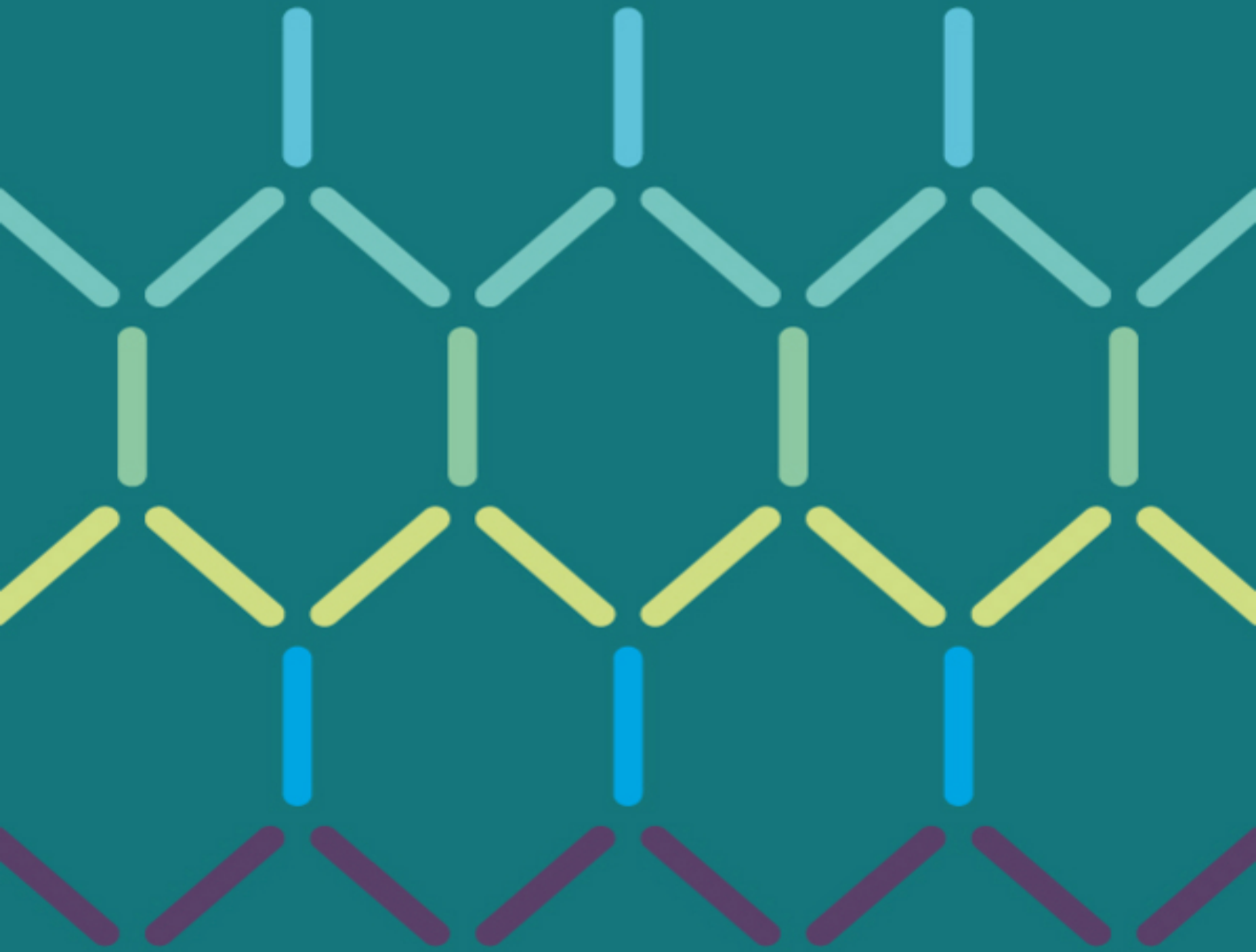
SYNTACTIC ANALYSIS THE BASICS



NICHOLAS SOBIN

WILEY-BLACKWELL

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“Jaklin Kornfilt, Syracuse University

Syntactic Analysis

The Basics

Nicholas Sobin

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Abbreviations

-$ø_{pres}$	“zero” present tense verb suffix
A (movement) (movementto)	(movement to) an argument position
A′ (movement)	(movement to) a non-argument position
A-position	an argument position
A′-position	a non-argument position (e.g. Spec)
ace	accusative case
AH	Affix Hopping
Aj	adjective
AjP	adjective phrase
Arg	argument
Aux	auxiliary verb
Av	adverb
AvP	adverb phrase
C	complementizer (functional head)
c-command	constituent command
Cat	syntactic category
C_{HL}	computational system for human language (the subconscious grammar)
Comp	complementizer (early characterization)
Conj	conjunction
CP	complementized phrase
D	determiner (article)
DP	determiner phrase
D-str	deep structure
-ed_{pst}	“past tense” verb suffix
-ed/en_{pstprt}	“past participle” verb suffix
-er_{compr}	“comparative” adjective or adverb suffix
-est_{sprl}	“superlative” adjective or adverb suffix
exper	the theta role “experiencer”
FCH	functional category hypothesis
fin	finite
GF	grammatical function
-$ing_{presprt}$	“present participle” verb suffix
infin	infinitival

Int	intensifier
M	modal verb
N	noun
N′	N-bar
Neg	negative (functional head)
NegP	negative phrase
nom	nominative case
NP	noun phrase
NPI	negative polarity item
P	preposition
PossP	possessive phrase
PP	prepositional phrase
ProAjP	pro-adjective phrase
ProN′	pro-N-bar
ProNP	pro-noun phrase
ProPP	pro-prepositional phrase
ProV	pro-V-bar
ProVP	pro-verb phrase
ProXP	variable ranging over proforms
PS (grammar)	phrase structure (grammar)
Quan	quantifier (in VP)
[−Q]	declarative feature on C
[+Q]	interrogative feature on C triggering T-to-C
R-expression	referring expression
S	sentence
SAI	Subject-Auxiliary Inversion
spec	specifier
-$_{\text{SPL}}$	“plural” noun suffix
-$_{\text{SPRES-3RD-SG}}$	“third-person singular present tense” verb suffix
S-str	surface structure
T	tense (functional head)
TP	tense phrase
T-to-C (Movement)	tense-to-complementizer (movement)
UG	Universal Grammar
V	verb
V′	V-bar
VP	verb phrase
V-to-T (Movement)	verb-to-tense (movement)
WH movement	movement of a *wh* phrase to SpecCP

WHQ	*wh* question, a question containing a *wh* phrase
X	variable ranging over any syntactic category
XP	variable ranging over any phrasal category
YNQ	yes/no question

Introductory Notes and References

Introduction

What is going on in the mind of a three-year-old? A young human child, who can't yet learn to add 2 and 2 or to tie its shoe, is putting together in her/his head the grammar of the surrounding language. This is an astounding feat, as evidenced in part by the fact that linguists (scientists who study language) have yet to fully understand how any such grammatical system works or precisely what it contains. By around the age of 5, this child will possess a very sophisticated adult-compatible version of the language. This fact is tacitly recognized in many cultures that only let children begin formal schooling at around that age. The main requirement for such schooling is that the child be able to speak the language well enough to talk to and understand an adult stranger, namely the teacher. So around the age of 3, children are in the midst of developing the grammar of their language (or languages, in multilingual settings).

To make the question above somewhat more specific, what we are asking is this: What does the child learn when (s)he learns a human language? If we define a language as the set of all of the sentences that are possible (i.e. German is all that stuff that sounds like German, etc.), then the fact that there is no “longest” sentence in a human language clearly indicates that the language (the set of possible sentences) is infinitely large and could not be “memorized” or learned directly. So instead, the child must be creating a “grammar” (the traditional term used above), or better, a

computational system, a system that lets the speaker “compute” any of the infinitely many possible sentences of the language. In essence, when we study and do research in linguistics, what we are trying to discover are the particulars of this computing system. What are its basic elements, and what are the rules of their combination into the things that we call sentences?

Purpose

This book is intended as a brief introduction to modern generative syntax in the Chomskyan tradition. There are many fine introductions to this subject that are more lengthy and detailed. The purpose of this shorter text is to offer in a highly readable style an amount of information and accompanying work that is significant, but that also can be covered at a reasonable pace in a quarter or trimester format, or in half of a full semester, where the other half might deal with other aspects of linguistic analysis, readings in linguistics, or competing theories. Though brief, this work nonetheless has the goals of (1) introducing the reader to terms and concepts that are core to the field of syntax; (2) teaching the reader to understand and operate various syntactic analyses, an essential aspect of hypothesis formation and testing; (3) offering the reader the reasoning behind the choice of one analysis over another, thus grounding the reader in linguistic argumentation; and (4) preparing the reader for more advanced study of/research into syntactic systems.

No introductory work offers or can offer a complete picture of the field, but the topics dealt with here are central to the study of syntax. They form a coherent set that will serve the purpose of facilitating more in-depth study and research. As many have come to realize, this is one of the most fascinating areas in the study of human cognition.

Chapter Notes

This text deals with various areas of syntactic analysis that are fundamental to formulating modern theories of syntax. Rather than giving many elaborated references to current work, I will focus here on citing works that were foundational to the analyses discussed in this book, or that offer broad insight into them. The discussion of language acquisition in Chapter 1 is based on observations noted in Slobin (1979), and those of Chomsky (1999). In Chapter 2, some of the traditional grammar characterizations are those of Fowler (1983). The initial linguistic criteria for establishing lexical class membership is elaborated in Stageberg (1981). Katamba (1993) offers a detailed account of the generative approach to morphology. Finally, Vendler (1967) is a foundational work on compositional semantics. In Chapters 3 and 4, the full import of tests of phrase structure as implying the possible existence of rules of phrase structure was first established in Chomsky (1957) and extended in Chomsky (1965). The core notions in Chapter 5 that grammatical functions may be structure-based and are key to assigning theta roles are due to Chomsky (1981). These evolve into the theory of argument structure, developed in Grimshaw (1990). Coordination, as discussed in Chapter 6, was cited by Chomsky (1957 : 35) as possibly “one of the most productive processes for forming new sentences…” suggesting its category-neutral character. In Chapter 7, the notions of c-command relation and Binding Theory were pioneered in the works of Reinhart (1976, 1981, 1983), in Chomsky (1981), and more recently in Grodzinsky and Reinhart (1993). The “phrasal Aux” hypothesis in Chapter 8 is from Chomsky (1957), and the “recursive VP” analysis of auxiliary verbs is based on Ross (1969). Affix Hopping is originally due to Chomsky (1957). The notions of transformation, deep structure, and surface structure were pioneered in Chomsky (1957). In Chapter 9, the analysis of

tense affixes as independent syntactic elements originated in Chomsky (1957). The foundational work on “head movement” (movement of a head to another head position such as “V-to-T”, and later “T-to-C”) is that of Travis (1984). In Chapters 10 and 11, the foundational work leading to the general theory of category-neutral X-bar syntax was that of Chomsky (1970) and Jackendoff (1977). The Principles & Parameters approach to language acquisition and syntactic analysis was pioneered by Chomsky (1981) and Chomsky and Lasnik (1993), with key data contributed by Greenberg (1966). In Chapters 12 and 13, the transformational analysis of interrogative and passive sentences was first broached by Chomsky (1957), and has evolved through nearly all of his works (and of course those of many others) since. Most influential in recent times has been the “constructionless” view of transformation, as articulated in Chomsky (1981) onward. Bresnan's (1970) analysis of complementizers in interrogatives also provided some crucial analytic keys to the analysis of interrogatives. Emonds' structure-preserving hypothesis (1970, 1976) also represents a milestone in the analysis of NP movement. The work on syntactic “islands” was pioneered by Ross (1967). The VP-internal subject hypothesis originated in Koopman and Sportiche (1991). In Chapter 14, Perlmutter (1978) formulated the unaccusative hypothesis, Larson (1988) advanced the VP shell hypothesis, and Abney (1987) and Longobardi (1994) evolved the DP hypothesis.

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Chapter 1

Doing Science with Language

Introductory Concepts

1.1 What is Scientific Inquiry?

What differentiates a scientific inquiry from any other sort of inquiry or theorizing? One core feature of scientific inquiry is what we might term a **testable hypothesis**, one that makes predictions that we can test. A “testable” hypothesis is one that can potentially be falsified by data. Should data not match the predicted outcomes of such a hypothesis, then we might(1) reject the hypothesis in favor of a different one that makes better, more accurate predictions;(2) revise the hypothesis if the revision is straightforward; or, if there is no alternative hypothesis or obvious revision,(3) maintain the hypothesis but note the problem for future inquiry. In terms of getting at the truth of how something works, there is no great answer-book in the sky. The only tools that we have to discover the nature of things are hypothesis formation and testing. These form the basis of everything that we know about anything in the universe from a scientific standpoint.

Often, when people talk casually and dismissively about “theories” (e.g. “Oh, that's just a theory!”), they seem to mean raw speculation or wild and unsupported guesses. This isn't what scientists mean by the term. Let's consider a (**scientific**) **theory** to be an overarching framework of thought that embodies a collection of hypotheses – in the

best case, ones that are borne out by data and thus have some empirical support. We can think of a theory as having what we might term **empirical weight** in direct proportion to the number of facts/amount of data that the hypotheses within that theory are successful in predicting/explaining. Some theory A can be considered “competitive” with another theory B if it can be shown that A has similar empirical weight to B, though the two theories might not explain all of the same phenomena. But such comparisons are tricky. It may be that some theory has what appears to be a lot of empirical weight, but just can't explain certain nagging facts. Another theory comes along that can neatly predict/explain these nagging facts, though it may otherwise be incomplete and in need of some “filling out.” It has sometimes turned out that the theory which could explain the “nagging facts” was in the end the right one.

Here's a quick example of the latter case. How would you answer the question, “Did the sun rise this morning?” Nearly everyone would say “Yes.” The basis for this answer lies not in how the universe actually works, but in the visual impression that we have, and possibly in the medieval (and earlier) belief (based on such visual impressions) that the earth was the center of the universe and everything in the sky was going around it. That earth-centered (“Ptolemaic”) theory of the universe was based on a vast multitude of observable facts – the sun, the moon, and every star appeared simply to be going around the earth. Further, no one on the earth had (or has) any direct sensation of the earth moving (rotating). However, there are five objects (the five visible planets) that didn't simply pass by in a linear fashion, but instead appeared to backtrack in their courses (something called “retrograde” motion). For those objects, the earth-centered view had no good explanation. But, if we count each of the smoothly progressing star paths as a “fact,” then given the thousands of visible stars, it looks like

the earth-centered view predicts the large mass of facts correctly, with only five exceptions – not too shabby. But completely wrong! Copernicus's work (and that of others) to explain the five exceptions put the sun, not the earth, in the center of the “solar system” (a new concept) with only the moon circling the earth, and this view has ultimately proved correct. Further, the sun never rises – the earth rotates.

This little story has two major points. First, hypotheses/theories based purely on visual impressions (doing science by looking out the window) might be quite wrong – you need experimentation and theorizing. And second, a theory that can make sense of the nagging facts, even though it doesn't match sensory experience or immediate intuition, may turn out to be the right one. So doing scientific inquiry isn't always easy, but it is essential to understanding how things in the world actually work.

1.2 The Science of Language – Linguistics

Linguistics is the scientific study of human languages and the human language capacity. Our understanding of how human languages are structured and learned is only advanced by hypothesis formation and testing. Human language is a strongly subconscious mental faculty. While all humans are able to acquire at least one language at an early age and are able to speak it and understand it almost effortlessly, they have no conscious access to it. Often the “rules” that they firmly believe to hold in a language are wrong, even ridiculously off the mark, and are not followed by anyone speaking the language. Here's an example.

What is a pronoun? Many, maybe most, would say that it is a word that substitutes for a noun. Let's test that idea. Consider the noun *book* in (1):