

1 *Introduction: Word Categories and Category Mixing*

1.1 Introduction

This book is about the way that nouns can serve as attributive modifiers to other nouns. Many languages have productive morphology which turns nouns into adjectives, i.e. words whose canonical grammatical function is to act as an attributive modifier to a nominal head. In some cases the denominal adjective retains a number of nominal properties, so that it may even take noun-oriented modifiers and specifiers, while still itself serving as an attributive modifier. We will call these elements ‘noun–adjective hybrids’. Noun–adjective hybrids constitute a type of ‘mixed category’. In such cases the adjectival affix seems to attach to an already modified noun, thus giving rise to the appearance of an adjective being formed on a whole syntactic phrase. It is rather difficult to determine what the lexical category of such adjectives is, if syntactic distribution is the only diagnostic criterion, and the literature contains rather little discussion of how syntax of these constructions is to be represented (Spencer, 2013, 4).

The well-known phenomenon of *Suffixaufnahme* (see Plank (1995b) for an introduction to this notion) is also often an instance of categorial mixing. The prototypical example of *Suffixaufnahme* is found when a dependent noun inflected for, say, genitive case acquires the case marking of its head, yielding structures of the form *father-GEN-INSTR spear-INSTR* ‘with father’s spear’. In these structures, genitive case-marked nouns agree with the head in case. As case-marked elements such words are nouns, but as agreeing modifiers they are adjectives.

Various other kinds of mismatch can occur in the nominal phrase, and their examination raises a number of general questions about the nature of word classes. The first goal of this book is to bring together cross-linguistic evidence for categorial mixing in adnominal modifiers and to discuss the variety of intermediate types, concentrating specifically on how certain classes of denominal adjective (DNA) and adjective-like forms are related to their base noun, to nouns generally, and to the canonical adjective class.

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Some of the implications of such category mixing have been discussed in our earlier work (Nikolaeva and Spencer, 2012; Spencer, 2005b, 2013; Spencer and Nikolaeva, 2017). In particular, Spencer (2013) aimed to solve the conceptual problems associated with mixed categories by factorizing the components of a lexical relation and defining lexical relatedness in terms of that enriched model of lexical representations. The central feature of this analysis is the idea that standard major lexical categories – N(oun), V(erb), A(djective) – arise from combining semantic and syntactic properties in a canonical fashion, but that a host of other categories can be defined by exploiting non-canonical combinations.

It is this intuition that we will make further use of. We believe that the framework based on the factorization of lexical categories provides the best tools for tackling the questions we are interested in here in a transparent and principled manner. We will show how this approach to lexical representations predicts that various kinds of mismatch can occur in the nominal phrase,¹ allowing us to include seemingly unrelated phenomena within a single space of possibilities.

However, the typology of lexical relatedness offered in Spencer (2013) is only a beginning. There are a good many complex morphosyntactic issues here which tend to be skirted over even in overtly lexicalist approaches, and the main aim of Spencer (2013) was not to argue for any particular model of syntax which could account for mixed categories (within the nominal phrase or beyond), but rather to propose an adequate characterization of their lexical representations. In contrast, the second goal of this book is to provide a more explicit account of the morphosyntax of the noun–adjective hybrids which participate in various modification constructions.

In traditional pre-theoretical terms, modification within a nominal phrase means the attribution of a property to the head noun by using another syntactic phrase (a modifier). Modifiers of nouns generally include adjectives, numerals, adnominal demonstratives and *wh*-words, article-like elements, relative clauses, adpositional and oblique case phrases, and some adverbials (Dryer, 2007). We will only be concerned with those modifiers that have a clearly identifiable lexical content: that is, we will exclude obvious determiners and quantifiers.² However, we will expand this typology by treating

¹ In this introduction we use ‘nominal phrase’ as a general cover term to refer to any phrase whose lexical content is nominal, and whose lexical head is (uncontroversially) a noun. The NP/DP distinction is irrelevant for our present purposes; see the discussion in Chapter 7.

² It should be acknowledged from the outset that the relative lack of concern for attributive modification is very apparent from a review of the pedagogically oriented literature, where

modification together with possession. A close typological connection between these two sorts of construction has not been widely explored, except perhaps by Koptjevskaja-Tamm (2000, 2001a, 2002, 2004) and in our own earlier work (Nikolaeva and Spencer, 2012), but we will argue that it is essential for understanding the nature of adnominal modification. We will refer to the whole class of constructions in which a nominal concept modifies another noun – whether in a compound, possessive structure, or denominal adjective – using the general term ‘modification-by-nominal-concept’.

For canonical attributive modification of a canonical, entity-denoting noun by a canonical, gradable property-denoting adjective, we will be assuming a very standard model of morphosyntax, implemented in a variety of head-driven phrase structure grammar (HPSG) derived from Ackerman and Nikolaeva (2013), under which the adjective has a syntactic valency requiring it to combine with a head noun. The semantic content of the resulting phrase is the simple combination (by Boolean ‘and’) of the semantic content of adjective and noun (both taken to be one-place predicates). For the purposes of our study we can safely ignore for the time being the more subtle and often puzzling manifestations of attributive modifiers.

For the generic examples in which a noun or noun phrase modifies a noun – what we have called ‘modification-by-nominal-concept’ – we will motivate what seems to be the standard assumed analysis, under which the modifying noun denotation and the head noun denotation bear a relation \mathfrak{R} to each other, whose semantics is underspecified, being determined by shared inferences in the context of utterance, world knowledge/assumptions, and other pragmatic factors. We will, however, offer some modest clarification to the nature of the \mathfrak{R} relation, to allow us to deploy it more generally.

The remainder of this chapter will introduce a number of theoretical concepts important for further presentation, and will summarize a variety of problems and approaches to defining word classes in general and for

typically find little or no serious discussion of attributive modification as such can be found, and this reflects the relative paucity of discussion of the morphosyntax of attributive adjectives compared with that of nouns or verbs in formal frameworks. The principal exception is found with relative clauses (especially the type of finite clause found in European languages, but more rarely elsewhere in the world). However, even the relative clause literature concentrates very largely on the internal structure of the relative clause itself, and devotes less attention to the way in which the clause serves as an attributive modifier and how this relates to other types of attributive modification. Moreover, there is far less discussion of the non-finite participial relative clause type than of the typologically much more restricted European type with its relative pronoun derived from a question word. It is the participial relative clause, based on a verb~adjective hybrid, the participle, that poses the really interesting problems for theories of grammatical categories (Spencer, 2015b).

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noun–adjective hybrids in particular. We close by summarizing the structure of the book.

1.2 Word Classes

It is tempting to think that in an ideal morphosyntactic world there would be nouns, verbs, and adjectives, and each class would be clearly delineated from the other in terms of morphology, syntax (for instance, distribution), and morphosyntax (for instance, agreement properties). However, such an ideal world is not our world. In practice it is notoriously difficult to differentiate word classes,³ either in a particular language or universally (Baker, 2003; Bisang, 2011; Sasse, 1993; Vogel and Comrie, 2000, among many others). This section will briefly survey the main typological and descriptive challenges; for a comprehensive and relatively recent survey of a variety of theoretical approaches, see Rauh (2010) and Baker and Croft (2017).

1.2.1 *The Functionalist Perspective*

Traditional grammar mostly relied on the so-called ‘notional’ approach, that is, the classical semantic definition of ‘parts of speech’. In this view nouns essentially denote ‘things’ or ‘entities’, verbs denote ‘events’ or ‘actions’, and adjectives denote ‘properties’. Thus, parts of speech have a grammar-external motivation while morphological, and even more so syntactic, behaviours are of secondary importance. However, it is widely known that grammatical systems of word classes exhibit a great deal of cross-linguistic variation. That semantic properties may be at odds with language-specific morphosyntactic properties is a well-established fact: across languages words of any of the semantic classes can be found as nouns, adjectives, or verbs (e.g. Hengeveld, 1992, 49ff; Sasse, 1993; Croft, 2000). Since class membership cannot be predicted from the lexical meaning alone, a more sophisticated elaboration of the notional approach found its place in many versions of linguistic functionalism. The main idea is that matching word classes across languages is possible by reference to the universal conceptual primitives of various degrees of complexity rather than lexical meanings as such (see Jackendoff, 1990 and, with a very different implementation, Wierzbicka, 2000).

³ We use the terms ‘word classes’, ‘parts of speech’, and ‘lexical classes’ more or less interchangeably throughout this book (for some discussion see Rauh, 2010, 2). The problem of word classes centres around the major lexical categories of noun, verb, adjective, and (perhaps) adposition, but typically excludes functional categories defined in terms of feature content rather than semantic representations.

Givón (1984), for instance, emphasized the uniformity of semantic construals across languages by attributing importance to the role played by the general cognitive processes through which people categorize experience and construe concepts. In order to make the relevant distinctions, he relied on the notion of ‘time stability’. Time-stable concepts are those that do not vary appreciably of time. The class of nouns in any language includes the words that express the most time-stable concepts, such as *rock* or *tree*; on the other hand, the class of verbs in any language is the grammatical category that includes lexemes which express the least time-stable concepts, e.g. events such as *die*, *run*, and *break* (Givón, 1984, 51). In *Cognitive Grammar* (Langacker, 1987, and other work) word classes are schematic symbolic structures, pairings of meaning and form, and defined in terms of their conceptual contents (‘abstract schemas’), but inherently linked to grammatical properties and the potential to participate in the networks of constructions. Langacker introduced several other basic notions relevant for conceptualization, for instance, the notion of ‘relationality’. Roughly speaking, a noun symbolizes a ‘thing’, i.e. an entity which is conceptualized as being non-relational, whereas other predications are conceptualized as relational and fall into temporal and atemporal relations. The former account for verbs, which are schematically characterized as ‘sequentially scanned processes’, while the latter are ‘summarily scanned’ and account for a number of other word classes including adjectives and adverbs. It can of course be argued that ‘time stability’, ‘relationality’, and other similar functional notions only help to identify the prototypical (or canonical) members of the major word classes: e.g. the non-time-stable relational noun *arrival* or the relatively time-stable *exist*. Such cases, as well as various interclass derivational processes, signal alternative conceptualizations or construals: thus, nominalizations represent the construal of the action as a static entity.

These approaches postulate a conceptual basis for word classes and treat grammatical behaviours as essentially the other aspect of the same phenomenon. However, the status of all notional criteria is highly debatable. Unless conceptual analysis is supplied with additional argumentation, we may simply not be in the position to motivate the essential difference between words or classes of words in terms of cognitive construals. In some cases it is extremely difficult to make clear conceptual distinctions even within a single language. For example, in Jaminjung, as analysed in Schultze-Berndt (2000), inflecting verbs and uninflecting ‘particles’ constitute two grammatically distinct word classes that are also distinct from nominals. Uninflecting particles are an open class: they do not have the morphosyntactic properties of the small closed class of inflecting verbs, although they are conventionally glossed

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using the names for English verbs – and that is what their meaning appears to convey, just as for inflecting verbs. There is no evidence that conceptual structure is construed any differently (see Sasse, 1993; Baker, 2003, 290ff; Rauh, 2010, 257ff; and Bisang, 2011, 282ff for this and other arguments against notionally/semantically/conceptually based characterization of lexical categories). As a result, many functionally oriented linguists (Haspelmath, 2007; Cristofaro, 2009; Croft and van Lier, 2012, among others) regard word classes as language-specific categories rather than linguistic universals. However, the question of cross-linguistic comparability then becomes even more acute.

Some versions of functionalism rely on discourse-related properties rather than semantic/conceptual content *per se*. Thus, Hopper and Thompson (1984, 1985) proposed ‘prototypical discourse functions’ of nouns and verbs: the former relate to introducing discourse participants and referring to them, while the latter concern denoting a situation/state-of-affairs and answering the question ‘What happened?’ or the like. Non-prototypical instances in which nouns and verbs show reduced categoriality also exist, but in general word classes across languages can be described as grammaticalized discourse functions. The idea of prototypical vs. non-prototypical class membership was taken up by Croft (1991, 2000, 2001), although in his theory prototypical word classes are not categories of particular grammars, but rather language universals. We will return to this in Section 1.2.3.

In a roughly similar manner, Bhat (2000) argued that word classes are grammaticalized sentential functions. In this approach, word classes are defined by set grammatical properties but are not theoretical primitives; they are derived from more basic functional categories based on their role in the act of communication. For instance, the properties of adjectives as a distinct class, such as co-occurrence with degree modifiers, are derived from the sentential function of modifying a noun (Croft, 1991; Hengeveld, 1992). In most languages word classes manifest the relevant properties maximally only when they are used in their typical sentential functions, while in other functions they tend to lose some of their categorial characteristics and acquire properties of other classes. Some languages do not make use of all sentential functions and employ alternative strategies; these languages fail to make relevant categorial distinctions. Thus, Muna (van den Berg, 1989), Kolyma Yukaghir (Maslova, 2003), the Dravidian languages Malayalam and Kannada (Amritavalli and Jayaseelan, 2003), and Lai (Enfield, 2004) have been analysed as not possessing categorially distinct adjectives. (This would be consistent with the view that adjectives cannot be identified by a universal positive

property, see Section 1.2.2). When a language has no adjectives or only a small closed class of adjectives, property concepts are encoded either as verbs, as in Chinese and Korean, or nouns, as in Quechua and Hausa (see Stassen, 1997, for an overview). In Japanese the class of property-denoting words is split: some are morphologically like verbs and others bear a resemblance to nouns (although Backhouse (2004) ultimately concludes that they do represent a distinct adjectival category). So cross-linguistic variation results from different directions of grammaticalization.

Unlike many feature-based approaches, Anderson (1997, 2007) proposed a different kind of notional model based on two semantically interpreted macro-features that are single-valued rather than binary, as discussed in the next section. Essentially, these features describe prototypical notional characteristics. The feature ‘referentiable’ (represented as (N) by Anderson) promotes perception of something as concrete, stable, discrete, and potentially referential, while the feature ‘predicative’ (represented as (P) by Anderson) characterizes relational, dynamic, potentially predicative objects. The notional features can combine in varying proportions in different languages, resulting in a wider range of types and ensuring gradience in the definition of word classes and the appearance of various intermediate or, in Anderson’s terminology, ‘second-order’ categories. For example, in English auxiliary verbs have the feature {P} and are a prime example of predicators, while the combination {P; N} describes non-auxiliary verbs which are prototypically predicative but also have the nominal feature. In contrast, {N; P} is a word class in which the N (that is, noun) feature predominates over P, whereas {(N; P) & (P; N)} is how adjectives are defined. The presence of both (N; P) and (P; N) in adjectives results in their intermediate status, which is distributionally and notionally more complex and therefore more marked than the status of nouns and verbs. Thus, some languages lack adjectives as a distinct word class and in others this class is very small or derived.

In this model, the distributional properties of syntactic classes are not semantically arbitrary. The defining distribution for a word class is based on the behaviour of core semantically prototypical members which are not themselves internally complex, so syntax appeals to a combination of prototypical semantic properties and the distribution of prototypical instances. The lexical classes established in this way can contain non-prototypical items which are interpreted in accordance with the notional characteristics of their class and which share the same distribution as semantically prototypical members. For instance, the noun *arrival* is not a prototypical nominal because its denotation is relational and non-stable, but its basic syntax “confers on it the status of a perceived

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entity” (Anderson, 2007, 25). As a result, lexical categories are ultimately identified by a combination of notional and morphosyntactic (distributional and morphological) information which can vary independently, unlike in Cognitive Grammar, for instance, a conclusion which stands somewhat close to what we will maintain throughout this book and which also lies in the centre of the prototypes-based or canonically based perspective outlined in Section 1.2.3.

One acknowledged problem for virtually all approaches to word classes is presented by those languages where it is common for a single word to have the syntax of several parts of speech indiscriminately, so that we can arguably talk of categorial indeterminacy. Some linguists have even claimed that there are languages which lack any categorial distinctions whatsoever, not even noun/verb, such as Salishan (Kinkade, 1983), Iroquoian (Sasse, 1988), Riau Indonesian (Gil, 1994), and Tongan (Broschart, 1997).⁴ Broadly speaking, there are two types here. In languages with little or no morphology, a single form can other be interpreted at will as a noun or a verb (and sometimes as another grammatical class too). In Tongan virtually any word may be used as a final predicate, attributive modifier, argument, or verbal modifier, and there is no overt morphology to mark the change of function. This corresponds to Type 1 in Hengeveld’s (1992) typology of word classes. Here there is under-differentiation of word categories in the morphology with automatic interpretation of words as object- or event-denoting depending on the syntactic context. In other languages there is rich inflectional morphology which applies indifferently. For example, tense/aspect and subject agreement morphology applies to words denoting objects used as predicates to give meanings such as ‘(this) is my future canoe’. This is observed in Tuscarora (Iroquoian) where both the words denoting processes and the words that semantically correspond to English nouns have only a predicative use, and bear tense, aspect, and a number of other predicative markers. Therefore, both should be classified as one undifferentiated grammatical class. This situation corresponds to Hengeveld’s Type 7.

In Hengeveld’s approach, words with indiscriminate morphosyntactic properties form categories of their own. However, it is fair to say that none of the above claims is uncontroversial (see, for instance, Davis et al., 2014, on Salishan; Mithun, 2000, on Iroquoian; as well as Evans and Osada, 2005, on juxtaposition). The volume edited by Rijkhoff and van Lier (2013) provides an

⁴ More plausibly, linguists have argued that there are languages which lack minor lexical categories such as adpositions and adverbs. Adpositions are especially hard to incorporate into a general account of word categories. Baker (2003) does not regard them as a lexical category, for instance; see also Beard (1995) for detailed discussion of the outlier status of prepositions.

extensive discussion of what they term ‘flexible languages’, noting that most controversy arises around the presumed lack of a lexical distinction between nouns and verbs in the languages where one and the same lexical item is used for reference and predication without any change in morphosyntactic encoding or other overt marker of recategorization. The main controversy boils down to the question whether, for example, the Mundari item *buru* represents two homophonous but distinct lexemes in (1a) and (1b), cited after Evans and Osada (2005, 373), or one undifferentiated flexible class:

- (1) a. *buru=ko* *bai-ke-d-a*
 mountain=3PL.S make-COMPL-TR-IND
 ‘They made the mountain.’
- b. *saan=ko* *buru-ke-d-a*
 firewood=3PL.S mountain-COMPL-TR-IND
 ‘They heaped up the firewood.’

From Evans and Osada’s perspective, examples such as (1) do not meet the criterion of explicit semantic compositionality required to make the claim that Mundari lacks the noun/verb distinction: there is no regular and predictable semantic correspondence between the meaning of *buru* in a referential function as shown in (1a) and the meaning of *buru* in a predicative function as shown in (1b). This, among other things, indicates that the semantic difference is not fully attributable to the syntactic function. Therefore *buru* in (1a) and (1b) belong to homophonous but distinct lexemes, arguably a traditional noun and verb that are related through conversion. For an alternative position see Hengeveld and Rijkhoff (2005).

For a number of contributors to Rijkhoff and van Lier (2013), flexible words occur at the intersection of traditional word classes and form categories on their own. However, the majority seem to agree that they can be viewed as precategorial objects underspecified in the lexicon and which only acquire categorical characteristics later; so in flexible languages categorization takes place at the level of syntax, if at all, while lexemes as such are deprived of any categorical information (Farrell, 2001; Arad, 2005). The major disagreements then have to do with the grammatical level at which categorical distinctions are to be made (lexicon, morphology, or syntax), the definition of lexeme, and whether the syntactic environment (a ‘discourse function’) in which a lexeme appears contributes the meaning component to its basic semantics. This further raises a number of questions regarding the nature of semantic shifts and the status of conversion as either a lexical process that derives a new lexeme or

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a syntactic phenomenon that involves the use of the same lexeme in multiple syntactic contexts.

1.2.2 *Feature Systems*

In contrast to notionally based approaches, in feature-based analyses words belong to a single category if and only if they share the same set of properties identified on formal grounds. The problem of word classes is then an essentially syntactic question. Most current formal theories of word categorization, including what we can call ‘Mainstream Generative Grammar’ (following Culicover and Jackendoff, 2005), adopt the distributional approach handed down by American Structuralism (Matthews, 1993, 111–128). In a nutshell, this approach rejects all notionally based definitions on the grounds that they are hard to apply rigorously, and does not recognize the idea of gradient word class membership either. Instead, preference is given to clearly identifiable syntactic criteria. Word classes are discrete and selected from a more or less closed list of well-established categories defined in terms of their typical combinations, distributions, and possibly other behavioural properties. No external motivation for the existence of word classes is in principle necessary in this approach: they are primarily formal categories (‘form-classes’ or ‘syntactic categories’), that is, classes of words that may occur in the same positions in the sentence structures of a given language. Categorial membership determines syntactic distribution and vice versa: establishing whether a given word is, e.g., a noun or an adjective requires us to decide whether it combines with other words to form phrases in the manner of a noun or in the manner of an adjective.

The strongest version of this model affirms that syntactic distributions must be kept apart from other properties and a consistent distinction is to be made between distributionally defined classes as syntactic categories, on the one hand, and traditional parts of speech as morpho-semantic classes, on the other hand (see Rauh, 2010). The latter are basically restricted to highly inflecting languages where parts of speech are associated with inflectional paradigms, but the number of syntactic categories typically exceeds the number of parts of speech, because of the variety of syntactic contexts where parts of speech are allowed to occur and because some traditional parts of speech (e.g. adverbs) can be split into several classes associated with different functional heads. In languages with poor inflection, parts of speech appear to lose their grammatical function altogether. The weaker version recognizes the importance of inflectional morphology for word categorization. For instance, according to Aarts and Haegeman (2006, 117) word classes are “abstractions