Preface, to students and to field linguists

This textbook provides a general survey of the morphosyntactic constructions of the world’s languages. The textbook is directed towards advanced undergraduates and beginning graduate students studying syntax. At the University of New Mexico, I have taught this course as a one-semester course, following on an introductory undergraduate course in syntax where I present the same basic framework but apply it only to English until the second half of that course.

The textbook has two main goals, which should be thought of as a single goal. The goals are to introduce students to syntactic analysis, from a crosslinguistic perspective; and to provide a framework for grammatical description, particularly of underdescribed languages. These goals are united by the organization of the material in this textbook in terms of the function of morphosyntactic constructions, and the illustration of the most common morphosyntactic strategies by which those functions are expressed across languages (constructions and strategies are defined in chapter 1).

It is my belief that students of a single language (such as English, Spanish, Chinese or another language) will best understand the grammatical structure of that language by placing it in the context of the range of grammatical variation of the world’s languages. This is perhaps most important for a student planning to describe an undocumented or little-documented language. Fortunately, after sixty years of modern typological research, enough is known about much grammatical structure that an overview textbook such as this one is possible. By no means does this imply that we know everything about the grammatical constructions of the world’s languages. Nor does this textbook capture everything that we have already learned about grammatical constructions. This would require a much larger, multivolume work.

When I teach this class, each student “adopts” a reference grammar of a language and uses it to describe where “their” language fits into the crosslinguistic patterns in the expression of the function of the constructions in the chapters. These descriptive assignments allow a student to see a richer and more detailed example of the type of grammatical phenomena surveyed in the textbook. By using a sample of languages from different genetic families and geographical areas, one can capture a good deal of crosslinguistic diversity in a single class, as well as bringing out constructions that are unusual or anomalous from a typological perspective, and/or are not discussed in this book. Looking carefully at a reference grammar also helps to prepare students to examine descriptions of languages they don’t know, or to figure out how to write a language description themselves if they choose to do so. I encourage students to share their grammars and their descriptive assignments with other students in the class, so as to get a more direct experience of the grammatical structures of different languages. This teaching method is now more easily done with the online availability of digital versions of many unpublished dissertations and some open-source published reference grammars.

It is in fact quite a challenge to find the information in a reference grammar and to place it in the context of crosslinguistic patterns for the constructions in question. Every reference grammar is organized in a different way, and some topics are more thoroughly
covered than others (and some are not covered at all), for various reasons. Moreover, the terminology that is used in grammars, and even the types of analyses of grammatical constructions that are found in the grammar, are highly variable and not infrequently ambiguous or confusing. Some of the reasons for this are discussed in chapter 1 of this book.

There has been much improvement in language description in the past sixty years and especially in the last thirty years. However, many languages have gone extinct, others are highly endangered or moribund, and the time and resources available for language documentation are very limited. For this reason, students and scholars interested in understanding a grammatical phenomenon in its crosslinguistic diversity, and uncovering what universal patterns there might be, will always have to interpret incomplete data collected at different times in the past that is presented in ways that are not always easy to decipher. Hence one useful analytical skill in learning morphosyntax in this way is the ability to figure out as best as possible what is going on in a language you don’t speak from whatever descriptive materials are available.

This textbook is also an introduction to syntactic analysis. The type of analysis found here does not involve a notational framework for analyzing the structure of sentences, such as is found in most introductory textbooks of syntactic analysis. This is because many linguists who adhere to functional-typological linguistic theory argue for a “framework-free” grammatical theory (Haspelmath 2010a), and in practice many documentary linguists do not use notational frameworks in their language descriptions. The basic reasons for using a “framework-free” grammatical theory are given in chapter 1, and discussed in greater detail elsewhere (Croft 2001; see also Croft 2013a and references cited therein). Nevertheless, for practical pedagogical reasons I have developed a syntactic annotation scheme for the introductory undergraduate syntax course that precedes this course at the University of New Mexico, which is similar in spirit and content to the Universal Dependencies project in natural language processing (Nivre 2015; Nivre et al. 2016; http://www.universaldependencies.org; Croft et al. 2017; Croft 2017b). Materials for the undergraduate course will be published in due course.

The absence of a notational framework does not entail the absence of analysis of morphosyntactic constructions, of course; this textbook contains many such analyses. The nature of such analyses will differ from that of analyses that are intended to represent the structure of a sentence in a particular notational framework. In “framework-free” grammatical theory, the analysis of a sentence in a specific language consists of identifying the function of the construction as a whole; identifying functions expressed by specific elements in the construction’s form; and identifying the morphosyntactic strategy used in the language-specific construction, which it shares with language-specific constructions in other languages, and how that strategy is manifested in the construction’s form.

I do not expect all functional-typological linguists, let alone linguists who follow other syntactic theories, to agree with all the syntactic analyses presented in this textbook. But the basic crosslinguistic facts and patterns presented here are likely to represent lasting empirical generalizations, and must be explained in some way, no matter what syntactic theory one follows. The content of this textbook should therefore be of value to all students of syntax.
Part One

Introduction
1. Grammatical Constructions, Semantic Classes and Information Packaging

1.1. What is morphosyntax?

The term morphosyntax refers to the combination of morphology and syntax. Syntax is the analysis of the internal structure of utterances/sentences, more specifically, how words are put together. Morphology is the analysis of the internal structure of words, including prefixes, suffixes and other internal changes to words, that generally have a meaning (elusive as that meaning sometimes is). Therefore, morphosyntax is the analysis of the internal structure of utterances, both above the word level and below it.

Why combine morphology and syntax? Because grammatical constructions involve both. Consider the examples of the English Numeral Modification Construction in (1):

(1) English Numeral Modification:

one tree
two tree-s
three tree-s

The English Numeral Modification Construction involves both syntax—the order of numeral and noun—and morphology—the form of the noun, singular or plural. A description or analysis of the English Numeral Modification Construction must include reference to both: the relative position of numeral and noun, and the inflection of the noun for number. A construction is often represented schematically, in this case as [NUM NOUN-NMB]: the abbreviations NUM, NOUN and -NMB represent categories of words (one, two, three etc. for NUM; tree, bush etc. for NOUN) or bound morphemes (-NMB for the number suffix). NUM, NOUN and -NMB are also described as roles in the construction. (A role is also called a ‘function’ or ‘slot’; the term ‘role’ is from Fillmore and Kay 1993.)

Of course, some constructions in languages seem to involve “only syntax”: order and grouping of words. Other constructions seem to involve “only morphology”: the inflectional forms of words, for example. (Note that the term ‘construction’ in modern linguistics includes even single-word constructions, such as the construction consisting of English noun stems plus their inflection for number.)

Another reason to combine syntax with morphology is that bound morphemes almost always originate in free words that originally combined with other words into constructions. Those constructions were reduced by the process of grammaticalization (see §2.3). An example of grammaticalization in progress in English can be seen in the contracted forms of auxiliaries and negation: will not > won’t, I am > I’m, etc. As a result, we will see the same sorts of meanings and semantic combinations in stem+inflection combinations that we also find in multiword constructions. In fact, it is sometimes difficult to draw the line between syntactic constructions and morphological constructions: language change, including grammaticalization, is gradual.

The English Numeral Modification Construction does not consist solely of a morphosyntactic form. The construction also conveys a meaning, that is, semantic
content or information content. The noun denotes a set of individuals of the noun category (a set of trees), and the numeral specifies the cardinality of that set (one, two, three, etc.). In addition, the information is packaged so that the construction as a whole denotes the set of the trees, and the specific number of trees is secondary information added about the set. The English Numeral Modification Construction contrasts with a sentence such as The trees number fifteen, in which the number of trees functions as the primary information, predicated of the trees. An important hypothesis of this book is that (morpho)syntactic constructions not only communicate meaning (information); they also package that information in different ways for the purposes of communication. That is, constructions. The modification function illustrated in (1) is an example of information packaging; see §1.3 and §1.5.

The focus of this textbook is primarily on syntax, that is, how words are put together into utterances, and what those combinations of words mean. We will not discuss those aspects of morphology that have to do with the phonological form of morphemes, such as bound vs. free morphemes, morphophonological processes, conjugational or declensional classes and word formation (for morphology, see Haspelmath and Sims 2010; for word formation, see Štekauer et al. 2012). Our focus will be on morphology that serves syntax.

Another reason for the focus on syntax in this textbook is that much of the description of morphological meaning is typically covered in courses on semantics. While a case can be made that linguistics curricula should be organized in terms of a full-year (or longer) sequence that provides a survey of morphology, syntax and semantics combined, I will proceed on the assumption that most linguistics curricula divide (morpho)syntax from semantics. Nevertheless, there will be a significant amount of discussion of semantic content in this textbook, since semantics plays a major role in shaping morphosyntax.

This textbook proceeds from three basic assumptions about the analysis of morphosyntax. The first is that the proper unit for grammatical analysis is a (morphosyntactic) construction, such as the numeral modification construction described above. The reason for a constructional approach will be discussed in §1.2. The second assumption is that one must always investigate a construction with respect to how its morphosyntactic form expresses its function, which in our analysis includes both meaning and information packaging. These first two assumptions are shared by construction grammar (Fillmore et al. 1988; Goldberg 1995, 2006; Croft 2001), and the second assumption is characteristic of functionalist theories of grammatical structure (e.g. Givón 2001a,b). The basic structure of a construction is presented in Figure 1.1. The basic analysis of the functions of constructions is outlined in §1.3.

The third assumption is that one must always examine how the morphosyntactic expression of a function varies across languages. The third assumption, combined with the first two, is the hallmark of linguistic typology. Linguistic typology is the study of the diversity of languages across the world, and universals that structure that diversity. Linguistic typology has primarily though not exclusively examined the diversity of grammatical structures in the world’s languages. In fact, much of the content of this book concerns the results of more than half a century of research on crosslinguistic variation and universals of grammatical structure. The basis for doing this sort of crosslinguistic comparison is discussed in §1.4, and some basic concepts for crosslinguistic comparison, also known as comparative concepts, are introduced in §1.5.
The relationship between grammatical, i.e. morphosyntactic, form and the function expressed by that form is a very complex one. There is no simple one-to-one mapping between the function to be expressed and the morphosyntactic structure of an utterance. This poses major challenges in organizing a textbook such as this one. The primary reasons for this complexity are given in §§2.3-2.4. The motivation for the organization of this textbook will be presented in this chapter and chapter 2.

1.2. Why constructions?

The constructional approach to syntax, while gaining in acceptance, remains a new approach in comparison to the approach found in traditional grammar, structuralist linguistics and generative linguistics. This latter approach can be characterized as the word class approach to syntactic analysis. For this reason, in this section we will discuss some of the theoretical reasons for adopting the constructional approach in this textbook.

1.2.1. The word class approach to grammatical analysis

In the word class approach, words are placed into classes, such as Verb, Adposition and Adjective. The word classes are assumed to be inherent properties of words, and independent of the larger constructions which they occur in. For example, the word intelligent is said to belong to the word class Adjective; being an Adjective is an inherent property of the word intelligent.

The word class approach is widely assumed, and often expressed explicitly in introductory linguistics textbooks and introductory syntax textbooks:

A fundamental fact about words in all human languages is that they can be grouped together into a relatively small number of classes, called syntactic categories (O’Grady, Dobrovolsky & Aronoff, Contemporary linguistics: an introduction, 3rd ed., p. 164; emphasis added)

The ability to use any word in a sentence requires knowledge of its lexical categories. (Finegan, Language: its structure and use, 5th ed., p. 35)
It goes without saying that sentences are made up of words, so before we get into the syntactic meat of this book, it’s worth looking carefully at different kinds of words.

What is most important to us here is the word’s **part of speech** (also known as **syntactic category** or **word class**)...Parts of speech tell us how a word is going to function in the sentence. (Carnie, *Syntax: a generative introduction*, 3rd. ed., 44).

Each word belongs to a **word class**, which determines its position [in a sentence]. (Fabb, *Sentence structure*, 2nd ed., p. 11; emphasis added)

In the word class approach to grammar, word classes are generally assumed to have certain other properties in addition to determining the structure of constructions. Word classes are assumed to be mutually exclusive (it is possible for a word to belong to two word classes, but then it is usually treated as ambiguous). It is assumed that there is a small finite number of word classes in a language, several of which are large classes and “open” classes (in open classes, new words are easily added).

Finally, and most importantly, it is assumed that the word class determines the occurrence of a word in a role in a construction, that is, what position in a syntactic structure a word can occur in. In example (1), the word *trees* is said to fill the Noun role of the English Numeral Modification construction.

The basic assumption of the word class approach is that constructions are defined by the configuration of word classes that (ultimately) constitute the construction. For example, the English Numeral Modification construction is described, in simplified form, as [Numeral Noun], that is, as a unit made of two words belonging to the word classes Numeral and Noun, occurring in the order named.

The word class approach appears reasonable, at least when analyzing one’s own language, especially if there is a long tradition of grammatical description defining word classes. However, one encounters problems almost immediately when comparing the grammars of different languages; and the problems turn out to be present even in the analysis of a single language. The next two subsections explain what the problems are and what can be done about them by using constructions as the basis for syntactic analysis.

### 1.2.2. Word classes and semantic classes

The major word classes of English and other long-studied languages have been established in the Western grammatical tradition for a long time: noun, verb, adjective, adverb. Many other word classes have also been proposed by linguists, recently and not so recently. However, applying the word class approach across languages is problematic. We will illustrate the problems with the word class approach by discussing how word classes are described and analyzed in reference grammars of languages, one of the chief ways in which you will encounter crosslinguistic data.

When you read grammatical descriptions of lesser-known and previously undocumented languages (and even of better-known languages), you often find that word
class terms are used in conflicting and confusing ways, as seen in the quotations from reference grammars found in (2a-d):

(2) a. ‘Sidaama numerals are adjectives’ (Kawachi 2007:135)
    b. ‘Numerals [in Iñupiaq] are a subclass of nouns…numerals behave like nouns…Iñupiaq numerals are nouns’ (Lanz 2010:106, 107, 108)
    c. ‘adjectives [in Mamainde] are encoded as verbs’ (Eberhard 2009:324)
    d. ‘Acehnese has no class of adjectives’ (Durie 1985:101)

These quotations challenge students and scholars who are using reference grammars in order to understand syntax across languages or to analyze particular constructions. For the most part, these problems are not due to unsatisfactory or inconsistent application of syntactic analysis to these languages by the authors. They are basically due to problems with the word class approach to syntax and how it applies to the diversity of human languages.

Statements of the form ‘Word class X is word class Y’, such as the statement about Sidaama in (2a) and the last statement about Iñupiaq in (2b), appear puzzling at first. Words are generally assumed have an inherent word class, and the classes are mutually exclusive. If so, what is meant by ‘Word class X is word class Y’? These statements are meant to be interpreted as follows, for example for (2a): Sidaama numerals and Sidaama adjectives function the same way in a sentence. But if they function the same way in a sentence, then what do the terms ‘numeral’ and ‘adjective’ mean in this context? They mean that the Sidaama translation equivalents of English words in the English Numeral class and the Sidaama translation equivalents of English words in the English Adjective class are members of single word class in Sidaama.

That is, the terms ‘numeral’ and ‘adjective’ are being used to refer to semantic classes—translation equivalents—in these quotations: numeral concepts and property concepts respectively. The same is true of the second statement about Iñupiaq in (2b), where ‘noun’ refers to object concepts (persons and things). It is also true of the statement about Mamainde in (2c): (2c) means that the Mamainde translation equivalent of English Adjectives do not form a distinct word class—specifically, they are not distinct from the word class to which the Mamainde translation equivalents of English Verbs belong.

If the terms ‘numeral’ and ‘adjective’ are being used semantically in these quotations, then two terminological problems give rise to confusion. The first is that the same term is being used for a syntactic category (a word class) and for a semantic category (a semantic class of words). In the case of ‘adjective’, there exists a distinct term for the semantic class, namely ‘property (concept)’, although it was not used in any of the descriptions in (2). The use of ‘adjective’ in these quotations is inappropriate, and a more appropriate term is available, namely ‘property concept words’. For example, (2c) could be rephrased as ‘property concept words are encoded as verbs’.

In the case of ‘numeral’, we have a different kind of problem. Linguists use the term ‘numeral’ for both semantic class (any translation equivalent for ‘1’, ‘2’, ‘3’, etc.) and a word class (e.g., the English word class which has one, two, three... as members).

Unfortunately both of these problems are pervasive in linguistic discussions of syntax. The solution to the first problem is simply to be careful and consistent in using
semantic terms—‘property’—for semantic classes and grammatical terms—‘adjective’—for word classes. We will consistently distinguish terms for semantic categories and terms for grammatical (morphosyntactic) categories in this textbook.

A solution to the second problem found in typological writings is to use the lower case form of the term for the semantic class—‘numeral’—and to use the capitalized form of the same term for a (language-specific) word class—‘Numeral’. This convention has been proposed by a number of typologists, including Lazard (1975), Comrie (1976), Bybee (1985) and Croft (2001). We will follow this rule of thumb for naming (language-specific) word classes in this textbook, even when the terms for word class and semantic class are different.

There is also a logical problem with the statements of the form ‘Word class X is word class Y’. If ‘numeral’ and ‘adjective’ both refer to semantic classes (numerals and property concepts respectively), then the statement in (2a) that ‘numerals are adjectives’, i.e. ‘numeral concepts are property concepts’, is nonsensical. Numeral concepts and property concepts are different types of concepts. A paraphrase of the statement in (2d), ‘Acehnese has no property concepts’, would also be nonsensical; every language has a way to express property concepts. A more careful statement is the second statement in (2b), ‘numerals behave like nouns’, or the statement in (2c), ‘adjectives are encoded like verbs’. In these statements, ‘noun’ and ‘verb’ still are being used—inappropriately—to express semantic classes of words (object concept words and action concept words respectively). But the assertions more clearly state that words of two different semantic classes belong to a single word class.

1.2.3. Language-specific categories and crosslinguistic categories: the role of constructions

When we turn from semantic class to word class, however, a greater problem emerges. What is the appropriate name for the word class? One reason for the continued use of terms like ‘adjective’, ‘noun’ and ‘verb’ in these descriptions (rather than the semantic terms ‘property’, ‘object’ and ‘action’) is that the authors intend to use ‘noun’, ‘verb’ and ‘adjective’ as terms to describe grammatically defined word classes in these other languages, not semantic classes which are defined solely by their meaning. As we observed above, in the word class approach it is assumed that word classes are crosslinguistically valid, that is, that ‘noun’, ‘verb’ and ‘adjective’ are crosslinguistic categories (Haspelmath 2010b). But what reason is there to use the same names from English syntax to describe the syntax of Sidaama, Iñupiaq, Mamainde or Acehnese?

In order to answer this last question, we must look at how word classes are defined in English or any other language. In linguistic analysis, word classes are defined not by their semantics but by their occurrence in constructions. For example, English Adjectives such as tall are defined, not as words denoting property concepts like height, but instead in terms of:

(i) their occurrence as modifiers of nouns: a tall tree
(ii) as the complement of a copula be in predication: That tree is very tall
(iii) by the fact that they inflect in a certain way (a morphological construction): tall-er, tall-est
(iv) that they can in turn be modified by certain degree expressions: \textit{very tall, a little tall}).

The problem is that these constructions defining English Adjectives are constructions of English, not of Sidaama, \textit{Inupiaq, Mamainde or Acehnese}. So English Adjectives are English word classes; the other languages have their own word classes, defined by their own constructions. In other words, \textbf{word classes are language-specific}. Word classes as they are usually defined cannot be used for crosslinguistic comparison, nor can one make generalizations across languages about word classes. Needless to say, this undermines the raison d’être for the word class approach to syntactic analysis. If the word classes are different from one language to the next, then the word class approach is not a universally applicable model for syntactic analysis or language description. At best, the word class approach provides different building blocks for the constructions of each language.

All hope is not lost, though. One can make generalizations across languages by using functionally equivalent constructions in all the languages that one compares in order to define word classes: for \textit{tall tree}, this would be the function of modifying a referent. And we can compare word class membership across languages by identifying the semantically equivalent words that occur (or do not occur) in the constructions in question—for \textit{a tall tree}, a property word meaning ‘tall’ and an object word meaning ‘tree’. In this way one can, for example, compare the constructions used for modification across languages, and observe how property concept words and other semantic classes of words are used in those constructions. This is a fundamental characteristic of a constructional approach to syntactic analysis: using function to identify equivalent constructions and equivalent classes of words across languages.

However, the more common practice in syntactic analysis and in grammatical description is to look for particular constructions in the language being described to define word classes without regard to functional equivalence across languages. Usually multiple constructions are used to define a word class, and these constructions are different from those used in another language (if indeed there are translation equivalents of the constructions at all). This opportunistic approach to defining word classes leads to problems in deciding what is equivalent across languages.

A simple example of the problem is German Adjectives vs. English Adjectives (Croft 2007:416-17). English Adjectives are typically defined using the constructions in (i)-(iv) above. German Adjectives are defined by their occurrence as modifiers of nouns as well, but also by the fact that they agree with the noun in number, gender and case (Durrell 1996:120; see the Appendix to this chapter for the interpretation of the second line, the \textit{interlinear morpheme translation} or \textit{IMT}):

\begin{example}
\begin{tabular}{l}
frisch-e  
\textit{fresh-FSG,NOM/ACC}  
\textit{milk}  
\textit{‘fresh milk’ [no agreement marking on ‘fresh’ in English]}  
\end{tabular}
\end{example}

English Adjectives do not agree with their head noun. Are English Adjectives and German Adjectives instances of the same crosslinguistic category, adjective? They are defined by different constructions. In fact, in English, the only modifier that agrees with the noun are Demonstratives: \textit{this book/these books}. Does this mean that German
Adjectives should be equated with English Demonstratives, since both agree with the noun? If not, then the categories being compared across the two languages are really being defined semantically, as property concept modifiers, not by the constructions they occur in. And anyway, German agreement works very differently from English agreement. As stated above, word classes are defined by constructions in the language, and constructions are language-specific, with their own unique quirks.

So a statement that a language “has adjectives”, or “does not have adjectives”, is not a very useful statement from the perspective of syntactic analysis or even from the perspective of language description. What matters in language description is the basis on which word classes are defined. What is the construction that is used to define the word class? What is the function of the construction? What are the semantic classes of words that occur (or do not occur) in the construction in question? In other words, the facts that are supposedly about a word class in a language description are really facts about the construction(s) used to define that word class, such as the constructions in (i)-(iv) used to define the English Adjective word class.

This is not just a problem in comparing the grammatical analyses of different languages. The problem of identifying word classes doesn’t go away by restricting one’s view to a single language. The words in the English Adjective word class do not all occur in all of the constructions listed above. English Adjectives, like most word classes, are typically defined by not just one construction—modification of a referent—but by several constructions, such as the ones named above: predication with a copula, occurrence with degree inflections and occurrence with degree modifiers. But not all Adjectives that occur as modifiers also occur in the other three constructions (and vice versa):

(4) **Modification of a referent:**
   a. This insect is alive.
   b. *an alive insect

(5) **Predication with a copula:**
   a. An entire chapter is devoted to this problem.
   b. *This chapter is entire.

(6) **Degree inflections:**
   a. tall-er, tall-est
   b. *intelligent-er, *intelligent-est

(7) **Degree modifiers:**
   a. a very tall tree
   b. *a very even number

In other words, the different constructions in (4)-(7) do not define a single word class of English Adjectives. Instead, they define a set of distinct but overlapping word classes. This is not what is assumed or expected in the word class approach: each word is supposed to belong to a single word class.

The ultimate problem with the word class approach and the issues with linguistic description and analysis that have been described in this section is that the word class
approach leaves virtually unmentioned the fundamental role of constructions in syntactic analysis. **Word classes are defined by the occurrence of words in constructions.** This fact is obscured by the terminology used to describe the definitions of word classes. The constructions used to define word classes are called many different things: ‘criteria’ (Givón 2001a:49; Dixon 2010b:38), ‘tests’ (McCawley 1998; Carnie 2013:47, 98-100), ‘evidence’, ‘phenomena’, ‘operation’, and ‘process’ (Mulder 1994:114), instead of simply being called **constructions defining a word class.** The words in a word class are said to have a particular grammatical or syntactic ‘distribution’ (Harris 1951:5; Carnie 2013:47), ‘behavior’ (McCawley 1998:186), ‘properties’ (McCawley 1998:18; Evans and Osada 2005:452; Schachter and Shopen 2007:2), ‘features’ (Amha 2001:89), ‘use’ (Jagersma 2010:268), or ‘function’ (Palmer 2009:94), instead of simply saying that **they occur in certain constructions and not in others.** All of these terms hide the central role that constructions play even in the word class approach.

If word classes are defined in terms of the constructions in which they occur, then the problem with the word class approach becomes clear. In the word class approach, syntactic constructions are defined by the word classes or syntactic categories that the constructions are built out of. But word classes are defined by the constructions in which they occur. This circularity is the ultimate problem with the word class approach (Croft 2001:45-47).

One practical consequence of this fundamental problem is that reference grammars often substitute an enumeration of word classes for a full description of the constructions used to define those word classes, the functions of those constructions, and the range of semantic classes of words that occur in those constructions. Even careful typological analyses often use the same term to describe a semantic class of words and a construction used to describe a word class including that semantic class but not identical to it. An example of this problem is illustrated by the first paragraph of a questionnaire used in a crosslinguistic survey of ‘ditransitive constructions’ (see §7.5), such as *I gave her a book:*

*Ditransitive construction* is defined semantically as ‘a construction with a recipient (R) and a theme (T) argument’, where these semantic role labels are understood broadly. Typical ditransitive verbs are ‘give’, ‘sell’, ‘show’, ‘promise’, ‘teach’, but languages may treat other verbs in the same way, so that **these verbs would also count as ditransitive for current purposes** (e.g. in English *deny, envy* [as in *She denied me a kiss; I envy you your success*]; in German *entziehen* ‘withdraw from’). (Comrie, Haspelmath and Malchukov 2010:65, emphasis added)

The first part of the paragraph defines ditransitive verbs as a semantic class, namely verbs describing events with a recipient participant and a theme participant (the theme is what the recipient comes to possess), with an illustrative list. But the second part of the paragraph, emphasized here, switches to a definition of ditransitive verbs as any verb that occurs in the ditransitive construction in a language (i.e. the construction that includes semantically ditransitive verbs), even if they are of a different semantic type—denying, envying and withdrawing events do not have a recipient.

All of these problems can be avoided by a thoroughly construction-based approach to syntactic analysis and language description. Words occur in certain constructions and
don’t occur in other constructions. Words have meanings; grammatical constructions have meanings, or functions, as well. We can compare languages by comparing what happens with the translational equivalents of English words, and comparing the functional equivalents of English constructions. Semantic and functional translation equivalence allows us to identify general patterns of syntax across languages. This is the approach taken in this textbook.

1.2.4. Constructions and the organization of this textbook

The chapters in Parts Two through Four of this textbook present syntactic constructions of the world’s languages: what their function is, and the range of morphosyntactic structures used to express those functions. The basis for dividing the presentation of constructions into separate chapters, and the order of chapters in this textbook, is primarily in terms of the function of the constructions. Of course, language is a general purpose communication system: in principle we can express anything we want in language. We have to use an analysis of functions that allows us to divide and organize all the functions that we can express in language into categories that are useful for syntactic analysis. That is, the categories of functions should not only be conceptually related, but also divide constructions into groups that are related to each other by their morphosyntactic form. In the next section, we argue that the analysis of functions most useful for syntax is in terms of information packaging.

1.3. Why information packaging?

A central hypothesis of this textbook is that all constructions convey both semantic or information content and a packaging of that content. (Other terms used for information packaging are ‘discourse function’ or ‘information structure’.) For example, the division of words into those denoting object concepts like ‘tree’, property concepts like ‘tall’ and action concepts like ‘fall’ represents a categorization of words by their semantic content. In contrast, in a sentence like The tall tree fell, one can categorize the same words as referring (tree), modifying (tall) and predicating (fell). This categorization represents the packaging of that semantic content. In the most general syntactic constructions, the packaging of the semantic content is globally organized around the following skeletal structure (these are discussed in more detail in §2.1):

- **reference** - what the speaker is talking about
- **predication** - what the speaker is asserting about the referents in a particular utterance
- **modification** - additional information provided about the referent

These fundamental information packaging functions are called the (major) propositional act functions (following Searle 1969 and Croft 1991).

The separation of semantic or information content and information packaging is not generally recognized in the analysis of sentence function. The primary reason to separate meaning and information packaging is that, in principle at least, any semantic content can be packaged in any information packaging function. In a tall tree, the property of
tallness is being used to modify the referent of tree. But in That tree is tall, the property of tallness is predicated of the tree.

The semantic classes of objects, properties and actions can all refer, modify, or predicate (Croft 1991), as can be seen in Table 1.1 for the words in boldface.

<table>
<thead>
<tr>
<th>reference</th>
<th>modification</th>
<th>predication</th>
</tr>
</thead>
<tbody>
<tr>
<td>object</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the sharp thorns</td>
<td>the thorn’s color</td>
<td>It is a thorn.</td>
</tr>
<tr>
<td>property</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sharpness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I said [that the thorns scratched me].</td>
<td>the thorns [that scratched me]</td>
<td>Those thorns are sharp.</td>
</tr>
<tr>
<td>the [scratching of the thorns]</td>
<td>the thorns [scratching me]</td>
<td>The sharp thorns scratched me.</td>
</tr>
</tbody>
</table>

Table 1.1. Packaging of semantic classes in different propositional act functions.

The facts presented in Table 1.1 explain why the traditional grammar definitions of ‘nouns’ as object words, ‘adjectives’ as property words, and ‘verbs’ as action words fails. For example, properties and actions can be referred to (sharpness, scratching). The facts in Table 1.1 also suggest which constructions are relevant for a crosslinguistically useful analysis of parts of speech, namely constructions used for reference, modification and predication. Recognizing these two dimensions of linguistic function allows for a crosslinguistically valid approach to the vexing problem of parts of speech.

Nevertheless, it is true that referring expressions are most frequently objects, predicates are most frequently actions, and modifiers are most frequently properties. They are the constructions that occur on the diagonal from upper left to lower right in Table 1.1: the sharp thorns (noun), the sharp thorns (adjective), The sharp thorns scratched me (verb). As the parenthetical terms indicate, these frequent combinations form the basis of a crosslinguistically valid analysis of nouns, verbs and adjectives. We will develop this analysis in more detail in §2.2.

The separation of semantic content and information packaging also allows us to reformulate the problem in the statements in (2a), (2b) and (2d), such as ‘Sidaama numerals are adjectives’. Many word class terms, especially those for major parts of speech, are used for either the semantic class or the information packaging function of the construction defining the word class. Hence ‘Sidaama numerals are adjectives’ really means ‘Sidaama numerals occur in the same modification construction used for prototypical modifiers’. ‘Acehnese has no adjectives’ doesn’t mean ‘Acehnese has no property words’ or ‘Acehnese has no modification constructions’. It means ‘Acehnese does not have a modification construction used specifically for property words’.1

1 Actually, for Durie it also means ‘Acehnese does not have a predication construction used specifically for property words’. This shows the problem of not calling a construction a construction in defining word classes, because one doesn’t know which constructions are implicitly referred to by statements like ‘Acehnese has no adjectives’.
Many traditional uses of terms for word classes and parts of speech are ambiguous between denoting a semantic class and denoting an information packaging function. For example, ‘demonstrative adjective’ means ‘deictic word [“demonstrative”] used as a modifier [“adjective”]’, as in that book. In a parallel fashion, ‘demonstrative pronoun’ means ‘deictic word used as a referring expression’, as in That is a book. On the other hand, ‘predicate adjective’ means: ‘property word [“adjective”] used as a predication [“predicate”], as in That tree is tall. In a parallel fashion, ‘attributive adjective’ means: ‘property word used as a modifier’, as in a tall tree. So the term ‘adjective’ is used to denote the modification function in ‘demonstrative adjective’ but the property concept class in ‘predicate adjective’.

Another example of use of grammatical terms for either information packaging function or semantic class is in a description of the words ano and wola/wolata in Sabanê (Nambikwaran; Antunes de Araujo 2004:96):

The morphemes ano and wola/wolata are used to express plurality, meaning ‘much/many/a lot’…In the sentences (26-31), ano is a quantifier, while wola(ta) is an adverb…:

(27) naysunum-ka ano-it-al-i
land-OBJ much-VS-PRS.N-ASSR
‘There is plenty of land.’

…

(30) wola amayl-i-al-i
a_lot_more to_rain-VS-PRS.N-ASSR
‘It is raining very hard.’

The word ano is defined by its semantic class (‘quantifier’), but the near-synonym wola(ta) is defined by the information packaging function of the construction it occurs in (‘adverb’, i.e. modifier of a predicate). Thus, a major part of the difficulty in interpreting statements about word classes in reference grammars involves figuring out whether the author is using the term ‘adjective’, say, to describe a language-specific word class, a semantic class (property concepts), or an information-packaging function (modification).

The separation of semantic content and information packaging in describing the function of constructions has a number of theoretical and practical consequences. The information packaging functions are generally much more isomorphic to syntactic structures than lexical semantic classes: object concepts can be predicated, and action concepts can be packaged as referents, patients can be packaged as subjects, etc. The information packaging functions are also less variable across languages—i.e. more universal—than lexical semantics. Although the match is not perfect, information packaging is the function of the morphosyntactic form of sentences. For this reason, the organization of the constructions in this textbook is according to their information packaging functions.

The information packaging functions in Table 1.1 provide the basic skeleton for most constructions (see §1.5). This basic skeleton is described in more detail in Chapter 2. The information packaging functions in Table 1.1 also provide the basic skeleton for this textbook. Part Two describes constructions used for reference (chapter 3) and for
modification (chapters 4-5). These are phrasal constructions (phrases for short). For example, the furry kitten is an instance of a phrase: it refers to a kitten, and modifies that concept with the property of being furry. Part Three describes constructions used for predication. These are clausal constructions (clauses for short). An example of a clausal construction is The birds were singing: singing is predicated of the birds. Part Four describes constructions used for multiple predications. These are complex sentence constructions, made up of multiple clauses. An example of a complex sentence construction is [The birds were singing] [when I went out to get the newspaper]. It consists of two clauses, indicated by the square brackets; the second clause is dependent on the first one and bears a semantic relation of overlapping occurrence in time.

The functions in Table 1.1 are not the only information packaging functions found in grammatical constructions. All constructions encode both semantic content—information—and the way that information is packaged. The information packaging functions associated with different types of constructions will be described in the chapters making up Parts Two, Three and Four of this textbook.

The organization of this textbook is summarized in Table 1.2. There are construction types and information packaging functions in Table 1.2 that are probably not familiar to you; they will be explained as they are introduced.

<table>
<thead>
<tr>
<th>Part One: Introduction</th>
<th>(overview, framework of analysis)</th>
<th>Chapters 1-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Two: Phrases</td>
<td>reference</td>
<td>Chapter 3</td>
</tr>
<tr>
<td></td>
<td>modification</td>
<td>Chapters 4-5</td>
</tr>
<tr>
<td>Part Three: Clauses</td>
<td>predication (topic-comment)</td>
<td>Chapters 6-9</td>
</tr>
<tr>
<td></td>
<td>predication, thetic, identificational</td>
<td>Chapters 10-11</td>
</tr>
<tr>
<td></td>
<td>speech act functions, modality</td>
<td>Chapter 12</td>
</tr>
<tr>
<td></td>
<td>complex predicates</td>
<td>Chapters 13-14</td>
</tr>
<tr>
<td>Part Four: Complex Sentences</td>
<td>coordination, subordination</td>
<td>Chapters 15-17</td>
</tr>
<tr>
<td></td>
<td>events as arguments (complements)</td>
<td>Chapter 18</td>
</tr>
<tr>
<td></td>
<td>events as modifiers (relative clauses)</td>
<td>Chapter 19</td>
</tr>
</tbody>
</table>

Table 1.2. Information packaging functions and the organization of this textbook.

There still remains the question of how to organize the chapters themselves. Constructions are a pairing of form and function, and function represents both semantic content and information packaging. But morphosyntactic form varies considerably across languages. What is the best way to compare and hence organize that crosslinguistic diversity of constructional form? In the next section, we argue that the comparison involves distinguishing grammatical constructions from grammatical strategies.

1.4. How do we compare constructions within and across languages?

Semantic content and information packaging allows us to compare constructions within and across languages. For example, we can compare the predication of object concepts in
English (8), Spanish (9) and Classical Nahuatl (10a; cf. Nahuatl action predication in 10b; Stassen 1997:46, from Andrews 1975:248, 25):

(8) **English:**
I am not a doctor.

(9) **Spanish:**
Yo no soy médico.
I NEG am doctor
‘I am not a doctor.’

(10) **Classical Nahuatl:**
    a. ah-ni-tícitl
       NEG-1SG-doctor
       ‘I am not a doctor.’

    b. ah-ni-chōco
       NEG-1SG-cry
       ‘I am not crying.’

But how do we talk about the constructions of the world’s languages? That is, how do we talk about not just the function (semantics and information packaging) of the constructions in (8)-(10), but also the morphosyntactic structures in (8)-(10)? We need **comparative concepts** (Haspelmath 2010b) for object predication constructions, and also action predication constructions, object reference constructions, and any grammatical construction that we want to compare across languages. Moreover, we will also want to compare different constructions with similar functions in a single language, such as the English constructions in (11) used for object modification, that is, the modification of one object concept (regulations) by another object concept (university):

(11) a. the regulations of the university
    b. the university’s regulations
    c. university regulations

Haspelmath describes comparative concepts as concepts that are not language-specific constructions, nor the language-specific word classes that those constructions define. Instead, they are theoretical concepts used for crosslinguistic comparison. The most important property of comparative concepts is that they are crosslinguistically consistent. That is, their definition is not dependent on language-specific constructions and categories.

The functions that speakers want to express, that is, semantics or information packaging, can serve as comparative concepts; we saw this in §1.2.3. But in order to talk about the morphosyntactic form of constructions, we need to define grammatical comparative concepts: comparative concepts that refer to the pairing of form and function, not just function by itself.
Typologists generally use two general types of comparative concepts (Croft 2014, 2016). The first general type is a **construction**: 

**construction:** any pairing of form and function in a language (or any language) used to express a particular combination of semantic content and information packaging

That is, a construction is a set of morphosyntactic forms that all have in common a particular combination of semantic content, such as object concepts, and information packaging, such as predication. However, a construction does not define any particular form. That is, a construction does not define how the function is expressed; a construction just defines what function is expressed. For example, if one finds an article titled “A typology of relative clause constructions”, one will expect to find a survey of all the different morphosyntactic ways that languages express a particular function (in this case, action modification; see chapter 19).

Since every construction expresses a combination of a particular semantic content and a particular information packaging function, an obvious solution to the naming of this comparative concept is to use a compound of the semantic content and the information packaging function, i.e. ‘object predication construction’, ‘object reference construction’, ‘action predication construction’ and so on. In many cases, this will suffice. But in fact the traditional grammatical terms for many constructions are used in basically this fashion: a ‘predicate nominal construction’ is a construction used for object predication, and so on. In particular, reference grammars use grammatical construction terms such as ‘predicate nominal’, ‘relative clause’, and so on to describe how the relevant combination of semantic structure and information packaging function is expressed in the language being described. We will respect this usage as much as possible when presenting names for constructions as grammatical comparative concepts.

For example, we will use the term **predicate nominal construction** to describe a grammatical construction in a language used to express object predication. A predicate nominal construction is a pairing of grammatical form with a function. The function taken by itself is called ‘object predication’. But the predicate nominal construction is defined solely in terms of the function it is used to express. Since it is a crosslinguistic comparative concept, not a language-specific concept, it is not capitalized.

This use of the term ‘construction’ corresponds to the common use of ‘construction’ in typology: typologists want to talk about the different constructions used to express a function in different languages (and also different constructions expressing the same function in a single language). The term ‘construction’ is used more broadly in construction grammar: construction grammarians talk about constructions in general as any pairing of grammatical form and function. This is how ‘construction’ has been used in §§1.1-1.3 so far. In practice, much discussion of constructions in construction grammar pertains to language-specific constructions, such as the English Numeral Modification Construction. In order to distinguish these from the functionally defined constructions that serve as comparative concepts, we will capitalize the term ‘Construction’ in the name of a language-specific construction, e.g. the English Predicate Nominal Construction. Likewise, the comparative concept ‘construction’ normally occurs in combination with the functionally defined name, e.g. predicate nominal constructions. The unmodified term ‘construction’ will normally refer to constructions in general in this textbook.
The range of constructions found in the world’s languages represents the range of meanings that are communicated in linguistic utterances. Human languages are general-purpose communication systems and thus are used to express everything from fundamental experiences common to all human beings to highly specialized knowledge found only in a single culture or, even more narrowly, to a subcommunity in a culture with a particular expertise. No single grammar textbook or reference grammar of a language can possibly capture this full range of human experience even for one speech community. Nevertheless, focusing on the morphosyntax (rather than the lexicon) does delimit a more manageable subset of the grammatical structure of a language, namely how the meanings found in individual words and morphemes are combined and packaged. Traditions of grammatical analysis in major literary languages and in linguistics, and of grammatical description of languages around the world, allow us to devise a framework encompassing the broad range of information packaging functions that grammatical constructions perform.

The introduction of grammatical constructions as comparative concepts is not enough, however. We also want to be able to compare constructions in terms of their form as well as their function. For example, English I am not a doctor and the Spanish translation equivalent Yo no soy médico are structurally similar in that they both contain an inflecting form (English am, Spanish soy) distinct from the object concept word (English doctor, Spanish médico). English and Spanish differ from the Classical Nahuatl translation equivalent ah-ni-tícítli, in which the object concept word (tícítli) itself is the inflecting form. In other words, calling I am not a doctor and Yo no soy médico instances of the predicate nominal construction tells us what the English and Spanish speaker are trying to say—that is, the semantic content and how they package that content. But this means that the definition of a construction does not tell us how the English and Spanish speakers express the function, let alone the similarities in how they express it.

Thus, we also need grammatical comparative concepts that describe not just what a speaker intends to convey—that is, the function—but also how they convey it—that is, also the grammatical form. To describe the ‘how’ as well as the ‘what’, we introduce the notion of a strategy.²

strategy: a construction in a language (or any language), used to express a particular combination of semantic content and information packaging (the ‘what’), that is further distinguished by certain characteristics of grammatical form that can be defined in a crosslinguistically consistent fashion (the ‘how’).

For example, we will say that both English and Spanish employ an verbal copula strategy for their predicate nominal constructions (see §10.1.2 for details).

The verbal copula strategy has certain characteristics of grammatical form that can be defined independently of language-specific word classes or constructions. Those characteristics are the ones described above: (i) the predication function is expressed in part by the presence of a morpheme different from the object concept word, and (ii) this additional word is inflected for at least some of the categories that construction for the predication of actions (i.e., verbs) also inflect for.

² The term ‘strategy’ is one long used with this meaning in typology (at least as far back as Keenan and Comrie 1977 and Givón 1979).
A single language may have multiple constructions using different strategies for a single construction, as we saw in (11a-c) for object modification (broadly construed; see §4.1.4) in English. Thus these grammatical comparative concepts are for comparing different morphosyntactic types of constructions, whether in different languages or in the same language. A single language may even have multiple constructions using the same strategy. For example, Spanish has two verbal copula strategies, one using *ser* and one using *estar*. (They differ semantically, but also overlap in some contexts.) These two Spanish verbal copula strategies will have to be differentiated by language-specific construction names, such as the *Ser Copula Construction* and the *Estar Copula Construction*.

Strategies come in different kinds. One type of strategy is defined like the verbal copula strategy, using properties of grammatical structure that are **crosslinguistically valid**, that is, defined independently of language-specific word classes or constructions. For example, a copula can be defined crosslinguistically as a separate morpheme that encodes the predication function. These types of strategies we will call **encoding strategies**: they represent different morphosyntactic means for expressing the same function in different languages, or as alternative means for expressing the same function in a single language.

Another type of strategy is defined in terms of two or possibly more constructions with closely related functions. In this case, the strategy is defined in terms of similarities and differences in morphosyntactic form (again, defined in a cross-linguistically valid fashion) between the two constructions. The morphosyntactic similarities and differences between the strategies found in two (or more) functionally closely related constructions forms a **system** of strategies for the contrasting functions of the constructions.

For example, what are called alignment strategies are defined in terms of the similarities and differences in the forms of intransitive and transitive constructions. For example, consider the transitive and intransitive constructions of Yuwaalaraay, illustrated in (12)-(13) (Williams 1980:36):

(12) ḏuyu-gu ṇama ḏay̪n-Ø yi-y
snake-ERG that man-ABS bite-NFUT
‘The snake [ergative] bit the man [absolutive].’

(13) wa:l ṇama yin-Ø banana-ņi
NEG that woman-ABS run-NFUT
‘The woman [absolutive] didn’t run.’

In the Yuwaalaraay intransitive, the form of the lone argument phrase of an intransitive predicate—‘woman’ in (13)—is the same as the form of the argument phrase expressing the patient-like participant of the event denoted by a transitive predicate—‘man’ in (12). This co-expression (see Hartmann et al. 2014:476, fn. 5) of arguments is called the absolutive. In contrast, the argument phrase expressing the agent-like participant of the same event—‘snake’ in (12)—is expressed with a different form from that of the lone argument phrase of the intransitive predicate, namely the suffix -gu. This distinct expression, or lack of co-expression, is called the ergative.
This second type of strategy describes similarities and differences in morphosyntactic form that apply across two (or more) constructions—in this case, the intransitive and transitive constructions. Whenever a strategy is defined in synchronic comparison to another strategy, then a system of strategies is being described.

A third type of strategy is defined in terms of using another construction in the language to express the function in question. For example, the predication of possession in Russian is expressed using a locative construction, that is, a construction also used for the predication of location (see §10.4.2):

(14) u menja mašina
    at ISG.GEN car[NOM]
    ‘I have a car.’ [lit. ‘At me (is) a car’]

We will call these recruitment strategies: the construction used for one function—locative predication—is recruited for use in a different function—predication of possession. Another way of describing a recruitment strategy is that the construction being recruited for the new function is being extended to the new function.

Recruitment strategies are very common, since recruitment of an existing construction reduces the number of different strategies needed for the vast range of meanings one wants to express. Recruitment strategies represent a fundamentally diachronic relationship between two constructions: the recruitment event actually occurred in the past.

A strategy that is recruited from one function will adapt to its new function. For example, the predication of physiological sensation is recruited from the possessive construction in some languages. In French, J’ai faim, literally ‘I have hunger’, means ‘I am hungry.’ One can modify faim with the degree intensifier très ‘very’: J’ai très faim ‘I am very hungry’. One cannot use a degree intensifier with ordinary possession: ‘I have very a car’ makes no sense (Croft 2001:115). This is the first step in divergence of a recruited strategy from its source construction. As the recruited construction’s form comes to be altered, it diverges so much from its source construction that it evolves into an encoding strategy unique to that construction.

There is a sense in which all strategies are probably ultimately recruitment strategies diachronically. Much of the diversity of grammatical strategies, particularly the less common or more unusual strategies, exists because grammatical change is gradual, and “hybrid” strategies appear as one strategy gradually evolves into another. Systems of strategies have a more complex history, involving divergence or convergence of constructions that come to be used for closely related functions. For these reasons, it is sometimes difficult to differentiate strategies that are historically related. We will discuss diachronic processes that lead to linguistic diversity in constructions in many places in this textbook.

Finally, strategies come in varying degrees of generality. The inflected copula strategy for the predicate nominal constructions in English and Spanish was described above specifically for the function of object predication. However, the verbal copula strategy is also used in both languages for predicate adjective constructions (to express property predication): Ella es inteligente ‘She is intelligent’. Should we define strategies
independent of constructions, that is, independent of the function that the construction expresses?

We do not do so here: strategies are always strategies for a particular construction, the ‘how’ for a particular ‘what’. Nevertheless, we can say that a strategy is used for a more general construction. For example, we can define the verbal copula strategy as a strategy for a more general predication construction: a construction used to predicate any kind of semantic content, whether it is object predication or property predication or predication of some other concept. We can also define strategies for even more general constructions; in fact, we will do that in §2.4 and §2.5. The recognition of strategies for highly general constructions represents some of the insights of grammatical theory as to how human beings verbalize their experiences in linguistic form.

Studying the strategies used for constructions is the heart of grammatical analysis. The range of strategies found in the world’s languages represents the variation in grammatical structure that may occur. It also implies constraints or at least dispreferences in how function is encoded in grammatical form that constitute generalizations or universals about human language, and it reveals the rich network of relationships among constructions in a language (and in language in general). This textbook will survey the major strategies for a wide range of constructions that have been found in crosslinguistic research. It is not intended to be exhaustive: languages are often surprisingly diverse, and unusual strategies are sometimes employed for certain constructions.

In sum, we have two categories of grammatical comparative concepts: constructions and strategies. The grammatical comparative concepts allow us to talk about grammatical constructions (form as well as function) across languages, even though particular grammatical constructions are language-specific. Since they are comparative concepts, they are in lower case, unlike language-specific construction names, which are capitalized just like language-specific word classes. Constructions are defined solely by the combination of meaning and information packaging they express, while strategies are defined in addition by certain crosslinguistically definable formal characteristics they have in common.

1.5. How do we analyze the structure of sentences in a particular language?

As noted in the preface, the analysis of sentences such as English She is intelligent in the constructional, functional-typological theory used in this textbook is rather different from the analysis of sentences in other syntactic theories. In most other syntactic theories, the analysis involves identifying the word classes of the words in the sentence, and then constructing relations between the words in a sentence, or possibly also groups of words in a sentence, in a particular way. That is, the analysis of the sentence means assigning a notation of the words and their relationships in in some framework of notation. Having done so, one can compare different sentences in the same language, to see what notational structures are shared (or not), and compare sentences in different languages, since the notational framework (word classes and relations between words or groups of words) is assumed to be largely universal.

The constructional, functional-typological theory is a “framework-free” grammatical theory (Haspelmath 2010a). That is, there is no notational framework used to analyze sentence structure. In part, this is because the basis of notational frameworks, particularly
word classes but also relations between words, is not universal and therefore cannot be used in crosslinguistic comparison, as argued in §1.2 (see also Croft 2001). But it is also the case that in a “framework-free” grammatical theory, the locus of analysis is different. In constructional, functional-typological theory, the locus of analysis is the relation between form and function. All of the concepts introduced in this and the following chapters serve this analytical goal.

The relationship between form and function is a relationship between the “visible” and the “invisible” part of a sentence. The “visible” part is the form of the sentence: the words and morphemes that make up the sentence, and their sequence. The “visible” part of a sentence is ultimately realized as a physical acoustic signal.

The “invisible” part of the sentence is its function. The function is how the sentence is used by speakers in social interaction. Linguists differ as to what the function is: stable structures in the “mind”, perhaps ultimately structures or patterns of activation in the brain, or regularities of human behavior, ultimately embodied in some fashion, perhaps not solely in the human brain but in bodily behavior as a whole. Of course the reason for these debates is precisely because function is “invisible”, that is, not directly perceivable. But this does not make function any less a real part of an utterance, nor does it mean that it can be ignored in morphosyntactic analysis. Hence function is a central part of morphosyntactic analysis in this textbook.

A sentence like the English *She is intelligent* is first analyzed as an instance of a language-specific construction, in this case the English Predicate Adjective Construction. The basis for identifying the sentence as an instance of the English Predicate Adjective Construction is, first, its function. The function is twofold: its meaning (semantic content) and the information packaging of the semantic content. The English Predicate Adjective Construction is defined by the combination of the semantic category of property concepts and the information packaging function of predication. Purely functional concepts like property concepts and the predication information packaging function can be used to compare English to other languages. That is, purely functional concepts are comparative concepts (see §1.4).

The English Predicate Adjective Construction is in turn an instance of the predicate adjective construction, that is, it is an example of the comparative concept subsuming any construction—pairing of form and function—in any language that has the function of property predication. This categorization of the English Predicate Adjective Construction allows us to compare it to functionally equivalent constructions in other languages—and, for that matter, other English constructions that also serve the same function. More specifically, the English Predicate Adjective Construction is a special subtype of predicate adjective construction, namely the subtype employing the verbal copula strategy. The verbal copula strategy specifies the construction in terms of a specific form as well as the function defined by the construction.

This way of analyzing the English Predicate Adjective Construction is illustrated in Figure 1.2.
The analysis of the English Predicate Adjective Construction in Figure 1.2 only describes the construction as a whole and its function as a whole. Further analysis is required to identify the parts the construction.

Any predication construction predicates something of a referent. In *She is intelligent*, the referent is *She* and the predicated concept is expressed by *intelligent*. In addition, the English Predicate Nominal Construction contains another word, immediately preceding *intelligent*, namely *is*. This additional word identifies the English Predicate Adjective Construction as an instance of a particular strategy of the predicate adjective construction, the verbal copula strategy. This strategy implies that the construction contains an inflecting copula, as defined in §1.4: that is, *is* is a word distinct from the predicated concept word, but bearing inflections also found in action predication.

A visual representation of this analysis of the parts of the English Predicate Adjective Construction is given in Table 1.3:
Table 1.3. Analysis of She is intelligent as an instance of the English Predicate Adjective Construction.

<table>
<thead>
<tr>
<th></th>
<th>She</th>
<th>is</th>
<th>intelligent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sentence</strong></td>
<td>She</td>
<td>is</td>
<td>intelligent</td>
</tr>
<tr>
<td><strong>Semantics</strong></td>
<td>object</td>
<td>property</td>
<td></td>
</tr>
<tr>
<td><strong>Information Packaging</strong></td>
<td>reference</td>
<td>predication</td>
<td></td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>predicate adjectival (property predication)</td>
<td>verbal copula (is)</td>
<td></td>
</tr>
</tbody>
</table>

As with sentence analysis in other syntactic theories, this analysis allows one to compare this construction to other constructions in the same language, for example other predication constructions, and to other constructions in different languages, for example other property predication constructions or other constructions using an inflecting copula strategy, and analyze their similarities and differences.

In addition, parts of a construction are themselves constructions. For example, she is an instance of the English Personal Pronoun construction, a particular type of referring expression construction (see chapter 3). And is intelligent is an instance of the English Support Verb Construction, where an inflecting form (be) combines with or “supports” a word (intelligent) expressing a predicated concept (see §13.5). In other words, a sentence may be the instance of different constructions, capturing different “dimensions” of the morphosyntactic structure of the sentence and of parts of the sentence.

The reader will no doubt have realized that a thorough analysis of a language-specific construction, both the whole and its parts, in terms of both form and function will lead to a plethora of technical terms. Specifically, there will need to be terms for the semantic content; the information packaging; the construction; and the strategy used for the construction. These four analytical categories correspond to the four rows after the example sentence in Table 1.3.

As much as possible in this textbook, theoretical terms already in use will be employed, and as closely to traditional use as possible. However, traditional use is sometimes based on the word class approach to sentence analysis, which as we saw does not hold up well for cross-linguistic comparison. Also, traditional use of such terms may sometimes be ambiguous, for example between semantic vs. constructional definitions, information packaging vs. constructional definitions, and constructional vs. strategy definitions. For this reason, the reader must become familiar with the precise use of the terms in this textbook; major differences with traditional use will be indicated when the term is introduced. In order to focus on the accurate use of terms, when each term is introduced, it will be emphasized in boldface. The term will be identified as semantic (sem), information packaging (inf), construction (cxn) or strategy (str), or simply as a general theoretical concept. At the end of each chapter there will be a summary of the terms and concepts introduced in the chapter, classified by type and listed by the sections in which they were introduced. At the end of the book is an alphabetic glossary of all of the terms in the book, classified by type, with examples in English or other languages.
1.6. Appendix: Interpreting language examples: interlinear morpheme translations

Since this textbook describes crosslinguistic variation in how semantic content and information packaging are encoded in morphosyntactic form, one must be able to interpret example sentences from other languages, including languages that one is otherwise unfamiliar with. The now widely used method to make the interpretation process easier is the interlinear morpheme translation, or IMT. An IMT can be illustrated by example (15):

(15) yä-pitär yäfōqr-u-n zäfän azzäfän ← object language
    GEN-Peter love-DEF-ACC song sing:NML ← IMT
    ‘Peter’s singing [i.e. his way of singing] the love song’ ← (free) translation

The first line gives the sentence or phrase in the original language, usually called the object language, in a morphological analysis. (If the morpheme boundaries are obscured by morphophonological processes, the author sometimes gives two lines for the object language: the first line is the sentence as spoken, and the second line is a morphological analysis of the sentence before the application of the morphophonological rules.)

There is substantial variation in the notation of different kinds of morpheme boundaries in language descriptions. However, an emerging standard is given by the Leipzig Glossing Rules (http://www.eva.mpg.de/lingua/resources/glossing-rules.php). The Leipzig Glossing Rules should be studied carefully; only the briefest summary of the rules is given here. The following list gives a summary of the morpheme boundary notation found in the object language line:

+ links the two bases in a compound. Note that base forms may themselves contain inflections.
= links a clitic (enclitic or proclitic) to the word to which it is cliticized.
- links an affix (suffix or prefix) to the stem to which it is affixed.
<> encases an infix inside a word or stem.
~ links the reduplicated part of a word or stem to the word/stem
<~ links an infixed reduplication to the word/stem (not in the Leipzig Glossing Rules)

The second line is the IMT. The IMT gives a schematic description of the morphosyntactic structure of the example in the object language. Each part gives the translation of the morphemes in the object language line. The commonest convention is to translate word bases in lower case, and to translate grammatical morphemes in small capitals (or all capitals). There is no standard set of abbreviations for grammatical morphemes. For a short list of proposed standard abbreviations, see the Leipzig Glossing Rules, and for a much longer list (with some differences in abbreviations), see Croft (2003:xix-xxiii, also available at http://www.unm.edu/~wcroft/TU2files/TypAbbrev.pdf).

The same morpheme boundary notation is used in the IMT, except that the translation of an infix is moved to just before the base. However, the IMT also notates grammatical categories that are expressed by nonconcatenative morphology in the object language, such as transfixes, suppletion, subtraction and other types of base modification (for an
introduction to morphology, see Haspelmath and Sims 2010). The IMT also notates **cumulation** (Haspelmath and Sims 2010:98), that is, the expression of more than one grammatical category by a single morpheme in the object language (e.g. English -s in She sing-s cumulates third person, singular number and present tense in a single morpheme); and **false cumulation**, that is, the translation of an object language morpheme by more than one English word because English lacks a one-word translation (e.g. Spanish buscar and its English translation ‘look for’).

The best practice for notating these mismatches in form and meaning in the Leipzig Glossing Rules are given below:

```
\ base modifications of all kinds
.  cumulation; conventionally, a period is not used between person and number (e.g. 1PL)
>  portmanteau morpheme expressing one person acting on another (e.g. 1PL>3SG); this is a special case of cumulation
_  “false cumulation” (e.g. look_for)
```

In actual practice, the period is often used for all of these form-meaning mismatches. Nevertheless, it is valuable to distinguish the different types of form-meaning mismatches, so best practice is encouraged here.

The last line gives the “free” translation of the object language example. This translation essentially gives you the meaning of the example, ideally both the semantic or information content and the information packaging. In effect, the language of the translation—in this book, English—acts as the **metalanguage** to represent the meaning of the object language examples.

English (or other languages used in language descriptions written in French, Spanish, Russian, Japanese etc.) is not always the best metalanguage for describing the object language function. English, and the other languages used in translations, does not always make lexical or grammatical semantic distinctions that are found in the object language, and sometimes the metalanguage’s way of representing the information packaging in the object language is not always clear, or not carefully replicated by the author. A language description should provide careful translations of object language examples, based on an understanding of semantics and information packaging in the metalanguage used as well as in the object language. This is not always the case. Nevertheless translations are the only thing we can go on unless the author provides a discussion of the meaning of the example, or we have access to native language consultants. For this reason, translations must be used with reasonable caution when analyzing an unfamiliar language.

In sum, the three lines in an example like (15) gives the grammatical structure of the object language sentence (the object language line), the semantic analysis of the parts of the object language sentence (the interlinear morpheme translation/IMT), and the semantic structure including information packaging of the whole sentence (the free translation).
Terms introduced in this chapter:

1.1. What is morphosyntax?
morphology, syntax, morphosyntax, construction (see also §1.4), role, grammaticalization, meaning (semantic/information content), information packaging, form (aka expression), function, construction grammar, functionalism, linguistic typology

1.2. Why constructions?

1.2.1. Word class and constructional approaches to grammatical analysis
word class

1.2.2. Word classes and semantic classes
semantic class

1.2.3. Language-specific categories and crosslinguistic categories: the role of constructions
subclasses (of a word class)

1.2.4. Constructions and the organization of this textbook

1.3. Why information packaging?
reference/referent (inf), predication (inf), modification (inf), propositional act (inf), phrase (cxn), clause (cxn) (see also §2.1, §6.1.1), complex sentence (cxn)

1.4. How do we compare constructions within and across languages?
comparative concept, construction, strategy, verbal copula (str), crosslinguistically valid, encoding strategy, system, recruitment strategy

1.5. How do we analyze the structure of sentences in a particular language?

Appendix A. Interpreting language examples: interlinear morpheme translations
interlinear morpheme translation (IMT), object language, (free) translation, cumulation, false cumulation, metalanguage