

Life without word classes:

On a new approach to categorization

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(To appear in: András Bárány, Theresa Biberauer, Jamie Douglas, Sten Vikner (eds.), *Nominal Architecture and Its Consequences: Synchronic and Diachronic Perspectives*, Cambridge, 2019)

DOI: 10.13140/RG.2.2.34114.27842

1. Introduction and overview¹

The problem of the definition of word classes has been with us since the very beginnings of linguistics. The first grammars already provided terms according to which to classify words. Dionysius Thrax (BCE 170-90) lists the following eight classes: noun, verb, participle, article, pronoun, preposition, adverb, conjunction. The definitions are simple, familiar, and of course mostly notional, e.g., “A Noun is a declinable part of speech, signifying something either concrete or abstract (concrete, as stone; abstract, as education); common or proper (common, as man, horse; proper, as Socrates, Plato). It has five accidents: gender, species, forms, numbers, and cases.”² The classical definitions have followed us well into the 20th century. To quote another example, this is what the Port-Royal philosophers had to say about parts of speech in the 17th century: “Les objets de nos pensées, sont ou les choses, comme *la terre, le Soleil, l’eau, le bois*, ce qu’on appelle ordinairement *substance*. Ou la manière des choses; comme d’être *rouge, d’être dur*, [...] &c. ce qu’on appelle *accident*. [...] Car ceux qui signifient les substances, ont été appellez *noms substantifs*; & ceux qui signifient les accidents [...], *noms adjectifs*.”³

This type of definition was widespread until about the middle of the 20th century. In his otherwise highly original *Grammar of Spoken English*, Palmer (1924) lists more or less the same eight classes, viz., nouns, pronouns and determinatives, qualificatives (i.e., adjectives), verbs, adverbs, prepositions, connectives (“together with interrogative words”), and interjections and exclamations. In the “logical classification of nouns”, for instance, he gives an inventory of subtypes, rather than a classical definition, namely, concrete nouns (including proper and common nouns, with the latter further divided into class, i.e. countable, and material nouns, etc.) and abstract nouns (Palmer 1924: 28-32).

¹ This article has grown out of a number of presentations to various audiences, e.g., at the 14th Morphology Meeting, and the Beyond Dichotomies Conference, both in Budapest, 2010, the Research Institute for Linguistics, and the Linguistics and Literature Section of the Hungarian Academy of Sciences. I am grateful to the audiences there, and in particular to László Kálmán and Péter Siptár. My special thanks go to the two anonymous reviewers of the current version.

Research reported here was supported by Grant NKFIH K120073 „Open access book series on the syntax of Hungarian”.

² *The Grammar of Dionysios Thrax* (translated by Thomas Davidson). Source: *The Journal of Speculative Philosophy*, Vol. 8, No. 4 (October, 1874), pp. 326-339. Published by: Penn State University Press. Stable URL: <http://www.jstor.org/stable/25665891>. This citation is on p. 331.

³ Claude Lancelot & Antoine Arnauld, *Grammaire générale et raisonnée*. 1660/1967: 30-31.

However, due to the influence of Saussure's *Cours* (1916) American descriptive linguists, and in particular Leonard Bloomfield, who was the first of them to appreciate Saussure's achievements (cf., e.g., Koerner 1995), started to concentrate on the formal features of parts of speech. "The noun is a word-class; like all other form-classes, it is to be defined in terms of grammatical features [...] When it has been defined, it shows a class-meaning which can be roughly stated as 'object of such and such a *species*'; examples are *boy, stone, water, kindness*." (Bloomfield 1933: 202) One of Bloomfield's more dogmatic followers had this to say in his widely used textbook: "[The pattern of interchangeability] defines a form-class which includes *she, he, it, John, Mary, the man at the corner, my friend Bill*, and so on endlessly, but which by no means includes all forms, since we can name many which are excluded: *her, him, them, me, yes, no, ripe, find her, go with us tomorrow*." (Hockett 1958: 162) Note that Hockett's form-classes include not only words proper, but entire phrases, and there is no 'class-meaning' mentioned, since the most important feature is mutual substitutability.

But if distributional analysis is closely observed, its negative consequences are unavoidable as was seen as early as the 1960's. According to one British linguist „as many classes are set up as words of different formal behaviour are found" (Robins 1964/1980: 174), and another maintains in an article on the definition of word classes that "[...] very few words have an overall identical formal behaviour [...]. One would end up with a multitude of single member classes" (Crystal 1967: 28). Or to cite a more recent article: "Whatever identifying criteria we use for parts of speech – meaning, syntactic function, or inflection – the relationship between particular criteria and particular parts of speech is typically many-to-many." (Anward 2000: 3)

Neither do alternative approaches fare better in this respect. Functionalist linguists, as shown by Simon Dik (1989) or Kees Hengeveld (1992) differentiate word classes by two prototypical functions or parameters, such as predication vs. referentiality, and head vs. modifier, with the resulting four classes arranged in an implicational hierarchical order in (1) that corresponds to the sequence verb > noun > adjective > adverb (Hengeveld 1992).

- (1) Head of > Head of > Modifier of head > Modifier of head
 pred. phrase ref. phrase of ref. phrase of pred. phrase

The 'radical constructionist' William Croft (2005) also notes the futility of the distributional method, and, instead of language specific word classes, proposes restricted typological universals based on "propositional acts", such as reference, predication, and modification, that define "lexical semantic classes" like objects, actions, and properties, respectively (2005:438). As I will try to show, neither the approach based on the introduction of a new or different set of criteria for the same small number of word classes, nor the opposing view stemming from otherwise well-established criticism based on the failure of distributional analysis is viable. Instead, I will suggest a compromise solution that benefits from both without their possible drawbacks.

Research into the typology of word classes has come up with observations differentiating between parts-of-speech systems depending on whether or not the categories of lexical items are fixed or not. Languages can thus be grouped into one of three sets: (a) differentiated, as

English, in which all four word classes are clearly displayed, and two subtypes in which such dedicated lexical items are missing: (b) flexible, like Turkish, in which non-verbs can belong to any one of the three classes nouns, adjectives, and adverbs, and (c) rigid, like Krongo (Kadu, Sudan), in which there are nouns and verbs, but the rest of the lexical categories are rendered by syntactic means, e.g., relative clauses (Hengeveld 2013: 32ff).⁴

It is true that Distributed Morphology offers an attractive solution to the problem of word classes by merging a functional category with an unspecified root, cf. Halle and Marantz (1993), Marantz (1997), Arad (2003), and Panagiotidis (2015), among others. In this approach, categorization is a syntactic process. Items, whether heads or phrases, have no categories of their own determined by their lexical characterization, but acquire them, as it were, by becoming complements of functional heads, such as the nominalizer *n*, the verbalizer *v*, or the adjectivizer *a*. (Panagiotidis (2015: 17). However, Baker's (2003: 266ff) arguments are persuasive in attributing syntactic categories to roots or stems, particularly, as I would focus on his proposal in the light of the above typology, in case of a number of languages in the 'differentiated' type, which will be the subject of our discussion below. Baker claims that "where there is less functional structure, we find more categorial distinctiveness" (268).

2. Properties rather than definitions

Traditional parts-of-speech characterizations usually list the most general properties and illustrate them by prototypical examples, which serve practically as ostensive definitions, thus rendering the characterization itself redundant since the examples are a sufficient ground for any competent native speaker by means of which to classify the words of the language in question. The criteria, which usually rely on distributional and/or semantic factors, are usually too soft or porous, and the classes set up do not directly follow from the definitions.

At the same time these very definitions preclude the establishment of, for example, the uniform class of verbs in English or in other languages of the differentiated type since intransitive verbs are as a rule incapable of substituting for transitive ones, or mass nouns for countable nouns, and so forth. If, however, we are satisfied with partial overlapping, then the class of adjectives will in part coincide with that of nouns, cf. *Italian* or *(the) blind*, or even adjectives will subsume two partially overlapping subsets, relational and qualitative ones, cf. *(*more) naval (exercise)* vs. *(more) interesting (exercise)*. In addition to flexible word classes (cf. Rijkhoff & Van Lier 2013), some dispute the distinction between inflection and derivation as well, positing a continuum for them (Dressler 1989). What is to blame in this state of affairs is the metric applied; if we have a single scale, the difficulties will inevitably resurface again.

Moreover, it follows from a unidimensional system of criteria that whenever some word class is defined by a set of characteristics, then a given item belongs to that word class if it has

⁴ Due credit must be given here to the polyglot phonologist and theoretical linguist Ferenc Mártonfi (1945-1991), who had expressed similar thoughts well ahead of the recent upsurge of interest in word class typology, as illustrated in the following passage. „From the point of view of parts-of-speech this means that there are languages in which syntactic features like 'verbal' or 'nominal' must be marked for all or most of the words (e.g., in Hungarian, German, etc.), and there are languages where this would be redundant, non-distinctive marking, which is omissible (and this holds for the large majority of words in, e.g., Chinese, Vietnamese, etc. [...]). In other words, this means that lexical word classes are not universal.” (Mártonfi 1973: 201; my translation)

precisely those characteristics. If any item has some property that it shares with another item, the property will serve to determine the class formed by them. This is clearly circular and if we insist on this approach the circle cannot be broken.

Note that the notion of word class applies only to linguistic items that can combine with other such items. Utterance-size words, such as interjections, greetings, etc., even though they may be listed and categorized in dictionaries, do not partake in syntactic constructions (except in citation forms), thus, theoretically speaking they have no properties comparable to those of ‘ordinary’ word classes, while the labels attached to them certainly have a practical advantage for users of these dictionaries.

It is precisely the (morphological, syntactic, semantic, or pragmatic) properties of combinable lexical items relevant from the viewpoint of categorisation that control their cooccurrence with other lexical items. Consequently, there will be as many classes as there are properties, thus vindicating Robins’ (1964), Crystal’s (1967), or Anward’s (2000) views of a multitude of word classes. But these definitions will no longer be circular since the criteria they are based on will figure in various levels of grammar in determining the combination of items, that is, in morphology, syntax, semantics, and pragmatics.

Consequently, what we understand by a word class will be a set of instructions specifying what other lexical or syntactic objects, whether affixes, words or syntactic phrases, a given word can combine with. ‘Traditional’ word classes, i.e. nouns, verbs, adjectives, adverbs, satisfy various clusters of properties. In effect, the unidimensional category of word class has been replaced by multidimensional matrices of sets of properties.

A similar suggestion is inherent in Crystal’s (1967: 46) list of criteria for nouns in English, reproduced in Figure 1.

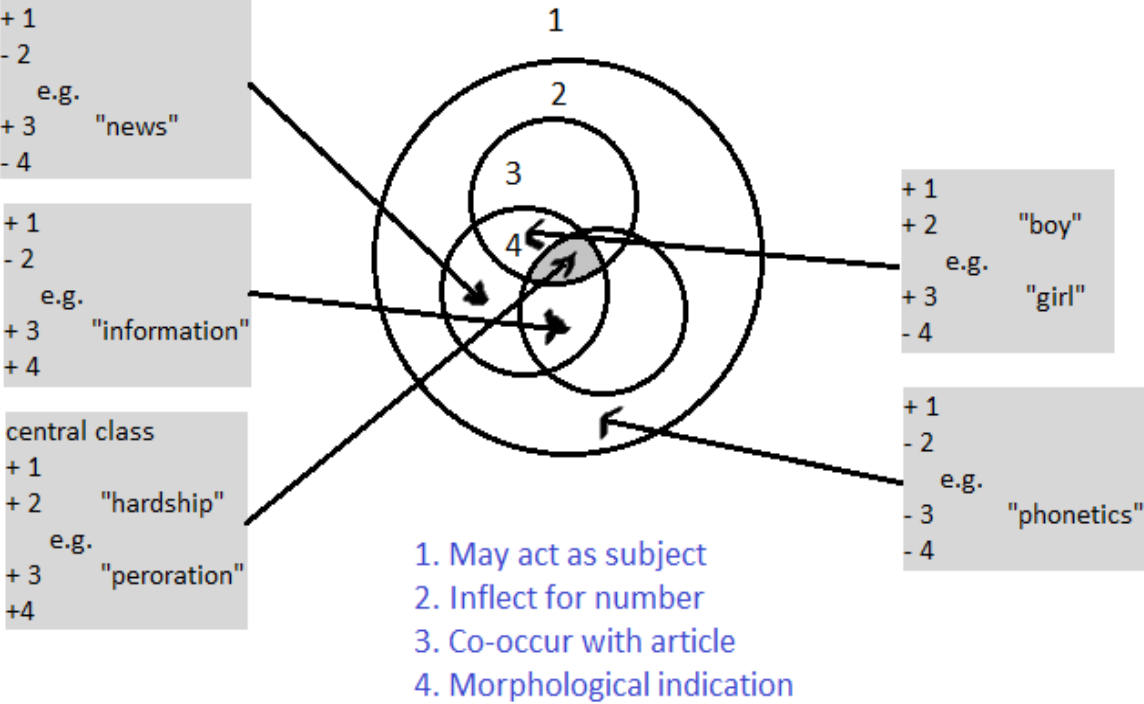


Figure 1. Crystal’s (1967) criteria for nouns

Gross (1986) gives a classification of French verbs according to the types of subjects, complements and the properties of their complements, based on 4 subject and 32 complement types, setting up a matrix of 36 verb types.

In a discussion of the problems of universal and language specific classification Haspelmath (2012: 94) presents the overlapping system of word classes in Chamorro, following Topping (1973) and Chung (2012), according to the properties and classes as in Table 1.

	property	'see'-type words	'go'-type words	'big'-type words	'person'-type words
1	passive	+	-	-	-
2	Yo'-type pronoun Subject	-	+	+	+
3	Infinitive	+	+	+	+
4	Incorporation	-	-	-	+
5	Prefixation with <i>mi-</i>	-	-	-	+
6	Subject-Predicate Agreement	+	+	+	-
7	Specific External Agreement	+	+	-	-
8	Person-Number Agreement (realis)	+	-	-	-
		Transitival	Intransiverb	Adjectival	Nominal

Table 1. Haspelmath's (2012) extension of Chung's (2012) table of grammatical properties and classes in Chamorro

In contrast with more 'regular' languages like Latin, which has the two major classes of verbs and nouns, with the two subclasses nouns (*nomen substantivum*) and adjectives (*nomen adjectivum*) in the latter group as distinguished by properties of having case and (in)variable gender, Haspelmath argues that Chamorro has six possible word class systems in view of the properties in Table 1, as illustrated in Table 2.

A	Transitival + Intransiverb		Adjectival + Nominal	
B	Transitival	Intransiverb + Adjectival + Nominal		
C	Transitival + Intransiverb + Adjectiverb			Nominal
D	Transitival + Intransiverb		Adjectival	Nominal
E	Transitival	Intransiverb	Adjectival + Nominal	
F	Transitival	Intransiverb + Adjectival		Nominal

Table 2. The six possible word class systems of Chamorro according to Haspelmath (2012)

The properties in question can be of various ranks and significance, as claimed by Crystal (1967), since some may extend to more items than others, e.g., whether or not it can be a subject, take a definite article, etc. Then there are classes that can easily adopt new items, whereas others do not – a familiar distinction between open and closed classes. But closed classes, i.e., grammatical words or functional categories, do not form unified classes at all.

This was shown, for example, by Radford (1976) in classifying English auxiliaries by listing six properties distinguishing auxiliaries from verbs, such as the ability to take negative clitics, to take *do*-support, to nominalize, to occur in untensed clauses, to occur in untensed clauses, to take *to* before a following infinitive, and to display concord, all of which, except for the first one are properties characterizing verbs.

Aarts (2007) differentiates between subjective and intersective gradience, where the former is a case of “categorial shading in prototypicality from a central core to a more peripheral boundary” in a single category, while in the latter “there are two categories on a cline.” (p. 97) Rendered in the framework presented here, it is the relevance and/or number of features from one or the other word class that determine to what degree the item in question belongs into one or the other category in Aarts’ intersective gradience.

If we examine auxiliaries in Hungarian, we can identify the following properties that distinguish them from main verbs that also take infinitives as their complements.⁵

reve

(2) Splits complex verbs, i.e., a combination of Particle + Verb construction, see (2b, c)⁶

i. *utál* ‘hate’, *szégyell* ‘be ashamed to’, ...

ii. *akar* ‘want’, *próbál* ‘try’, *tud* ‘know, can’, ...

iii. *fog* ‘will’, *szokott* ‘usually does’, *kell* ‘must’, *szabad* ‘may, is allowed to’, *talál* ‘happen to’, passive *van* + V-*va/ve*

a. * be utál-sz jön-ni
in hate-2SG come-INF

a’. utál-sz be jön-ni
hate-2SG in come-INF
‘you hate to come in’

b. be akar-sz jön-ni
in want-2SG come-INF
‘you want to come in’

⁵ Note that the first two properties (2) and (3) below lump together subclasses of main verbs with (some) auxiliaries.

⁶ As is illustrated in (2i) and (2a, a’), not all verbs can split the complex verbs in their complement infinitivals. Those that do are listed in (2ii-iii) and illustrated (2b, c), where (2ii) are examples of main verbs, and (2iii) those of auxiliaries, as seen in Table 4. The phenomenon was first described by Prózéký et al. (1984) and in more detail by Kálmán et al. (1989), though their conclusions are not followed here, cf. also Kenesei (2000).

Note that *szok-ott* lit. ‘use-PAST; usually does’ is invariably in Past Tense form, but has a present or past tense interpretation.

c. be fog-sz jön-ni
in want-2SG come-INF
'you will come in'

- (3) Has tense/modal meaning
tud 'be.able', *bír* 'can'
fog 'will', *kell* 'must', *szabad* 'may, is allowed to', *lehet* 'may, is possible'
- (4) Has no present or past tense forms
szokott 'usually does'; *fog* 'will', *szabad* 'may, is allowed to'
- (5) Has no person or number agreement
kell 'must', *szabad* 'may, is allowed to', *lehet* 'may, is possible'
- (6) Has no infinitival form
fog 'will', *szokott* 'usually does', *szabad* 'is allowed to', *lehet* 'is possible'
- (7) Has no thematic subject (external argument)
fog 'will', *szokott* 'usually does', *talál* 'happen to'; passive *van* + V-*va/ve*
kell 'must', *szabad* 'is allowed to', *lehet* 'is possible'
- (8) Has no potential inflection (i.e., missing *-hat/het* 'may' affixation)
fog 'will', *szokott* 'usually does', *talál* 'happen to'; *szabad* 'is allowed to'
- (9) Has no conditional inflection (i.e., missing *-na/ne* 'would' affixation)
fog 'will', *szokott* 'usually does'
- (10) Has no imperative/subjunctive forms
fog 'will', *szokott* 'usually does', *talál* 'happen to'
- (11) Has person-marked infinitival complements, see (11a)
kell 'must', *szabad* 'is allowed to', *lehet* 'is possible'

a. jön-ni-ük kell
come-INF-2PL must
'they must come'

Moreover, the above list is augmented by restrictions on syntactic positions, i.e., what complement VPs each verb in the list can take, cf. (12).

- (12) a. be fog kell-eni tud-ni jön-ni
in will must-INF be.able-INF com-INF
'it will be necessary to be able to come in'

b. * be fog tud-ni kell-eni jön-ni
 in will be.able-INF must-INF com-INF
 Intended meaning: ‘(someone) will be able to have to come in’

c. * be fog/szokott talál-ni jön-ni
 in will/usually happen-INF come-INF
 Intended meaning: ‘(s/he) will/usually happen/s to come in’

These properties set apart main verbs (in bold type, with each exemplifying a large array) and the single items of auxiliaries (in normal type). And, what is more important, there are no two auxiliaries that are characterized by the same set of features, as shown in Table 3, in which the lack of a property is marked by a minus sign.⁷

Verb	<i>utál</i> ‘hate’	<i>akar</i> ‘want’	<i>bír</i> ‘can’	<i>fog</i> ‘will’	<i>szokott</i> ‘usually’	<i>talál</i> ‘happen’	<i>kell</i> ‘must’	<i>szabad</i> ‘may’	<i>lehet</i> ‘may’	passive <i>van</i> ‘be’
Splitting	-	+	+	+	+	+	+	+	+	+
Modal meaning	-	±	+	+	+	-	+	+	+	-
Past Tense	+	+	+	-	+	+	+	±	+	+
Person/number marking	+	+	+	+	+	+	-	-	-	+
Infinitive	+	+	+	-	-	+	+	-	-	+
Thematic subject	+	+	+	-	-	-	-	-	-	-
Potential	+	+	+	-	-	-	-	-	-	+
Conditional	+	+	+	-	-	+	+	+	+	+
Imperative	+	+	+	-	-	-	+	+	+	+
Person-marked infinitive	-	-	-	-	-	-	+	+	+	*

Table 3. Feature matrix for Hungarian verbs and auxiliaries

Starting with the fourth column there are only ‘classes’ containing single items, and it is precisely these words that qualify as auxiliaries, which points at property (7) as the one distinguishing them from main verbs, or more precisely, main verbs that take infinitival

⁷ The star in the box at the bottom indicates the irrelevance of the property. The ± sign in line 2 shows that some verbs in this group have modal meanings, and in line 3 that speakers vary as to the acceptability of the Past Tense form of *szabad*.

clauses as complements.⁸ Note, however, that the lack of a thematic subject/external argument is a property found also in unaccusative verbs, but they, in turn, do not take infinitival complements, and Table 3 was set up to include verbs with infinitival complements only. Again, it is another instance of cross-classification, as is generally the case with the open class of (main) verbs, but the ultimate lesson is that the word class of auxiliaries does not seem to emerge, because the rest of the features are not shared by any two of the items listed in Table 3.

3. Conclusion: Life without word classes

We could go on to demonstrate similar one-member classes in case of articles, conjunctions, and other functional categories, but, as was seen above, categories in open classes are also prone to a limitless multiplication of classes. The way out of this impasse is at hand: word class is an epiphenomenon, it is not a basic concept but a derivative notion in linguistics. There are no word classes; what we have to do with is properties and their combinations, clusters, or matrices. The morphological and syntactic environment, including the complements of individual functional or notional items can be determined also by various combinations of properties, spelling them out as the characterizations of individual items as we have seen in case of the auxiliaries.

Morphological or syntactic processes rely and work on properties rather than (classes of) words or morphemes, which renders the discussion on whether word classes are universal or language specific irrelevant (Hengeveld 1992, Croft 2005, Haspelmath 2012, etc.). What can be universal is not some word class but a set of distinctive properties, some of which were illustrated above. Since there are probably no languages without subjects, Crystal's (1967) feature of 'May act as subject' is probably universal.⁹ It is likely that all languages have a property of 'May have a complement', and if there are cases in a language, then it makes sense to posit the feature 'Assigns (structural) case'. But just as the consonantal phonological feature for clicks may be relevant only in Bantu languages, it is possible that the syntactic feature of incorporation, which is significant in Chamorro, is missing in a large number of languages. And with reference to the languages with 'flexible word classes', as well as to the decomposition of categories in Distributive Morphology, it may very well be the case that the syntactic categorizing heads, i.e., the 'categorizers' that merge with categorially unspecified lexical items are themselves bundles of properties along the lines discussed here.

There is hardly anything surprising in this development, especially if we take into account the fact that it is no longer the phoneme that is the basic unit in phonology but distinctive features and the term phoneme is but shorthand for sets of distinctive features, as seen in the following passage: "In recent years it has become widely accepted that the basic units of

⁸ See Kenesei (2006) for a full set of arguments.

⁹ One anonymous reviewer contests my reliance on this property, cf.: „The author says (p.9) 'there are probably no languages without subjects' but that is a statement which has frequently been contested by those who work on so-called 'topic prominent' languages." My studies of topic-prominent languages, which include Hungarian, among others, do not, however, confirm this statement, but cf. also, e.g., É. Kiss (2002) for a more complete overview. This reviewer also maintains that „various theories do without a core concept of 'subject' (including most if not all versions of generative grammar), while others such as LFG and Relational Grammar make it a theoretical primitive." While this is indeed the case, the fact that 'subject' is a derived notion, rather than a core concept, in generative grammars does not preclude reference to it by the properties invoked here.

phonological representation are not segments but features, the members of a small set of elementary categories which combine in various ways to form the speech sounds of human languages.” (Clements & Hume 1995: 245)¹⁰

And finally, just as phonologists have not got rid of the term ‘phoneme’ so syntacticians or morphologists need not throw out the notion of ‘word class’ – if they are aware that it is a convenient abbreviation without any consequence or theoretical relevance.

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¹⁰ See also Siptár (2006).

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