examples: an intransitive verb, a non-relational noun and an adverb, resp.¹⁷ Although the derelationalizer displays allomorphy, it applies to all the subcategories of that class in like fashion. However, the dependencies filled by the categories in this distribution class (the ways in which they depend on other items) are essentially different, and so are the ways that they themselves can be modified. Therefore, in a hierarchy of parts of speech, the categories of verb, noun and adverb, regardless of their valency, will be introduced at a higher level. Then the criterion of governing relationality will apply to each of them to generate the subcategories of plurivalent verb, relational noun and adposition. This will be taken up in §4.4.3.2.

The traditional class of particles *s.l.* (words that do not inflect) is not covered as such by the foregoing description. That is a heterogeneous class not susceptible of a unified account. It may be subdivided as follows:

1. A subset of the particles are modifiers. That concerns adverbs and their derivatives, adpositions and subordinative conjunctions. They also differ from the particles of the second subset by forming open, productive classes (s. §6). They are treated in §4.4.3.

¹⁶ Yucatec Maya is not a (syntactically) ergative language, but its remnants of ergative morphology may serve for the illustration presently required.

¹⁷ There are also, in Yucatec Maya, inverse operations to form transitive stems, relational nouns and prepositions; however, they are structurally less uniform.

2. The remaining subset, the particles *s.s.*, comprises those particles which do not enter a dependency relation. In consonance with this, there are also no productive ways of enriching this class. This is, again, a negative definition which leaves two possibilities:
 - a) A subclass of particles *s.s.* contracts various relations of sociation instead of dependency relations. It comprises coordinative conjunctions like *or*, focus particles like *not*, *yet*, discourse markers like *however* and maybe others. In the system to be presented in §7, they would be introduced as particular subtypes of minor parts of speech, to be called sociative particles.
 - b) The remaining subclass of particles do not integrate themselves into a sentence at all. These are the interjections and ideophones. An interjection constitutes a sentence by itself; an ideophone may appear in a sentence as a parenthesis or quoted speech. These holophrastic particles are treated in §4.2.

All of the above are gross characterizations that pass over a lot of cross-linguistic and internal variation. Their point is to show how a word-class system may fulfill the formal requirements imposed on grammatical structure by a semiotic system.¹⁸ It is true that the syntagmatic properties of parts of speech examined above also have to be the basis for their language-specific distributional definition. This, however, is no straightforward matter:

1. A distributional definition defines X with reference to its context Y. Y, however, is of the same nature as X: it is itself a distribution class. Thus, Y must have been set up in the same way. In order for the definition system not to be circular, one needs to choose fixed points from which to start. Such a fixed point may be established by non-distributional criteria. This means in essence functional criteria of the kind introduced in §1.1. To the extent that such criteria cannot be operationalized, starting points in the definition hierarchy just have to be stipulated.¹⁹
2. Such a fixed point may be a part-of-speech category. In an inflecting language, however, the only way for stems as members of a word-class to occur in texts is provided with inflectional morphemes. In such cases, there is no uniform syntactic context to base a distributional definition of that word class on. Instead, it is the morphological paradigm appearing on the stem class X that provides the immediate context for a distributional definition of X. Morphological paradigms, however, are not part-of-speech categories. If such a paradigm is to fulfill this function, it must, again, be either identified by other criteria or simply be taken for granted.²⁰

We will return to hierarchical relations between parts of speech in §7.

¹⁸ Time and again (e.g. Beck 2002:18, Smith 2010, §2.1), criticisms are leveled against this kind of account by examples of English nouns serving as modifiers, adjectives serving as verb complements, and suchlike. Such examples contribute or detract nothing with respect to the theory at stake as long as the question has not been asked what it is supposed to account for. The present theory is not meant to account for conversions possible in English.

¹⁹ For instance, in more than one grammar, the noun is defined as the part of speech that combines with a determiner to form an expression that may refer.

²⁰ For instance, a Latin noun cannot be defined as a sign occurring in certain syntactic contexts, since it would change its morphological form depending on the syntactic context. Again, a Latin noun stem may be defined as a sign occurring in certain morphological contexts (essentially, declension endings). Then, however, those morphological contexts would either have to be enumerated or to be replaced by an abstraction like 'the grammatical categories of case and number'.

4 Functional analysis: cognitive and communicative categories

4.1 Theoretical preliminaries

The general question of this section is what purpose is served by the categorization of meaningful units in parts of speech. Assuming that communication and cognition are the two topmost functions of language, it will be argued that this purpose lies more in the domain of communication than in the domain of cognition. As a background to this claim, a minimum characterization of the two domains is needed.

The **communicative dimension** of language is its social dimension, i.e. the dimension connecting the speaker with the addressee. Functions subsumed under this concept concern contact and social relations between the interlocutors in the speech situation, including speech acts, and conveyance of content to the hearer (while excluding the content itself), more specifically, manipulation of the universe of discourse, sequential management of the message, its coherence including reference tracking, and its packaging in terms of information structure.

The **cognitive dimension** of language is the dimension connecting the interlocutors with the (physical or imagined) world and concerning the content transmitted between them. Functions subsumed under this concept concern apperception, thinking and orientation. It is structured in terms of cognitive domains such as possession, spatial orientation, participation etc.

4.2 Holophrastic words

Both of the dimensions of cognition and communication concur when the speaker, on the basis of some concern of his, forms a minimum message that he wants to convey to the hearer. At the initial stage, the minimum message may remain grammatically inarticulate. We then get a holophrastic utterance, as in E16.

- E16 a. Gosh!
b. whoosh

E16a features an interjection, E16b an ideophone. Both convey a minimum message which may be explicated, but which is left inarticulate. The interjection conveys a proposition about the speaker as he is in the current speech situation, while the ideophone conveys a proposition on any other referent, including somebody else in the speech situation, or on any referent, including the speaker, in a different situation. Interjections and ideophones are thus in complementary distribution. Together they form the category of holophrastic words. These involve no articulation of the message in the terms relevant in the next section. They are the primordial parts of speech or rather, wholes of speech.²¹

From among the heterogeneous class of particles *s.l.*, the functional approach thus singles out interjections and ideophones. As was seen in §3.2, they may be characterized as words that contract no syntagmatic relations at all.²²

²¹ Cf. Gil 2000, §3, where the sentence is taken as basic for a theory of syntactic categories; and these, in turn, are taken as more basic than word classes. Most other accounts of word classes do like Bisang 2011 in glossing over ideophones and interjections. Heine & Kuteva (2007, ch. 2), in their theory of the evolution of grammar, just forget them.

²² While this seems clear for interjections, ideophones may be used parenthetically. The present treatment does not account for their use as predicates.

4.3 Communicative functions

The minimum message is composed of a proposition and an illocutionary force. The latter is generally coded at non-segmental levels or at most by grammatical formatives and therefore has little to do with parts of speech. If it is coded syntactically, it takes the form of a proposition, and hence the same considerations as for propositions apply. Thus, at the next stage of development of a part-of-speech system, the proposition is decomposed.

At this point, the two propositional operations, **reference** and **predication**, come into play:²³ the speaker distinguishes whether he uses a certain expression in order to refer to something or in order to predicate something. This distinction is very general and manifests itself in linguistic structure at different levels (cf. Meier 1979). One of these levels, already illustrated in §2, is information structure, where it takes the form of **topic** vs. **comment**. Another level is syntax, where it takes the form of the two basic syntactic functions of **subject** and **predicate**. These are instantiated by two syntactic categories, the **noun phrase** and the **verb phrase**.²⁴ And finally, at the lexical level, they take the form of **noun** vs. **verb**. As is to be seen from T3, the functions fulfilled at the semiotic levels of semantics and information structure translate into syntactic functions once the level of the meaning-bearing systems of the language (grammar and lexicon) is reached. And only there are they paired with parts-of-speech categories destined to fulfill them par excellence.²⁵ Finally, these two basic syntactic categories are optionally mirrored in the inventory.

T3 *Communicative functions and word classes*

level	functions	categories
semantics	reference vs. predication	
information structure	topic vs. comment	
syntax	subject vs. predicate	noun phrase vs. verb phrase
lexicon		noun vs. verb

It is at the end of this chain of relations that the two principal word classes may be characterized in functional terms: a noun is a word of a category whose primary function it is to refer; a verb is a word of a category whose primary function it is to predicate.²⁶ Needless to repeat, these are

²³ The functions of these operations have been termed ‘pragmatic’ functions in other accounts, e.g. Croft 1991, Anward et al. 1997:172, Smith 2010, Bisang 2011, §1. They have nothing to do with pragmatics; propositional acts are part of linguistic meaning and, thus, semantic in nature. Even calling them ‘discourse’ functions may be misleading. They do concern the discourse in the sense that that term appears in the French *parties du discours* ‘parts of speech’; but they are not located at a level above the sentence.

²⁴ At this level, nominalization comes in as an operation converting a predicative expression into a referring expression. This operation presupposes the loss of illocutionary force accompanying the subordination of a sentence and then detracts further from its sententiality by suppressing the propositional act of predication.

²⁵ Hengeveld (1992[P]) speaks of referential phrases and predicate phrases, assuming thus a categorial instantiation of the discourse functions already at the semantic level. That, however, presupposes a semantic representation in a particular formalism on which such concepts may be based.

²⁶ The primary function of a stem is that function which it may fulfill without any structural apparatus. Any function which requires additional structural means is then a secondary function (cf. Kuryłowicz 1936:80,

functional characterizations of interlingual concepts. Neither is it necessary that every language implement the contrast between reference and predication at the lexical level (cf. Lyons 1977:429f), nor does this functional basis provide much methodological help in identifying the classes of noun and verb in a language.

These two categories thus find their ultimate motivation in the communicative functions of language. All other categories are functionally subordinate to these two and therefore have an even more indirect functional motivation or, rather, a predominantly structural motivation.

4.4 Cognitive functions

4.4.1 Notional theories

Parts of speech have a basis in cognition to the extent that the following presuppositions are fulfilled: cognition has a categorial structure independently of linguistic structure, and both the sheer existence of parts of speech and the specific parts of speech employed in the languages of the world are motivated as representing this categorial structure. A theory based on these presuppositions is a **notional theory of parts of speech**.

The major problem with such a theory has been observed repeatedly: a notion alone does not determine the word class in which it is coded. That is true both at the level of the individual notion and at the level of the notional category. At the former level, the argument that words of different classes may represent the same notion was first made by the modistae. They used the example of the notion of ‘whiteness’, which in Latin may take the forms of *albus* ‘white’, *albedo* ‘whiteness’ and *dealbo* ‘be white’ (Thomas of Erfurt 1972, §46). The modist doctrine holds that the meaning of a part of speech is not among the semantic features of the lexeme in question and, instead, a *modus significandi*, a ‘mode of signifying’. In other words, the part-of-speech category is not given with a notion, but something chosen for its linguistic representation.²⁷ Jespersen (1924:91) makes the same argument with exemplary incisiveness, illustrating with a whole sentence:

- E17 a. He moved astonishingly fast.
 b. He astonished us by the rapidity of his movements.

Jespersen offers 10 near-synonymous transformations of E17a (of which E17b is just one) by converting each of the notions ‘move’, ‘astonish’ and ‘fast’ through the word classes of noun, verb, adjective and adverb. At the level of the conceptual category, the analogous argument has often been made with the concept type ‘property’. While notional theories of parts of speech would have it that the part of speech ‘adjective’ is the structural reflex of the conceptual category ‘property’, in actual fact, properties are coded both by adjectives like *beautiful* and by (abstract) nouns like *beauty*. While relations of markedness may help in identifying one of alternate codings as more basic (cf. Croft 1991:53-55), this does not yield uniform results either within a language or across languages and would, in the example at hand, identify the noun as the part of speech that basically codes the property of beauty.

Dik 1989:162, Croft 1991, ch. 2, Hengeveld 1992[N]).

²⁷ The approaches reviewed in Bisang 2011, §2.1, which identify a part of speech by concepts which are its prototypical members, fail by disregarding this. Putting English words such as *SEE*, *BIG* in capitals in order to designate concepts is of no avail here: While it may be a useful methodological approach to identify, in the target language, the translation equivalents of such English words as *see*, *big*, concepts such as *SEE*, *BIG* are insensitive to word classes, i.e. they cover equally *see* and *sight*, *big* and *size*.

4.4.2 Categorical meaning

What has been said so far does not encourage the search for categorial meaning, i.e. the intension of a word class. However, it still befits us to briefly review some evidence for categorial meaning of parts of speech that has been brought forward in the literature. It is confined to three major parts of speech, noun, verb and adjective; and it comes from languages that possess a productive class of adjectives and in which linguists can control finest shades of meaning. Methodologically, this section takes up where the discussion of paradigmatic relations among parts of speech in §3.1 left off.

4.4.2.1 Noun, adjective and verb

Nouns and adjectives may alternate in a couple of contexts. One of these is in the predicate of a copula clause, as in E18 (from Jespersen 1924:75-77):

- E18 a. *c'est rose*
 FRENCH 'it's pink'
 b. *c'est une rose*
 'it's a rose'

E18a only entails 'it is colored', thus, the hyperonym of 'pink', while E18b not only entails 'it is a flower', but also 'it has thorns', 'it has pinnate foliage' etc. More in general: Given a proposition of the form 'X is P'; then if P is an adjective, the proposition entails only hyperonyms of P; if it is a noun, then it entails a sometimes heterogeneous set of more or less specific predicates.²⁸ It is the combination of these that constitutes the higher ontological autonomy of what is signified by a noun as against an adjective.

Another difference between the two word classes becomes clearer in E19 (example from Bally 1921:305 taken up in Jespersen 1924:77):

- E19 a. *vous êtes impertinent*
 FRENCH 'you are impertinent'
 b. *vous êtes un impertinent*
 'you are an impertinent guy'

The substantivization of E19b has the effect of subsuming the subject under an established class, thereby characterizing it in an essential way, i.e. forestalling the interpretation of a contingent state. This is also illustrated by E20.

- E20 Having been a Conservative Liberal in politics till well past sixty, it was not until Disraeli's time that he became a Liberal Conservative. (Jespersen 1924:78)

The wording obviously presupposes that liberals and conservatives are classes and that the subject is subsequently subsumed as an element under either of these classes. In E20, these classes are presumably stabilized by party membership. Being essentially a member of either of these classes, the subject is secondarily characterized by a property. The underlying principle is that a substantive

²⁸ Cf. Jespersen 1924:75: "the adjective indicates and singles out one quality, one distinguishing mark, but each substantive suggests ... many distinctive features".

says what an entity primarily and essentially is, whereas an adjective only attributes a property (or just a state) to it which may be compatible with many other properties of the same significance.

These examples are apt to show that predicating a noun on a referent implies its inclusion in a conceptually stable class, its subsumption under a kind, with the associated stereotyping effect. Predicating an adjective on a referent implies ascribing it a property or state as a more or less stable characteristic without, however, categorizing it in any essential way (s. Wierzbicka 1986).

Now as for adjectives and verbs, a direct opposition between them in predicative position may be obtained in a language that possesses a set of roots from which either an adjective or a verb stem may be formed. That is the case in Latin, as illustrated by the examples in T4 (cf. Lehmann 1995, §2.1.2):

T4 *Verb and adjective in Latin*

verb		adjective	
form	meaning	form	meaning
<i>ūmēre</i>	be wet	<i>ūmidus</i>	wet
<i>valēre</i>	be strong	<i>validus</i>	strong
<i>līvēre</i>	be blue	<i>līvidus</i>	blue
<i>frīgēre</i>	be cold	<i>frīgīdus</i>	cold

In general, given a root X, then the verb stem X-ē- designates the state X, whereas the adjective stem X-ido- designates the property X. E21 provides a minimal pair:

- E21 a. *bracchia līvent*
 LATIN 'the arms are blue'
 b. *bracchia līvida sunt*
 'the arms are blue'

In E21a, the arms are temporarily blue, perhaps having been tossed. The arms of E21b instead are permanently blue, being perhaps the arms of a painted statue. Thus, the difference between the categorial meaning of adjectives and verbs in Latin is, again, one of time-stability: the proper locus for the adjective is a property; for notions with lesser time-stability, a verb is employed.

These semantic differences between nouns, verbs and adjectives can be related to their primary function: A noun subsumes its referent under a class. This operation presupposes that the class has members which have essential traits in common. An adjective does not do that; it just attributes a predicate to its referent. This predicate is a property or a state, thus, less time-stable than the predicates conveyed by nouns. An adjectival predicate involves no class-formation and therefore does not imply that what it predicates characterizes the referent in an essential way. This is nicely shown by examples such as E19f. Finally, a verb says that its argument is temporarily in some situation (*situation* is a hyperonym of *event*) which may change.

4.4.2.2 Grammatical meaning and types of concepts

In examples such as the above, most clearly perhaps in E20, there is no structural motivation for the choice between one word class or another. The speaker is entirely free here in his choice among categories. Accounting for the choice implies either finding a semantic motivation or pleading for

free variation or extralinguistic factors. The latter, however, is excluded by the nature of examples such as E20. Such examples only allow the conclusion that word classes may have a semantic side, even if this be only a contextually conditioned effect.

Observe, however, that by the strictest structuralist standards, we have not been able to come up with a minimal pair contrasting two word classes. In E18f, the noun is in a different context than the adjective, viz. following an article. The latter is an overt recategorization operator, which contributes something to the meaning difference between the #a and #b versions. In E20, the adjective is in prenominal position; the substantive is not. Finally in E21, the root in question precedes an *-ē-* formative in the #a version, but an *-ido-* suffix in the #b version. Each of these makes some contribution to the meaning difference between the two forms. An absolute minimal pair featuring a given stem in two different categories in the very same context is logically impossible: there would by definition be nothing whereby one could recognize the categorial difference.

In assessing the semantic phenomena demonstrated in the preceding two sections, we have to bear in mind that if a linguistic unit has some semantic potential, that does not entail that it conveys that meaning on every occasion of its use. A categorial meaning is a grammatical meaning which has no expression of its own. This kind of meaning is extremely fragile and easily overridden by other factors. To render this clearer, we will briefly compare two related areas, markedness and the contrast between lexical features and features coded separately.

First consider the case of markedness oppositions: In certain contexts, the present tense means ‘at the time of this speech act’. It has this sense primarily when it contrasts syntagmatically with a more marked tense whose meaning is incompatible with it, as in E22a.

- E22 a. Just war, as it was and is. (Johnson, James T., *First things*, January 2005.)
 b. from time to time the information involved is very sensitive (www.lingue.de)

Whenever there is no such contrast, the semantic feature may remain inactive, as in the timeless (“gnostic”) present. And it may even be overridden by some contradictory feature coded more explicitly in the context. Thus, reference to the moment of the speech act is excluded if a present tense verb is accompanied by a temporal adverb like the one of E22b.

Second, consider such features as constitute verbal characters and aktionsarten. They may be coded at different grammatical levels in different degrees of explicitness. The verbal character may be determined already at the root level, so that root verbs behave differently depending on it. Or else the verbal character may be fixed by an aktionsart derivation. Again, that kind of meaning may be conveyed by inflectional aspect. And finally, there is the possibility of determining such things as telicity by syntactic operations, e.g. by combining a verb with a definite direct object. The verbal character of a root may become effective in contexts that allow it to develop. And it may be overridden by overt higher level operators. This is illustrated by E23. The verbal character of the German root verb *schlafen* ‘sleep’ is atelic (durative), as shown in the diagnostic context of #a. In the compound verb *einschlafen* ‘fall asleep’ shown in #b, the aktionsart is fixed as telic (ingressive), as again proved by the diagnostic framing adverbial. This categorization is, again, undone in #c, where the periphrastic progressive aspect forces atelicity on the verbal complex.

- E23 a. Linda schlief sieben Stunden.
 GERM ‘Linda slept for seven hours.’
 b. Linda schlief innerhalb von Sekunden ein.
 ‘Linda fell asleep in a few seconds.’

- c. Linda war gerade am einschlafen, als das Telefon klingelte.
'Linda was just falling asleep when the phone rang.'

What such examples show is that a grammatical or semantic feature that is not coded separately is fragile. The same is true of the semantic features associated with part-of-speech categories. These are totally implicit and therefore subliminal. They come out in such contrasts as examined in §4.4.2.1; but otherwise they remain dormant. They may easily be overridden by operations of recategorization such as those illustrated in §2. And wherever the speaker does not have a choice, a potential contrast is neutralized. There is, thus, no contradiction between examples such as E17 and examples like E19 and E21.

The conclusion from this is that parts of speech are primarily not semantic, but syntactic categories. Only secondarily, namely if they are lexicalized in the form of stems, does the question arise which kinds of notions it would make sense to have available in the inventory in which word class. In other words, the essence and *raison d'être* of a part of speech is not some kind of highest hyperonym for all of its members. The role of notions in the formation of a part-of-speech system is that notions of a certain kind are typically needed in one of the communicative functions so that it makes sense to store the respective categorization with their lexemes, i.e. to assign them "already" in the lexicon the word class corresponding to that function. The communicative functions reviewed in §4.3 have, thus, priority in a functional account of word classes, while cognitive kinds play an ancillary role.²⁹

Cognitive kinds may be distinguished by the parameter observed to be operative in §4.4.2.1, viz. time stability (see Givón 1979, ch. 8 and Lehmann 1991, §3.4). It constitutes a scale on which concepts may be arranged. Time stability of a concept correlates in an essential way with its conceptual relationality, as follows:

- The most time-stable concepts are those of the lowest degree of relationality, thus representations of objects (in the widest sense of the word). As these objects are time-stable, concepts of them characterize them in an essential way.
- The least time-stable concepts are those of the highest degree of relationality, thus representations of events. Since events are volatile, such concepts do not characterize or classify objects involved in them in any essential way and instead provide information on changes.
- Concepts of an intermediate degree of relationality also display an intermediate degree of time-stability; they represent properties and states which characterize objects more essentially or more temporarily.

Besides the relational functions, to be reviewed in the next section, time-stability constitutes the most important cognitive parameter that is relevant for parts of speech.

The general statement that word classes only have a derivative, if any, cognitive basis and therefore only a weak, if any, common semantic denominator is subject to one exception, which concerns the numerals. These are the only word class definable on a purely semantic basis, viz. as words designating numbers. Thus, they do form a lexical field which, although lacking an archilexeme, is based on the common semantic denominator of designating the cardinality of a set. As is to be expected, a word class constituted in such a way is in an orthogonal relation to the other

²⁹ At this point, the present account follows Hopper & Thompson 1984:708 in "that the lexical semantic facts about N's and V's are secondary to their **discourse roles**" and derivative of the latter. By the same token, it diverges from the accounts presented, among others, in Croft 1991, ch. 2 and Gil 2000:197, where cognitive categories are directly associated with syntactic categories (including parts of speech).

word classes, which are not constituted by notional criteria, but by their function in structuring a message. And true enough, numerals may behave as nouns, adjectives or verbs in different languages. Even inside a given language, the set normally falls apart into subsets that share properties with different word classes: the lowest numerals tend to lack syntactic autonomy, while the higher numerals are more noun-like (Lehmann 2010). A consistent theory would therefore not posit the numeral as a separate part of speech. For English, they may be subsumed under the nominal category and then subdivided into more substantival and more adjectival numerals.

4.4.3 Conceptual relationality

In the course of the syntagmatic structural analysis performed in §3.2, it was seen that some parts of speech can be conceived as categories fulfilling specific functions in dependency relations. We are here particularly concerned with the modifiers and governors of T2. As was said there, these are equipped with grammatical relationality. The latter has a cognitive basis, to which we now turn.

4.4.3.1 Modifying relationality

Concepts may be modified in order to be used for reference and predication. Modification, thus, produces operands of these two operations. As we saw in §3.2, the formal basis of modification is modifying grammatical relationality, defined as the potential to function as Y in $[X Y]_x$. Again, the question arises what kinds of concepts are predestined for such a syntagmatic function. The answer lies in the kind of conceptual relationality that enables a concept to contribute to the function of another concept.

Consider first modification of predicative concepts. Situation concepts are primarily coded in the verbal sphere and, to that extent, lexicalized as verbs. There may be languages with an all-embracing class of verbs which leave little room for anything else (Hengeveld's (1992[P]:69) type 7). Examples include Hengeveld's (l.c.) Tuscarora and Sasse's (1993) Cayuga.³⁰ However, specific situation concepts are composed of certain basic features which are modified by more specific features. For instance, *sneak* is *move stealthily*. Such specific semantic features may be coded syntactically as modifiers, that is, as some kind of adverbial, as in the paraphrase given. Often, there is the alternative of coding the specifying feature by a higher verb. For instance, where English says *appeared again*, coding the repetition by an adverb, Spanish says *volvió a aparecer* ("returned to appear"), coding it by a higher verb. Languages make use of these possibilities to different extents. Some languages like Spanish and Yucatec Maya rely predominantly on verbs. German, although certainly not poor in verbs, prefers adverbial modification over higher-level predicates in certain functional domains (Lehmann 1990). Other languages abide by a small set of verbs and code all more specific situation types in some kind of verbal dependent. There are several subtypes of this latter strategy, having to do with the particular word class assigned to the specific situation concepts. They may be adverbs or "preverbs" or converbs, as in Jaminjung.³¹ They then act syntactically as modifiers of the main verb. Or else they may be treated like abstract nouns. In that case they form some kind of inner dependent of the main verb (a light verb), as they do in Persian

³⁰ although these are probably virtual rather than actual examples; s. Mithun 2000

³¹ The terminological problem is telling here. The words in question code the bulk of what in SAE languages are verbal meanings. Structurally, however, they are not verbs but, quite to the contrary, they presuppose a verb that they combine with.

and Korean. While such a pattern may remain stable over a long time, combinations of a verb with a dependent that represent a specific kind of situation tend to lexicalize as verbs. This leads to an enrichment of the verbal lexicon. One may therefore hypothesize a long-term cycle of enrichment and depletion of the verbal lexicon.

The same goes for the modification of referential concepts. To the extent that the inventory does not provide a particular referential concept needed in the discourse, one may form one by combining a hyperonym with a modifier. For instance, German *Schimmel* is English *white horse*. The part of speech functioning in this operation is the adjective. Adjectives are often similar to one of the primary parts of speech, either nouns or verbs, and may even be a subcategory of one of these (cf. Bhat 1994, Wetzer 1995). In Latin and English, the adjective is a nominal category, in Thai, it is a verbal category. Some languages have a very small class of adjectives (cf. Dixon 1976); Yukaghir only has ‘big’, ‘small’, ‘old’ and ‘young/new’. And some languages, including Goemai (Hellwig 2007), Korean (Evans 2000:714) and Lao (Enfield 2004), lack adjectives altogether.³²

The adjective and the adverb are alike in their primary function of modifying another concept. Consequently some languages abide by a generic category of modifier, which may be combined indiscriminately with nouns and verbs. Hixkaryana is an example (Derbyshire 1979, ch. 2.1.4). Furthermore, conversion between adjective and adverb is often conditioned by rules of grammar. For instance, nominalization of a verbal clause like E24a entails the conversion of the modifier of the verb into an adjective, as it appears in E24b.

- E24 a. Linda works heavily
b. Linda’s heavy work

While nominalization may have certain semantic effects like suppressing predication (cf. E5f), the accompanying conversion of the adverb into an adjective is an automatic and obligatory consequence of this syntactic operation. This is further evidence that, in such languages, adjective and adverb do not differ in their categorial meaning³³ but, instead, exclusively in their syntactic distribution.

It follows from the above discussion that the concepts of modification and modifier are paradigm examples of mixed concepts in the sense of §1.1. A purely semantic definition of modification has proved difficult (Smith 2010) because it is hard to capture the difference between modification and predication without reference to formal structure. The intuition is, anyway, the following: Given concepts X and Y such that X either refers or predicates. Then Y **modifies** X iff it predicates on X while, at the same time, subordinating itself to the function of X. Modification, thus, implies a distinction of levels of force in semantic structure: A modifying expression may, in itself, have a referring or predicating potential. That is, however, subordinated to the referring or predicating function of the modified. This kind of self-subordination is the nature of modifying relationality. At the same time, it provides the reason for us not to accord modification the same status as the propositional operations of reference and predication.³⁴ It is here treated as a syntactic operation, thus, as an operation with a semantic and a structural side.

³² In these three languages, properties and states are primarily lexicalized as stative verbs.

³³ Things may be different in languages like Latin and Italian, where there are minimal pairs like Ital. *cammina veloce* ‘walks quick’ and *cammina velocemente* ‘walks quickly’.

³⁴ Croft 1991, ch. 3.2.2 hesitates in positing modification as a propositional operation on a par with reference and predication.

As is usual with such language-independent definitions, it does not suffice for the purpose of singling out and delimiting particular constructions. As seen in §3.2, the concepts of modification and modifier have a formal correlate in the concept of the endocentric construction. However, that concept offers no clue for delimiting attributive and adverbial modification against other endocentric constructions like apposition or even disjunctive coordination. The syntactic operation of modification constitutes the set of constructions that emerges in the intersection of the functional and the formal perspectives. In particular, the concept of self-subordination needed in the characterization of modification is precisely the role of Y in $[X Y]_x$ (cf. T2).

The conceptual basis of a modifier, then, does not lie in its intermediate degree of time-stability; that is only the conceptual category that most easily lends itself to that function. Instead, its essence is the kind of relationality that it is equipped with: the conceptual relationality of a modifier is such that it attaches to the concept of the modified. This function of the modifier in messages translates into a stabilizing function in the part-of-speech system: As we saw in §2, endocentric modification affords categorial uniformity. This occasions the hypothesis, already mentioned in §3.2, of a typological correlation between presence of modifiers and categorial uniformity in a language.

4.4.3.2 Governing relationality

We now come to the functional notions that correspond to the lower half of T2 and, thus, to the conceptual correlate of government. Verb, adjective and adverb are semantically relational in that they refer to some entity constituted independently of themselves, on which they provide more specific information and which they are, thus, ascribed to as predicates in the logical sense. That entity is what is designated by the subject of the verb, by the head nominal of the adjective and by the verb phrase modified by the adverb. However, these parts of speech may also be relational in another sense: There may be yet another referent, which serves as a reference point for the situation and whose relation to the latter is mediated by the verb, adverb or adjective. The same holds of a nominal concept which may be individuated by reference to such an external fixed point. Conceptual relationality comprising such an argument position spells out grammatically as **governing relationality**. Governed referential expressions do refer independently, but they serve as a reference point for the governing concept, which they thus help delimit and individuate.

Verbs having governing relationality in addition to their subject place are plurivalent (and possibly transitive), adjectives possessing governing relationality are relational (like *reminiscent* [*of that achievement*]), adverbs become adpositions (like *behind* [*the door*]), and likewise there are relational common nouns (like [*Sue's*] *aunt*); the brackets enclose the complement. In terms of categorial grammar, the construction consisting of a word of one of these latter categories and its nominal complement is of the same category as an intransitive verb, a non-relational adjective, an adverb or a non-relational noun, respectively (cf. the operation of derelationalization illustrated on p. 11). This is shown in S1, an alternative representation of the lower half of T2. The curved arrow reads 'governing'. The constructions on the right-hand side of the equal sign provide a source for the lexicalization of new members of the categories on the left-hand side.

S1 Subclassification according to governing relationality

verb	intransitive verb	=	transitive verb	} complement
adverb	adverb	=	adposition	
adjective	absolute adjective	=	relational adjective	
noun	absolute noun	=	relational noun	

Further differentiation may refer to the type of complement governed by these words. Just as a verb may govern either a noun phrase or a subordinate clause, the same is true for an adposition. An adposition governing a clause is a subordinative conjunction.³⁵

4.4.3.3 Conceptual relationality as a cognitive basis of parts of speech

Modifying conceptual relationality is the most important cognitive basis of adjectival and adverbial modifiers, thus, indirectly, of adjectives and adverbs. Governing conceptual relationality is the most important cognitive basis of plurivalent verbs, adpositions (including subordinating conjunctions), relational adjectives and relational nouns. As is evident, this comprises most of the major parts of speech except the primary ones, noun phrase / (absolute) noun and verb phrase / (intransitive) verb. As was shown in §4.3, these have their functional basis elsewhere, viz. in the propositional operations of reference and predication. Reference is an exophoric relation, in other words, it involves no conceptual relationality of referential expressions and, consequently, no syntagmatic structural relations. The relational function of the noun (phrase) is therefore a purely negative one: that is the part of speech that lacks any such function.

The case of predication is less straightforward. Apart from avalent predications of the type ‘it is raining’, a predicate is attributed to a referent. However, there is no particular dependency (or other) relation destined to be the structural reflex of the predicative relation. Instead, there are, even within one language, more than one structural manifestation of this relation, depending on the categorial nature of the predicate. For nominal predicates, some kind of equative construction may be used, establishing just a sociative relation between the subject and the predicate. With adjectival and adverbial predicates, their modifying potential may be used, and such predicates may then differ from modifiers only by word order or prosody. For verbal predicates, the case is most complicated because mirroring the bipartite semantic structure of a referent and a predication in a verbal clause requires introducing a binary subdivision among the verbal dependents, with one of them being the subject and the others being oblique. If the verb has valency, then that subject is governed. And again depending on the language, one of these subject-predicate constructions may be used as a model for any or all of the others.³⁶ In other words, while the propositional act of predication indirectly provides the communicative function for the part of speech ‘verb’, there is no conceptual relationality corresponding to this. Predication differs in this conceptually from the relational functions of modification and government.

This result is a facet of a theoretical framework for the parts of speech which provides a set of different – partly mutually independent, partly interconnected – motivations for them, such that the

³⁵ One of the first to postulate this is Jespersen (1924:88f).

³⁶ The subject relation in SAE languages is a peculiar combination of modification and government; see Lehmann 1983, §3.2.

motivation of one part of speech may be composed of a subset of these factors differing from the motivation of the next part of speech.

4.5 Combining communicative and cognitive criteria

As communicative functions of parts of speech, we have identified the propositional functions of reference and predication. As their cognitive functions, to the extent they have any, we have the relational functions of modification and government and the degrees of time-stability. Now these parameters are logically independent of each other. They might be conceived as orthogonal, creating a cross-classification of expressions that designate some kind of concept and fulfill some propositional function (Croft 1991:53). However, communication and cognition go hand in hand in language, and thus there is one kind of concept particularly apt for functioning in either of the two propositional operations. For each of these two associations of a type of concept with a propositional operation, there is a syntactic category. Finally, where categorial uniformity obtains, there is a word class instantiating, at the lexical level, each of these two syntactic categories. This yields the two cross-level associations whose communicative aspect already appears in T3:

- Functional bases of the noun:
 - Referring expressions are categorized as noun phrases. The noun is the lexical representative of the noun phrase. Its primary function therefore is to form the basis of a referring expression.
 - Concepts of the highest time-stability (objects) lend themselves most easily to reference. Therefore, a noun phrase and, derivatively, a noun typically designate an object.
- Functional bases of the verb:
 - Predicating expressions are categorized as verb phrases. The verb is the lexical representative of the verb phrase. Its primary function therefore is to form the basis of a predicating expression.
 - Concepts of the lowest time-stability (events) lend themselves most easily to predication. Therefore, a verb phrase and, derivatively, a verb typically designate an event.

In other words, the communicative functions of reference vs. predication map, on the one hand, on the two cognitive functions of high vs. low time-stability and, on the other hand, on the nominal vs. verbal syntactic categories. The association of high time-stability with the nominal category, and of low time-stability with the verbal category, is therefore not direct, but mediated by the communicative function.

Most if not all languages have the noun and the verb at the poles of the scale of time-stability. The majority, however, does not exhaustively divide the continuum up between these two word classes, but leaves room in the middle for one or two additional, adjective-like categories. Some published accounts of these cross-level associations of parts of speech (e.g. Croft 1991, Lehmann 1995) therefore include the adjective at an intermediate position on the time-stability scale. This move is in consonance with a theory that treats modification as the third propositional operation beside reference and predication. It is not taken up here, for the following reasons: First, as argued in §4.4.3, modification is on the same level as and contrasts minimally with government. If government is a syntactic relation and not a propositional operation, then so is modification. Second, modification subdivides into adverbial and adnominal modification, yielding adverbials as adverbial modifiers and adjectivals as adnominal modifiers. These differ only by the criterion of the category of the modified. There is, on this basis, no sufficient reason to accord adjectives a

privileged status in the theory over adverbs. Third, one might draw the conclusion from this that propositional operations as a basis for major parts of speech should be complemented by conceptual relationality as their secondary basis, and that therefore the triple ‘noun – adjective – verb’ should be extended by including the adverb as the fourth and equal partner. While this will be done in the hierarchy of parts of speech to be proposed in §7, adverbs have nothing to do with time-stability. That is, prototypical adverbs (notions primarily categorized as adverbs in many languages), such as *fast*, *hard*, can simply not be assigned a position on that scale. The reason for this appears to be the following: The concepts on the time-stability scale can be predicated on first-order objects and then characterize such an object in a more or less time-stable way.³⁷ Adverbials, however, make no predication on first-order entities and instead on second-order entities. The essential parameter for the concepts providing such predicates is yet to be found; it is not time-stability.

Moreover, the class of adverbs is utterly heterogeneous: an adverb may modify a verb, an adjective, a sentence, another adverb and (in German at least) even a noun. A distributional approach will come up with different classes of adverbs which have little in common (s. Pecoraro & Pisacane 1984 for Italian and Cinque 1999 for some more languages). Consequently, there is no conceptual core to this traditional word class. And if one limits the analysis to modal adverbs, as is sometimes done, one has made an antecedent semantic delimitation, so that the question of a common conceptual core of the class is then no longer an empirical one. The approach to be taken is a semasiological analysis of each distribution class of adverbs, esp. the adverbial adverbs.

The discussion has made it clear that the semantic force of a part-of-speech category is derivative by a couple of intervening steps. The propositional functions are fulfilled primarily not by words, but by components of information structure and of syntactic structure. These are typically represented by nominal and verbal phrases, and these finally may shrink down to nouns and verbs. These are entities belonging to levels that differ in nature. Cognitive structures exert even less determining force on part-of-speech systems: time-stability is only a factor that favors primary categorization of certain concepts in parts of speech motivated by other forces, and conceptual relationality comes into play only at lower levels of the part-of-speech system. Consequently word classes only conserve traces of the semantic force associated with cognitive and communicative motivations. The labile character of the categorial meaning of word classes observed empirically in §4.4.2 follows from the indirect character of the cognitive and communicative motivation for word classes established here.

5 Combining formal and functional analysis

At several points (especially in §§1.1 and 4.4.1), it was argued that since there is no biunique mapping of meaning onto expressions in language, the semasiological and onomasiological approaches taken in §§3 and 4, resp., are mutually independent; both have to be taken wherever meaningful linguistic phenomena are at stake and instantiate hybrid (form-function) concepts. On the other hand, the mapping is not entirely arbitrary. At least two correspondences between the formal analysis and the functional analysis should be noted.

In §3.2, dependency relations were used to establish ranks of major parts of speech. By these formal criteria, verbs, nouns and modifiers are ranked in this order. This is not exactly mirrored, but easily compatible with the result of the functional approach presented in §4: the primary parts of

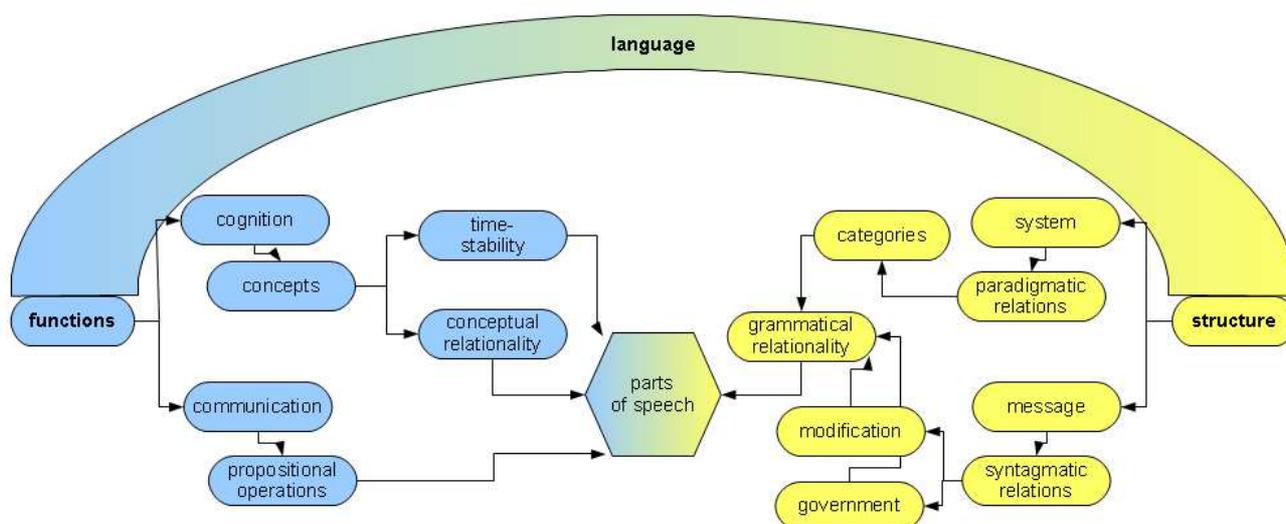
³⁷ See Lyons 1977, ch. 11.3 for the ontology of “naïve realism”.

speech according to functional criteria are noun and verb, while modifiers are secondary. In both approaches, holophrastic words (§4.2) remain outside the ranking.

Secondly, in §3, it was seen that a structural analysis of parts of speech has to concentrate on their syntagmatic relations, since they do not bear paradigmatic relations to each other. In §4 it was seen that a functional analysis has to concentrate on the communicative functions of parts of speech, since their cognitive correlates are derivative. These two findings hang together at an abstract level. As explained in §4.1, cognition means grasping the world by systematizing it in terms of concepts. This involves arranging them on the paradigmatic axis of the system. Communication, on the other hand, means creating community among the interlocutors by orienting their awareness to the same ideas over a stretch of time. This involves arranging these ideas on the syntagmatic axis of the message. This makes us understand that communicative operations and the categories involved in them have their primary reflex on the syntagmatic axis. Thus, given the primary motivation of parts of speech by their communicative functions, the concentration of their formal analysis on the syntagmatic axis follows. The character of the theory brought to bear on our subject is a consequence of the fact, already underlined in §2, that we are accounting for parts of speech, not for parts of the system.

The kinds of motivation relevant for the formation of part-of-speech systems may now be summarized in S2:

S2 *Functional and formal factors conditioning parts of speech*



S2 is just meant to graphically summarize the functional and formal bases of parts of speech discussed so far. §6 will add nothing that could be integrated into S2. The different role of the factors mentioned is not shown, nor are particular form-function associations such as the mapping of conceptual relationality on grammatical relationality.

6 Major and minor parts of speech

The terms ‘major vs. minor word class / part of speech’ have been around at least since they were introduced in Lyons 1968, ch. 7.1.3. There the noun, verb, adjective and adverb are called major parts of speech, whereas preposition and conjunction are mentioned as minor parts of speech. Ch. 9.5.2 then says that these notions may be explicated as open vs. closed classes of elements, and this

is offered, at the same time, as an operationalization of the distinction between lexical items and grammatical items. We thus get the correspondences shown in T5:

T5 *Major and minor parts of speech (Lyons 1968)*

major class = lexical class = open class
 minor class = grammatical class = closed class

Finally, a closed set is defined (p. 436) “as one of fixed, and usually small, membership”, while “an open set is one of unrestricted, indeterminately large, membership”. These definitions are sufficiently precise to overthrow at once the assignments made to the supercategory ‘minor class’. Adpositions and conjunctions are open classes in all modern European languages and certainly in many other languages. For instance, Lehmann & Stolz 1991:14f enumerates 140 German adpositions, with no claim to completeness.³⁸ This is much more than many languages can summon for adjectives or verbs. The number of members is, however, just a consequence of the productivity of the class: there are regular operations of syntax and word-formation to generate new adpositions. Productivity is the decisive criterion for the distinction between major and minor class. This criterion is, in turn, operationalized as requiring that there be, at the synchronic stage in question, at least one word formation process that generates members of the class in question. In short, a major class is one that may be enriched by word-formation, and a minor class is one that cannot.

By this criterion, it turns out that the association of major classes with lexical items (content words) and of minor classes with grammatical items (formatives, function words) can be upheld in principle (i.e. barring very small and unproductive lexical classes like Yukaghir adjectives or Jaminjung verbs³⁹): there are no operations of word-formation to generate grammatical formatives. If a certain grammatical class receives new members, this may happen by processes of grammaticalization and other kinds of grammatical change. These are not rules that would be part of the language system, and instead they change the language system and are therefore usually accounted for in a diachronic perspective. However, since these processes are universal, the distinction between major and minor classes is universal (cf. Bisang 2011, §4). In other words, all languages have content words and function words, though the latter may differ in their degree of grammaticalization and, thus, constitute typological differences among languages.⁴⁰

The dynamic relationship between lexical and grammatical classes of words has the following consequences:

³⁸ The majority of these are, to be sure, secondary adpositions such as *angesichts* ‘in the face of’ and even phrasal adpositions such as *in bezug auf* ‘with respect to’. However, there is no way of keeping these out. For one thing, one would then, by analogy, have to exclude phrasal verbs from the class of verbs and phrasal compounds from the class of nouns. For another, there is no other category available in which such expressions could fall.

³⁹ The latter may not even be an exception, as they approach grammatical formatives in their status, like the light verbs of other languages.

⁴⁰ A language all of whose grammatical formative candidates are lexical items in an incipient phase of grammaticalization (the purely isolating language), and a language all of whose grammatical formatives are bound morphemes (the purely synthetic language), are not meant to be excluded on theoretical grounds. Some existent languages come close to these extremes. They just testify to the dynamic character of the distinction relevant here.

1. A closed class is fed by an open class by grammaticalizing the latter's members. Now the distribution of an item does not change categorically by its grammaticalization (Lehmann 2005, §4); it just gets less sensitive to semantic properties of its context. This means essentially that a certain closed class is the most grammaticalized subclass of a certain open class; it is that subclass of the latter with the most general distribution.
2. Given the gradual nature of grammaticalization, major and minor word classes are not categorically different. The familiar word classes like nouns, verbs, adjectives, adverbs, adpositions, conjunctions do not divide up into a major and a minor subset (cf. Lehmann 2002). Instead, there is a set of word classes such as the ones named; and each of these contains, as a proper subset, a minor word class. The remainder may then be called a major class. This is illustrated by T6.

T6 *Lexical and grammatical subclasses of English word classes*

lexical		grammatical	
category	example	category	example
noun	<i>person</i>	pronoun	<i>one</i>
adjective	<i>red</i>	pro-adjective	<i>such</i>
verb	<i>exist</i>	pro-verb	<i>be</i>
adverb	<i>behind</i>	pro-adverb	<i>there</i>
preposition	<i>notwithstanding</i>	grammatical preposition	<i>of</i>
conjunction	<i>supposing (that)</i>	grammatical conjunction	<i>that</i>
interjection	<i>gosh!</i>	grammatical interjection	<i>yes</i>

It should be clear that T6 contains only a subset of the lexical and grammatical categories even of that one language. Here a few more grammatical categories will be mentioned which, in different languages, have the status of minor classes grammaticalized from some major class.⁴¹ The class of pro-verbs at least includes verbs of existence, positionals, copulas, auxiliaries, modals, light verbs and coverbs. Numeral classifiers and possessive classifiers are minor classes corresponding to absolute and to relational nouns, respectively, as their feeding major class. Quantifiers may be treated as the grammatical counterpart to numerals. They share with the latter their indeterminacy in terms of distribution class. Where they are of nominal character, at least one relevant grammaticalization relation is amply documented, viz. the grammaticalization of the numeral 'one' to the indefinite article.

For each class of grammatical formatives, there is at least one major class which feeds it through grammaticalization. Grammaticalization is not among the forces creating and delimiting parts of speech adduced in the preceding sections and assembled in S2. It differs categorically from these, just as some of the factors joined in that diagram differ categorically among each other. This is just one more occasion to recall that part-of-speech systems owe their existence and shape to a set of incommensurable factors and are therefore internally heterogeneous. That is, however, not to say that the factors assembled in S2 are irrelevant for the minor parts of speech. Instead, with increasing grammaticalization, their motivation in terms of cognitive and communicative functions fades

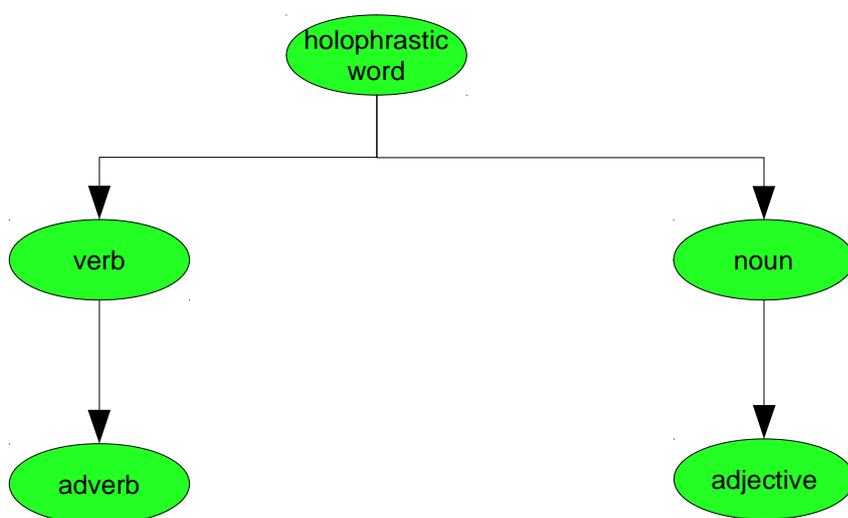
⁴¹ A rather comprehensive overview of the ways in which minor classes evolve from major classes by grammaticalization is found in Heine & Kuteva 2007, ch.2.

away, while their motivation by purely formal factors remains and increasingly becomes their only motivation.⁴²

7 A hierarchy of parts of speech

We have now assembled the theoretical basis for a dynamic model of the development of a part-of-speech system. S3 is the first step in such a model. It starts from the holophrastic word and comprises the primary parts of speech – noun and verb – and those secondary parts of speech directly dependent on these by modifying them – adjective and adverb, resp.

S3 *Hierarchy of parts of speech I: major parts of speech*



The idea of S3 and the following diagrams is the gradual building of a part-of-speech system from top to bottom (similar models are proposed in Hengeveld 1992[N]:47-72, Anward 2000 and Gil 2000, §3). The nature of this model is systematic-genetic. The principle leading from top to bottom is a dynamism of increasing system complexity. The model accounts for the stepwise extension of a part-of-speech system in the sense of Jakobson’s (1968) unilateral foundation. A given part of speech presupposes the existence in the system of the parts of speech higher up in the tree. However, apart from S5, the model does not determine the specific way in which any of the secondary elements in the tree come into existence. That is, it does not say that each such element evolves out of its respective superordinate element. Although such a model has repercussions in typology, diachrony and language acquisition, these are not direct, since there are many intervening factors.

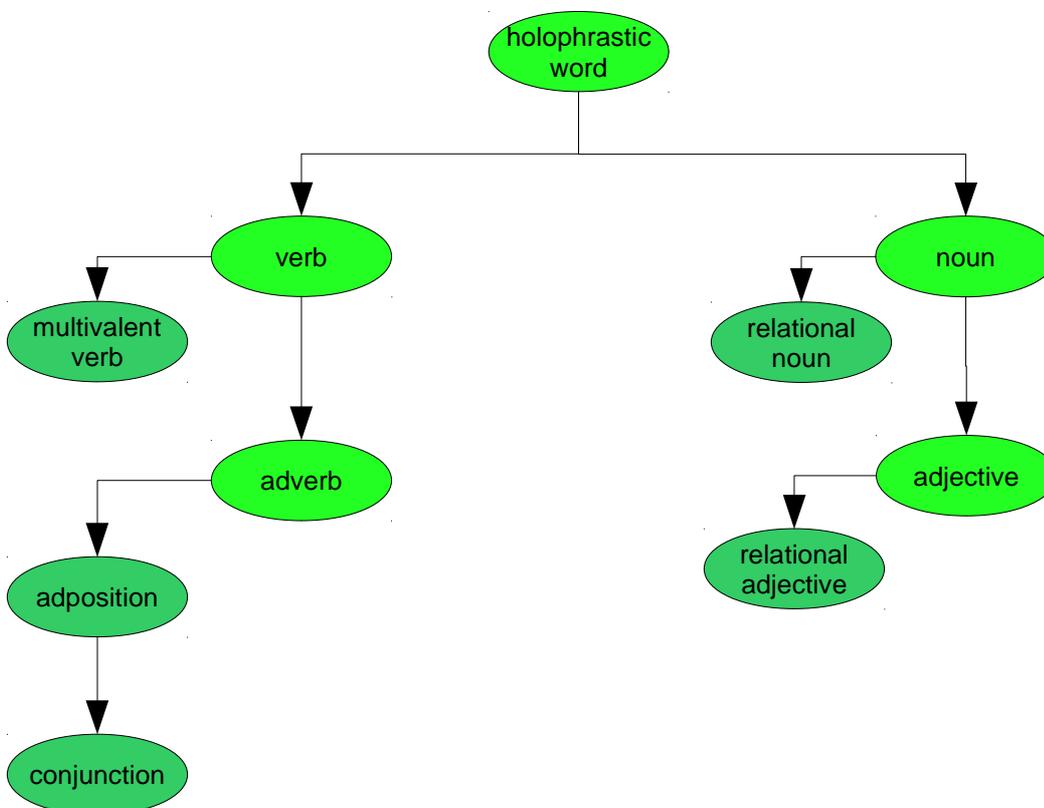
Given that, for syntactic aspects, the present approach essentially relies on concepts of dependency grammar, it is insufficient to account for relations whose head is a complex phrase. The sociative particles mentioned in §3.2 – no matter whether they are lexical or grammatical formatives – would have to be provided for at the clause or even sentence level. Here, it must suffice to mention them beside the category of adverb.

⁴² For example, Lehmann 2010 argues that the primary motivation of Yucatec Maya numeral classifiers is not a functional one (“individuation of the concept designated by the counted noun”), but a structural one (to serve as a prop for affixal numerals).

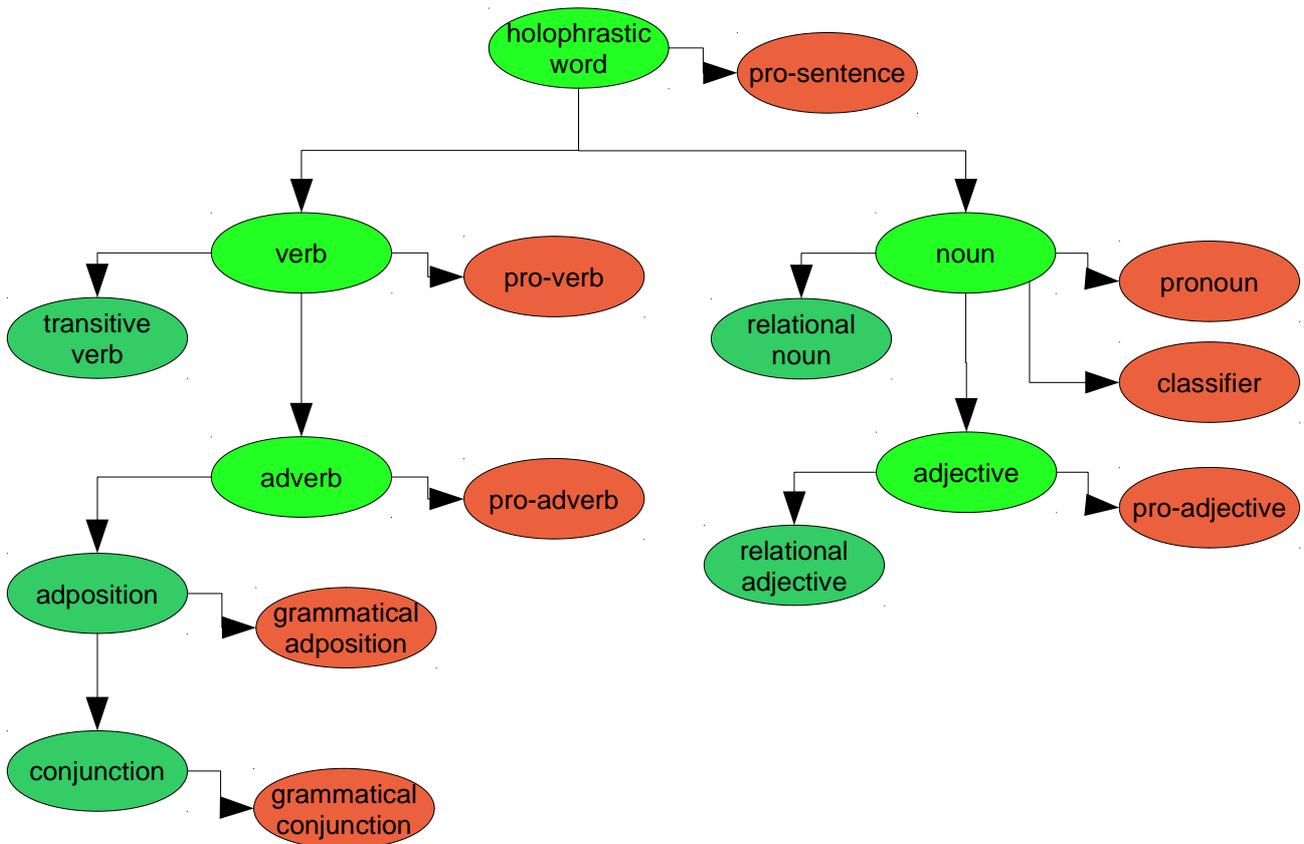
Expanding a part-of-speech system by secondary parts of speech like modifiers, adpositions, conjunctions and different kinds of particles, as will be done in the remaining two schemata, means moving down the hierarchy from the universal to the language-specific. While the primary parts of speech find an extra-grammatical motivation in terms of propositional acts, those secondary parts of speech are motivated with respect to the primary ones. This kind of motivation refers not so much to cognitive or communicative functions of language and more to formal constraints on a semiotic system and to system-internal functions.

In a second step, the major classes developed on the basis of the holophrastic word get an additional governing slot motivated by conceptual relationality. This leads to the subclasses proceeding from the main classes in S4.

S4 *Hierarchy of parts of speech II: relational parts of speech*



The third logical step is the evolution of minor parts of speech out of these major ones by grammaticalization. In this case, a given minor part of speech does develop out of its corresponding major part of speech, although other sources are not excluded. S5 gives an overview of the system proposed so far, leaving a few items out for want of space.

S5 *Hierarchy of parts of speech III: minor parts of speech*

The diagram symbolizes, in the vertical dimension, the hierarchical relations between the major classes, and in the horizontal orientation, the specific dependence of a certain category on another. In a dynamic perspective, word classes may now be seen as the product, to a large extent, of the omnipresent processes of lexicalization and grammaticalization:

- Apart from other operations of enrichment of the lexicon, the major classes are fed by lexicalization of word-formations and syntactic constructions,
- the minor classes are fed by grammaticalization of members of the major classes.

This dynamic model may generate quite diverse sets of synchronic systems. Among the perhaps less expected outcomes is a language that possesses some minor class without having the corresponding major class. This may happen if the minor class first comes into existence by the grammaticalization of elements of some major class, but the major class gets lost afterward. Thus, it is possible for a language to have exclusively simple adpositions, but no complex adpositions and no productive process for their formation. Classical Latin is a case in point. An admittedly extreme case would be a language that acquires pronouns – by grammaticalization of nouns or noun phrases – and then gives up its category of nouns. At the ensuing synchronic stage, it would have no lexical nouns, but only pronouns. That is the situation claimed to obtain in Hengeveld's (1992[P]:69) Tuscarora and Sasse's (1993) Cayuga.

Finally, as we saw in §2, words are at an intermediate level of the complexity hierarchy of meaningful units. The transition from major to minor class words points towards the next lower level, which is the level of morphemes, including affixes. A word class system not only has to be related, as we have done, to the next higher level system, which is the system of syntactic

categories, but also to the next lower level system, the system of inflectional categories. Auxiliaries grammaticalize to conjugation affixes, postpositions grammaticalize to case suffixes, determiners grammaticalize to definiteness markers, and so forth. A complete account of the word-class system of a language would include the systems of both of these adjacent levels.

8 Conclusion

The *raison d'être* of parts of speech lies in the semiotic necessity of structuring the message in terms of categories and relations in order to assure compositionality. The categories and relations are therefore related to the syntagmatic axis and devised in such a way that the categories of syntagmatically related elements complement each other to form a higher whole.

Given these premises, the question arises which these categories are. There is no universal set of them; instead only the principles underlying their development are universal. Compositionality itself is not an absolute goal, but subservient to mutual understanding. There are situations where compositionality is unnecessary even at the highest syntactic level. For such situations, all languages have holophrastic utterances, which involve no categorization, made up of interjections and ideophones.

Compositionality is necessary to the extent that inferencing is insufficient to create the intended sense. Linguistic structure guarantees compositionality and thus guides inferencing; but the extent to which it does so and the functional domains in which it does so are largely language-specific (LaPolla 2003). Consequently, there are differences among languages in the extent to which they at all categorize expressions in structural terms, in the structural level – between sentence and root – at which they do so, and in the communicative and cognitive categories which they use to functionally motivate the structural categorization. However, this variation is guided by a couple of universal principles.

First, understanding is essentially holistic. In other words, if I understand your utterance, then neither of us will care whether I understood its components. Therefore linguistic structure is most concerned about securing understanding at the highest level and is most compositional at that level. Therefore languages have means to mark off categories and relations at the sentence level. They may or may not do so at lower levels, including, in particular, the stem level. In that sense, fixing parts of speech at the stem level (in the form of word classes) amounts to downscaling the solution of a task. That is a strategy available at the typological level which may suit the type of the particular language (cf. §2). This projection of syntactic categories into the lexicon happens by the joint action of grammaticalization and lexicalization.

Second, since all of this concerns the structure of the message (as opposed to the system), the functional principles filling up structural categories with content are more principles of communication than of cognition. The highest-level communicative operations are the propositional operations of reference and predication. Therefore much of linguistic structure is oriented towards these; and that is true for parts of speech, too. Therefore all languages distinguish the categories of referring and of predicating expressions. If these are marked off as structural units, they yield the syntactic categories of the noun phrase and the verb phrase and, in a derivative way, their lexical manifestations, the noun and the verb. These two word classes are populated with members essentially on the basis of the cognitive category of time-stability.

From there on, extension of the part-of-speech system is guided by universal and then increasingly language-specific structural constraints. The next step in the extension of the system is

concerned with expanding the range of concepts used in reference and predication. All languages can do that, some languages, however, only at the level of modifying syntactic operations of attribution and adjunction. Now if a language opts for categorial uniformity, it needs modifiers. Here is another field where it can be economic to store prefabricated modifiers as a lexical class. This yields adjectives and adverbs, which make use of the structural device of modifying relationality. Similarly, the structural device of governing relationality is put to use in order to create subclasses of the classes generated so far which differ in their valency and thus afford more flexibility in syntagmatic combination. This then opens a rich field of further subdivision according to grammatical selection restrictions and, thus, to the subcategory of the complement.

Finally, the overall burden of categorization and relationalization cannot be born by the lexicon alone. There must be flexibility in recategorizing items and putting them into new relations. Apart from the purely isolating language, all languages derive minor classes from the lexical classes by grammaticalization. Their members help in pinning down the category that an expression belongs to, thus introducing redundancy into the message. Some of these minor classes, like demonstrative and interrogative pronouns, are again motivated by universal principles of communication. In principle, however, their organization is a matter of language-internal structure.

The notion constituting the title of the present article – the nature of parts of speech – is not a unified notion. They are of very different nature.

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