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This book is concerned with the well-known but not unproblematic distinction between lexical and grammatical or functional categories, as it manifests itself in a number of areas of linguistics. It is fairly obvious to most observers that in the following English dialogue lexical elements like *ask*, *money* and *parents* have a status different from functional elements like *the*, *you* and *am*:

- (1) (a) Where will you get the money from?
 (b) I am going to ask my parents.

The distinction between the two classes has proven useful in a number of domains of linguistic research (such as child language, grammaticalisation, creoles), but what is covered by the two terms – lexical and functional – and on the basis of which criteria the distinction is made, appears to vary according to the domain involved.

Also, some elements appear to have an intermediate status. The preposition *from* is often termed grammatical, but is also somewhat concrete in its meaning. Similarly, *going* functions as an auxiliary, but has developed out of a main verb, and *get* has acquired some auxiliary qualities, as in *Let's get started* and *He got hit by a car*. Altogether, three groups can be listed, where group (2b) has an intermediate status:

- | | | | |
|-----|-----------------------|-------------------------|--------------------|
| (2) | (a) <i>functional</i> | (b) <i>intermediate</i> | (c) <i>lexical</i> |
| | where | from | money |
| | will | get | ask |
| | you | go-ing | parent-s |
| | the | | |
| | I | | |
| | am | | |
| | to | | |
| | my | | |

The sheer number of functional categories present underlines their fundamental role in structuring the clause. Notice, however, that none of the groups is

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homogeneous in terms of syntactic category. For instance, the verb/non-verb distinction cuts across the three groups.

Furthermore, there is a second way of looking at these categories, besides the word-based one, namely in terms of the grammatical categories expressed. Thus *I*, *am*, and *my* all contain the grammatical notion of ‘first person singular’, but in addition to other grammatical notions, yielding different word forms. *Parent-s* and *go-ing* contain separate affixes to indicate ‘plural’ and ‘progressive’, respectively. Thus functional categories can also be seen as combinations, ‘bundles’ as they are sometimes called, of grammatical categories or features. Sometimes the term *phi*-features is used to refer to the relevant set. In the next chapters this set is further characterised.

Yet a third way is in terms of certain syntactic positions, like the auxiliary position of *will* in utterance (1a); this auxiliary position has always played an important role in the development of generative grammar (Chomsky 1957 and much later work). Hudson (2000: 8) distinguishes three kinds of category: Word Category, Subword Category, and Position Category, corresponding to the three perspectives mentioned, and presents insightful discussion of some of the background issues treated here, in particular the tension between the diffuse lexical features that may characterise functional categories and the fairly rigid absolute distinction drawn in theoretical syntax.

Given its important status in many sub-domains of linguistics, yet its unclear theoretical basis, there is good reason to consider the distinction more closely. This book is meant to provide an analytic survey of this topic, which has drawn considerable attention in a number of sub-disciplines of linguistics but which, as far as I am aware, has rarely been systematically approached from an integrated, cross-disciplinary perspective. The disciplines discussed are:

- Grammar
- Historical linguistics
- Psycholinguistics
- Language contact and bilingual speech.

The book is empirically based: it aims to take a hard look at the available converging evidence from various disciplines. It also is based on comparative evidence from different languages and language families.

Theoretically, the book constitutes a plea for a differentiated, multi-factorial view of functional categories. Two papers should be mentioned which have attempted a similar, if less complete, integrative perspective: Cann (2000) tries to link the theoretical discussion of functional categories to evidence from language processing, acquisition, and breakdown. Myers-Scotton and Jake (2000)

adduce evidence from aphasia, code-switching, and second language acquisition for a differentiated view of the lexical/functional distinction, which has led to their 4-M model (see chapter 13).

Before concluding this introductory section, I should try to justify my terminology. I use the term ‘functional category’ in this book rather than ‘function word’ (often used in contrast to ‘content word’) or ‘functor’ because not all elements discussed (and in some languages very few of them) are actual words. The term ‘grammatical category’ could be used, in contrast to ‘lexical category’, but is a bit vague by itself, and can refer to lexical categories as well. Bybee and Dahl (1989) have introduced the term ‘gram’; I will not use this term because it carries a number of additional theoretical assumptions associated with it, particular to a specific theoretical framework. Sapir’s (1921) terms ‘radical’ (= lexical) and ‘relational’ (= functional) concepts likewise are a bit confusing (particularly ‘radical’). Finally, the term ‘system morpheme’ coined by Myers-Scotton (1993) has the right touch as far as the first part of the compound is concerned, but the term ‘morpheme’ is generally used to designate a particular part of a word, rather than a notional category. Cann (2000) distinguishes the abstract underlying functional ‘categories’ from concrete functional ‘expressions’. In itself this is useful, but somewhat cumbersome, and it is a distinction closely linked to his theoretical assumptions.

Theoretical perspectives on categorisation

Grammatically, functional categories can be viewed from the perspective of lexical classes (e.g. function words) and morphological endings (e.g. inflections), but they can also be seen from the perspective of the system of syntactic projections. Similarly, they can be seen as the dependent elements in phonological phrases, and as the carriers of abstract information. All these perspectives – lexical, syntactic, phonological, semantic – may lead to a different internal classification, or the different classificatory criteria may coincide in establishing the same types and sub-types. The coexistence of these different dimensions may lead to the perception of gradience. This gradience has also been argued to extend to lexical categories. Ross (1972: 325) notes that ‘all [categories] manifest the same “funnel direction”: nouns are more inert, syntactically, than adjectives and adjectives more than verbs’. From this perspective, verbs may be seen as more ‘functional’ than nouns, and thus it may be that there are more general underlying categorisations cutting across the supposed lexical/functional distinction, in addition to this distinction being a gradient one.

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There is fairly widespread recognition, already hinted at above, that not all elements are equal among the functional categories. Some adpositions are more clearly ‘functional’ than others (compare French *de* ‘of’ to *dessus* ‘on top’), clitic pronouns show special behaviour compared to strong pronouns (compare *le* ‘3s.m.ob’ to *lui* ‘him’), copulas are more restricted than aspectual auxiliaries. In order to properly deal with this, several models can be envisaged, which correspond to different approaches to grammatical categories. Currently there are at least four main models for categorisation (some of which, to be sure, have not yet been given very precise definitions, and may be better labelled ‘views’ or ‘perspectives’):

- Prototype models
- Scale and Hierarchy models
- Mono-dimensional models
- Multi-dimensional models, including Multi-level and Chain models.

The **Prototype** model (e.g. Croft 1991) assumes that each category has a typical meaning or use (e.g. nouns are typically used to refer), expressed by core members of the category, while other words may belong to a category without expressing this core meaning. A typical noun would be *table*, a less typical one *size*. Thus, one could envisage a proto-typical functional category such as *the* at the centre of the definition (highly specific morpho-lexical properties, specialised syntax, reduced phonological shape, abstract meaning) and other elements more or less distant from this prototype.

The **Scale** model (Ross 1972; Sasse 2001a) likewise assumes that the boundaries of a category may be fuzzy, but makes the additional assumption that categories can be arranged on a linear scale, there being no ‘core’ category. There is a large literature on gradience in grammatical categories (cf. the summary in Sasse 2001a), e.g. the adverb ... preposition cline or the noun ... verb cline. The **Hierarchy** model (cf. e.g. Comrie 2001: 34, who makes this relevant distinction) is a scale model which has a high/low dimension. This asymmetry could be due to historical change, as in grammaticalisation theory, to cognitive development (from simple to complex), language evolution, etc. Thus adpositions could be on a scale with adverbs on the lexical end and case markers on the functional end. Modals could be on a scale with auxiliaries on the functional end and full verbs on the lexical end, etc.

The **Mono-dimensional** model (e.g. Baker 2003) assumes that categories are not squishy and that they consist of one-to-one pairings of forms and meanings. Possible disparities between form and meaning are solved through special adjustment rules at either the syntax/phonology or the syntax/semantics

interfaces. With respect to the issue at hand, this model would assume that there is a true set of functional categories, and a number of other elements which might share features of functional categories but which are really lexical in nature. The discussion then would be whether a certain class is ‘truly’ functional or not.

The **Multi-dimensional** model (Plank 1984; Sadock 1991; Jackendoff 2002; Francis and Matthews 2005) assumes that categories lie at the interface of different representations – morpho-lexical, syntactic, phonological, and semantic. A sub-type, the **Multi-level** model (Cann 2000: 58) would assume that functional categories can be distinguished, in absolute terms, at one level of analysis, in this case E-language (external language, at the level of the speech community), but not at another level, I-language (internal language, at the level of the individual cognitive system). The **Chain** model assumes that various categories may be part of a chain of some kind, as in the T-chain proposal (Guéron and Hoekstra, 1988), where the Verb, Tense, the Inflection, and the Complementiser nodes may be part of a syntactically coherent sub-system. Conceptually, it can be seen as a type of multi-dimensional model, since the feature determining the chain represents only one dimension.

The perspective taken in this book

In this book a multi-dimensional, modular approach is taken to the human language faculty, and subsequently, to grammatical categories, including functional categories. This approach implies that several capacities are assumed to cooperate conjointly in what appears to be a single phenomenon: the human language capacity. These capacities include syntactic computation, interactive communication, sign building (semiotics), and cognition. This modular perspective implies that functional elements can and should be viewed as multi-dimensional. Not only do they have a form and a meaning (the traditional Saussurean notion of sign), but they may or may not play a separate role in syntactic computation (through their feature content), and they may have an interactive function. This multi-dimensional character is also responsible for the fact that categories are often perceived as gradient. However, we can also perceive the distinction between lexical and functional as non-gradient but discrete, since different distinctions are made on different dimensions. An early example of this approach appears in a study by Friederici *et al.* (1982: 526), reporting on earlier work by Garrett and associates on speech errors: ‘for speech error patterns which implicate the syntactic and logical structure of sentences, prepositions show error behavior which is comparable to that of other major

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grammatical classes, but for error patterns which implicate the sound structure of sentences, prepositions behave not with the major classes (content words), but with the minor class items (function words)'.

Newmeyer (1998) and Baker (2003) attempt to compare formal and functional approaches to linguistics. I should make clear at some point where I stand in this domain. My own background is in formal linguistics, and I guess this is where I feel most comfortable. However, I find the generative literature on functional categories rather vague. Even though the notion is assumed to have great theoretical importance for various researchers, it is not very well defined and delineated. The same remarks that Baker (2003: 1–3) makes in his introduction about syntactic categories in general could as well be made about functional categories.

To illustrate the multi-dimensional perspective, as well as the problems it raises, take the case of *pe* 'where' from the Surinam creole language Sranan. An example of one of the contemporary uses of *pe* would be a fragment of a poem by Trefossa (from *Trotji*, 1957):

- (3) *Bro* 'breath, rest'
 na krika-sei dren kondre mi sa si, 'at the creek side the dream land I shall see'
pe alasani moro swit' lek dya 'where everything is sweeter than here'
 en skreki-tori no sa trobi mi. 'and scary stories shall not trouble me'

In (4), the development through grammaticalisation is presented of Sranan *pe* 'where' out of English **which place*, from the seventeenth century onwards (Bruyn 1995):

- (4) which place > uch presi > o presi > o pe > pe

The development involves independent semantic, syntactic, morphological, and phonological changes. Semantically and pragmatically, there was a progressive abstraction of the meaning from 'which place' to simply 'where', and a shift from a focalising use of the question word to an ordinary fronted form without necessarily focal meaning. Morphologically, there is a shift from a complex phrase to a simple element. This parallels the phonological reduction to a monosyllabic CV (consonant vowel) particle. Syntactically, there is a change from a phrase, often in focus position, to a question word which can then also be used as a conjunction.

The interesting thing is that these conceptually very different changes all co-occur, and move in the same direction. It is this parallelism between apparently separate dimensions of lexical items, holding at least in an overall statistical sense, which calls for an explanation. Without going into this further, I

will assume bi-directional optimality checking (Blutner, de Hoop, and Hendriks 2006) as the mechanism which ensures parallel development. In this perspective the relation between forms and meanings (e.g. a complex form and a complex meaning, and a simple form and a basic meaning) is subject to optimality ranking. There is no absolute condition but this matching holds if there are no other overriding constraints. The different dimensions along which we may classify an element as functional or not may be quite independent, in some cases, and the optimality checking mechanism allows for that possibility.

I will argue here, following researchers like Hudson (2000) cited above, that two definitions of functional categories should be kept apart: functional categories as words, subject to processes of grammaticalisation, and functional categories as structural positions in a syntactic skeleton. Sentence structure is syntacticised to various degrees in various languages. In some languages, both clauses and noun phrases are heavily syntacticised, and clearly articulated in terms of functional positions, and in other languages it is largely clauses that are heavily syntacticised, but not noun phrases. Exceptionally, even the clause may show little evidence of strong functional projections internally.

Even though the concept of functional category is multi-dimensional, it is clear that its roots lie in morpho-syntax. Elements are functional because of the particular role they play in the organisation of the sentence. Other dimensions are to some extent independent from this, leading to a complex set of relations between them. This said, let me briefly recapitulate some of the main points in the book:

- A multi-dimensional conception of functional categories
- An impression of overall gradience, since dimensions are logically independent
- Optimal matching between the positioning of categories on the different dimensions, driven by processing
- Focus on different aspects of categories, and on different definitions of what is or is not a functional category.

Disclaimers

A few disclaimers are in order. First of all, as I started on the research for the individual chapters, I discovered that the amount of material available which threw light on the role of functional categories in each domain tended to be vast, and much larger than I had originally realised. This book manuscript

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grew out of a single article manuscript, but easily could give birth to seventeen monographs. Thus the coverage is incomplete; I hope it inspires specialists on individual subjects to pursue the exploration of functional categories in their area of expertise.

Second, the topic of numerals, which share many of their features with functional categories, is not touched upon. Numerals may be part of tightly organised lexical sub-systems, often show special morphology, have a specific abstract meaning, tend to be historically stable, etc. However, I think that their special characteristics result from the fact that the numeral system is used in, and interacts with, a special highly organised area of human cognition and communication: counting and calculus. Functional categories are special because they interact with syntax, with the grammatical system. Thus functional categories are cousins of numerals rather than siblings. Only in the lower range, and then particularly with the element 'one', do numerals and functional categories intersect.

Third, discourse markers, those lexical elements that also play a role in, and interact with, the system of human interaction and discourse organisation, are treated in only a few chapters in this book. Like numerals, they are of a different kind than true functional categories, but syntax and discourse interact more closely, and hence discourse markers are often very close to functional categories proper.

The organisation of this book

In the first section, *Grammar*, a number of theoretical approaches are presented. To broaden the empirical range beyond what has been found in languages like English, I start with the perspective of **language description and typology** in chapter 2. Going from representatives of structuralist work on typology like Edward Sapir and Roman Jakobson, I consider the still expanding range of functional categories in language description, and the classifications of these categories in recent work in linguistic typology. Chapter 3 deals with the **lexical, morphological, and phonological** dimensions of functional categories. How are these categories realized lexically and morphologically? What are their derivational possibilities? Does morphological suppletion play a privileged role in the creation of functional categories? Can they be distinguished by the tightness of paradigmatic organisation? Do we find compounding in category innovation? As to the phonological properties of functional categories, topics discussed include phonological weight, cliticisation, and stress. In chapter 4 I turn to the **semantic and pragmatic** dimensions of functional categories.

Does the lexical/functional distinction coincide with that between concrete versus abstract meanings? Can we usefully analyse the special status of discourse markers and particles in terms of a model of functional categories? The perspective of Chomskyan **theoretical syntax** is the topic of chapter 5. After a brief excursus on earlier generative approaches, I turn to the work of scholars like Abney and Cinque, who heralded the renewed interest in functional categories within this tradition. Van Riemsdijk and Grimshaw formulated models in which the relation between lexical and functional categories was stressed, while Baker has tried to shift the typological debate about differences in the lexical categories between different languages to functional category differences. I then turn to the position of functional categories in Minimalism, before discussing two interface issues: functional categories and the phonology/syntax interface, and the syntax/semantics interface and interpretability of features.

In the second section of the book, *Historical linguistics*, two topics are central. First, in chapter 6 I discuss the link between functional categories and **grammaticalisation** theory. After presenting an overview of developments and debates in this theory, I turn to a number of components of the process: semantic bleaching, phonological reduction, and constructional tightening. Finally I evaluate the claims made in this theory in the light of the discussion in the first section. Chapter 7 focuses on the status of functional categories in **linguistic reconstruction**. After a survey of functional categories in Indo-European, specific issues are discussed, such as the stability/instability of pronouns versus conjunctions. Then, a wider perspective is taken, with evidence from Proto-Uralic, Afro-Asiatic, and Amerind.

The third section of the book is concerned with *Psycholinguistics*. The special status of functional categories in speech **production and perception** will be discussed in chapter 8. I will begin by considering various models for language production and perception, and then turn to the role of frequency effects. Evidence from both speech error studies and brain imaging studies will be considered. **First and second language acquisition** are the subject of chapter 9. In subsequent sections I discuss the growth in the range of functional categories, first in first language development and then in second language development, before turning to a comparison of the two. Chapter 10 analyses the role of functional categories in **agrammatic aphasia and Specific Language Impairment (SLI)**. I begin by presenting issues of demarcation and definition in the fields of aphasia and SLI studies, and then turn to an overview of the empirical evidence, cross-linguistically. Finally, I discuss various explanatory models that account for the special behaviour of functional categories. In chapter 11 the process of **language attrition** and its effect on functional categories is highlighted. Are

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there patterns to their decay when a language is no longer used by a speaker or group of speakers? Is the process gradual or abrupt?

The next section is devoted to the topic of *language contact and bilingual speech*. Chapter 12 deals with functional categories in **sign languages**. To be sure, sign languages as such are not contact languages, but their status as relatively 'new' languages makes them similar to creoles; this is why they are included in this section. A second theme, the topic of chapter 13, concerns the exceptional status of functional categories in **code-switching and code-mixing**. After presenting some of the relevant basic facts, I turn to the 4-M model developed by Myers-Scotton and Jake and to the position of functional elements in feature checking theory. After a more theoretical discussion of the role of equivalence, I evaluate the evidence in this domain. On a related topic, chapter 14 surveys the evidence for lexical/functional asymmetries in **lexical borrowing**. I begin with an overview of the evidence for borrowability hierarchies, and then turn to ways to model these hierarchies, including probabilistic approaches. Chapter 15 is dedicated to functional categories in **pidgin and creole genesis**. I will begin by describing the loss of functional categories in pidgins, and then the processes of reconstitution, restructuring, and grammaticalisation in creoles. Three case studies will be presented: the long cycle of pidgin and creole genesis in Tok Pisin, and the processes of formation of functional categories in Saramaccan and Negerhollands. Chapter 16 will deal with the special status of functional categories in **mixed languages**. After discussing issues of definition and delimitation, I will discuss a number of cases, including Media Lengua, Michif, Gurundji Kriol, and Copper Island Aleut. I end with a theoretical analysis based on a comparative overview. The final chapter in this section, chapter 17, focuses on the treatment of functional categories in **Foreigner Talk**, the way non-fluent non-native speakers are addressed by mother-tongue speakers. I begin with an analysis of the different types of Foreigner Talk, and then present an overview of the evidence from a number of languages. I conclude with some possible explanatory models.

Finally, I will present some *conclusions* in chapter 18, presenting a modular and multi-dimensional perspective on functional categories. I summarise the main findings from grammar, historical linguistics, psycholinguistics, and language contact studies, and try to integrate the different dimensions in a model. Finally, I turn to evolutionary considerations. In an **evolutionary perspective**, we might postulate an earlier stage in the development of human language without functional categories, following Bickerton and Jackendoff. Then the question arises why functional categories emerged at all.