

# Some fundamental knowledge in linguistics

## 1 Introduction

In this document, we introduce some fundamental knowledge in linguistics to facilitate language learning and to explain how the chapters are structured and interconnected. First, we briefly introduce X-bar theory, a framework used by linguists to model natural languages in a universal way. Second, building on X-bar theory, we present a concise model of sentence structure and explain how a language can be understood as a relational grammar of nouns. Third, on the basis of this sentence model, we explain how the chapters are organized. A full understanding of the material presented here is not required; rather, the goal is to provide an overview of the linguistic architecture and to offer a general impression of how the language-learning process will proceed.

## 2 X-bar: Everything is phrase

Just like a house isn't a pile of bricks, a sentence isn't a pile of words. Namely, words group together in meaningful chunks.

For example, to understand (1), we do not process it as “*the + cat + is + sleeping*” in a purely linear way, but rather as “*the cat + is sleeping*” with two building blocks. In linguistics, such a building block is called a *phrase*.

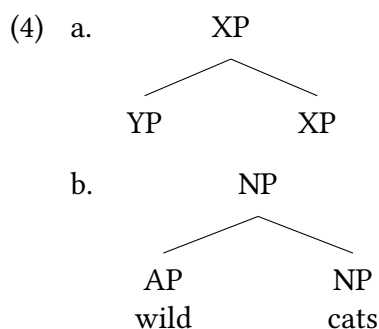
(1) The cat is sleeping.

A sentence is constructed through the growth of phrases. For example, in (2), the noun phrase (NP) *cats* is modified by the adjective phrase (AP) *wild*, and the outcome is still a NP. In (3), the NP *fish* first combines with the verb *eat* to form a verb phrase (VP) *eat fish*. This VP then combines with the NP *wild cats*, yielding another VP (or roughly speaking, a sentence) *Wild cats eat fish*.

- |     |                        |                        |
|-----|------------------------|------------------------|
| (2) | a. cats →              | Noun phrase            |
|     | b. wild cats           | Noun phrase            |
| (3) | a. fish →              | Noun phrase            |
|     | b. eat fish →          | Verb phrase            |
|     | c. Wild cats eat fish. | Verb phrase / Sentence |

The growth of this sentence reveals two types of combinations of phrases: modification, as in (2), which does not change the syntactic category of the phrase, and selection, as in (3), which changes the syntactic category of the phrase.

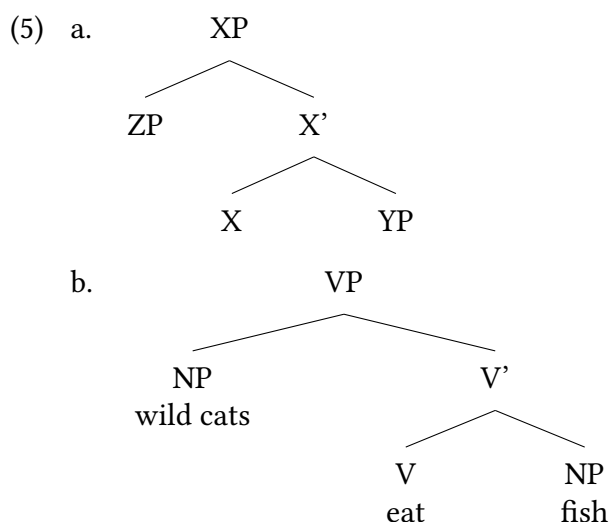
X-bar is a way to show the step-by-step growth of phrases. In cases of modification, a phrase XP combines with another phrase YP that modifies it, where X and Y are variables ranging over categories such as V(erb), N(oun), A(djective), and P(reposition). This process is represented in (4), where the modification of XP by YP does not change the syntactic category of XP.



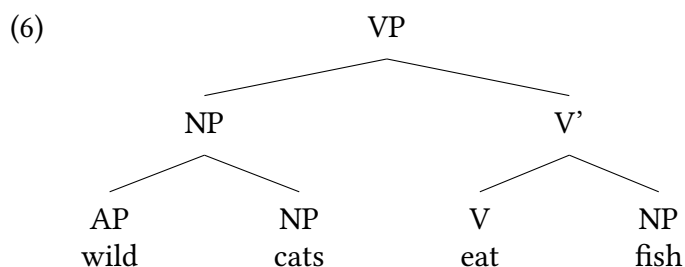
On the other hand, in cases of selection, we need to have a look at the internal structure of X-bar, which includes:

1. A head X: the core of the phrase XP;
2. A complement: another phrase YP that is selected by the head X;
3. A specifier: a third phrase ZP that specifies XP.

The process of selection is represented in (5), where the head X, which determines the syntactic category of the phrase XP, first selects the phrase YP and is then specified by the phrase ZP.

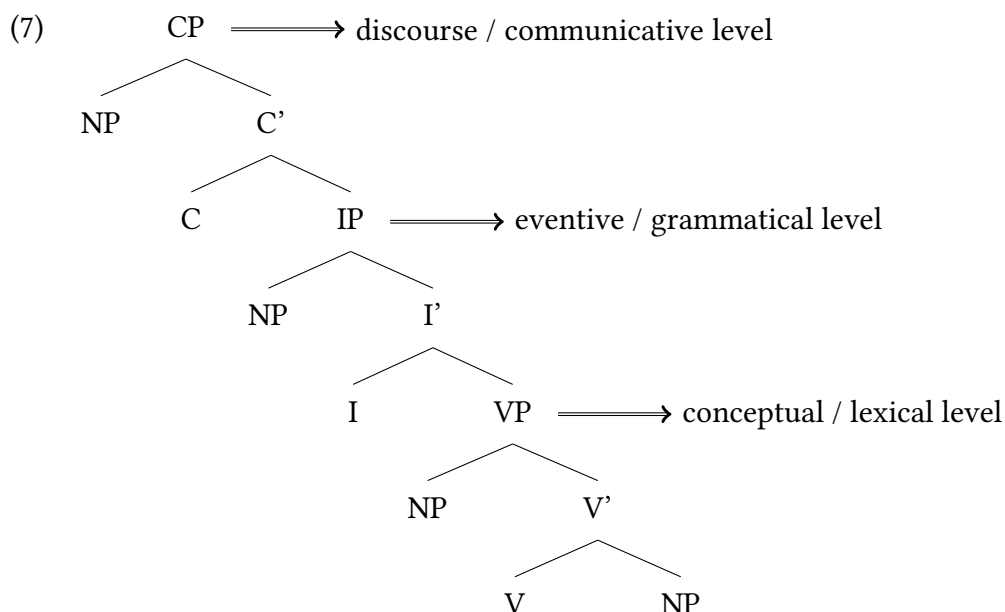


By combining (4b) and (5b), we obtain the structure in (6).



### 3 A very brief model of sentences

As shown above, under the X-bar theory, all sentences / utterances are phrases. In the current consensus, an utterance includes three fundamental levels, i.e., VP (verb phrase), IP (inflectional phrase), and CP (complementizer phrase), see (7).

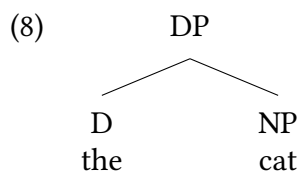


VP is the conceptual level, which offers the concept of an event (e.g., the concept of *cat eating fish*). IP is the eventive level, which assigns the truth condition of an event by anchoring it with tense and/or aspect (e.g., the event that *The cat is eating fish*). CP is the discourse level, which shifts a sentence to an utterance by modifying it with individual-oriented characteristics (e.g., *The cat must be eating fish*, with the possibility modal).

Languages share universal grammar in the sense that languages project XPs recursively. X-bar is the greatest discovery / invention in linguistics!

#### 4 Language as a relational grammar of nouns

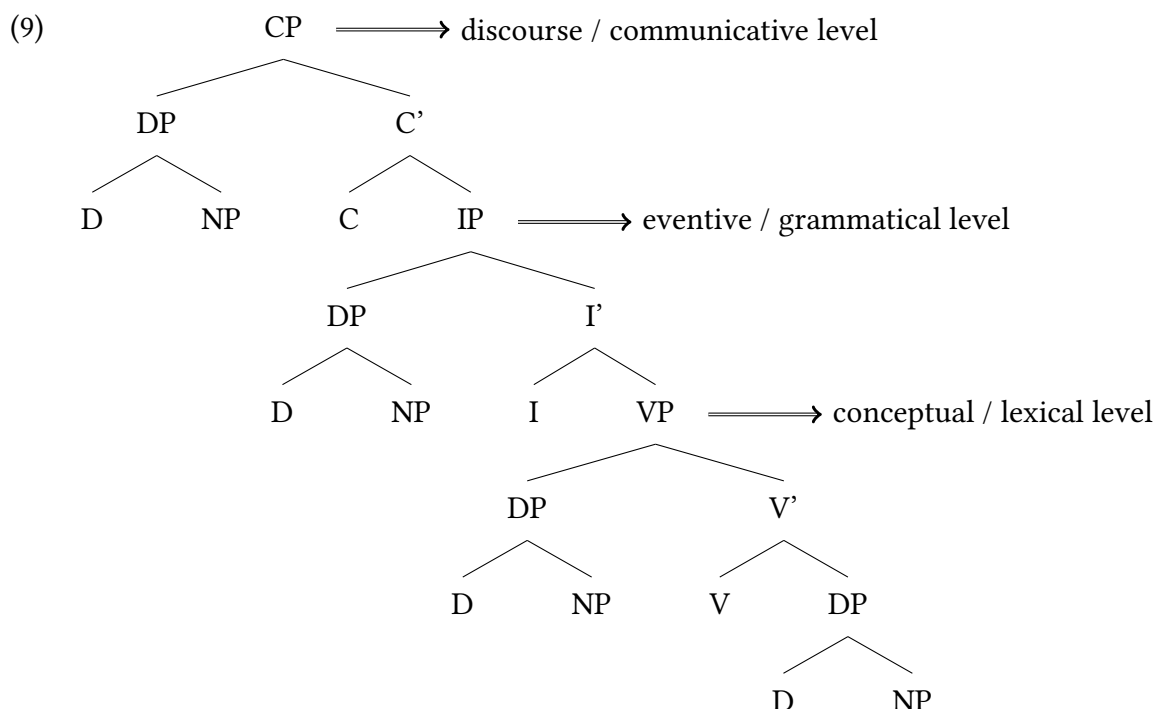
Before moving on, it is helpful to note that syntactic phrases can become increasingly complex; for instance, a IP may contain more layers than those illustrated above (e.g., the split IP, which includes one layer for tense (TP) and one for aspect (AspP)). We will not represent all such complex structures here, but will focus only on the DP (determiner phrase) that selects an NP in (8).



The distinction between NP and DP parallels that between VP and IP. Specifically, both NP and VP denote concepts: NP provides a concept of an object, whereas VP provides a concept of an event. By contrast, both DP and IP are definitional. DP defines NP in the sense that it selects a referent from the object concept denoted by NP, while IP defines VP by anchoring the event concept denoted by VP to tense and/or aspect, thereby assigning it a truth condition.

In other words, an NP such as *cat* is non-referential, in that it does not refer to any particular cat in the real world, whereas a DP such as *the cat* is referential, as it picks out a specific cat in the relevant context. Similarly, the concept of *the cat eating fish* is not truth-conditional, i.e., you cannot determine whether it is true or false, whereas the event expressed by *The cat is eating fish* is truth-conditional, since its truth can be evaluated by checking whether the relevant cat is in fact eating fish at the time of the utterance.

With DP, the sentence model is then revised as in (9).



As illustrated in this model, VP, IP, and CP function as structural layers that connect different DPs. A sentence can thus be understood as a relation of DPs, specifying how these nominal elements are interconnected. In this sense, a language can be viewed as a relational grammar of nouns, or more precisely, of referentially specified nouns.

## 5 The organization of chapters

In Chapter 1, we introduce the sound system of the language, i.e., its phonetics and phonology, as well as the orthographic system that represents these sounds.

In Chapter 2, we outline the language's basic features, including its canonical word order, headedness, morphological typology, and pro-drop status, in order to provide an overview of its key structural characteristics.

From Chapter 3 to Chapter 9, we begin to build up the language from the bottom of the model in (9), covering the major phrasal domains: Noun Phrase, Determiner Phrase, Verb Phrase, Inflectional Phrase, Adjective Phrase, Prepositional Phrase, and Complementizer Phrase.

Chapter 3 (Noun Phrase) examines the case, gender, and number systems of nouns. Chapter 4 (Determiner Phrase) discusses how nouns are specified in the language, including the use of articles, demonstratives, among others. Chapter 5 (Verb Phrase) talks about the basic typology of verbs in the language, with regards to the valency grammar and lexical aspects. Chapter 6 (Inflectional Phrase) investigates tense and aspect and how these categories are morphosyntactically expressed in the language. Chapter 7 (Adjective Phrase) and Chapter 8 (Prepositional Phrase) describe the two types of adjectives and prepositions in the language, distinguishing between their predicative and modifying uses. Chapter 9 (Complementizer Phrase) addresses the modal and mood systems of the language.

Chapter 10 (Negation) examines the expression of negation in the language, including the distribution of negative markers and phenomena such as negative polarity items and negative

concorde.

Chapter 11 focuses on biclausal structures, addressing how two clauses are linked and the mechanisms that govern clause combinations in the language.