Understanding Minimalist Syntax

Generative Syntax

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Lessons from Locality in Long-Distance Dependencies

Cedric Boeckx

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For Youngmi,
sine qua non

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Acknowledgments

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I have had the privilege discussing foundational issues pertaining to minimalism with Noam Chomsky over the years. Invariably, I have benefited immensely from Noam's insights. Although I am sure he won't be convinced by some of the arguments in this book, especially when I am critical of the concept of "phase," I hope that he will recognize as challenges some of the problems I raise for phase-based computations and standard views on locality. I certainly hope he will solve these problems in future work.

My interest in locality was nurtured by my teachers Howard Lasnik and Željko Bošković when I was a student at the University of Connecticut. I am especially grateful to Željko for the countless discussions we have had on locality and minimalism, for making use of my work in his seminars and publications, and for never failing to encourage me to articulate my thoughts.

As the reader of chapters 4 and 5 will notice, the works of my student Ju-Eun Lee and of my wife Youngmi Jeong on applicatives

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Chapter 1
Introductory Remarks

1.1 The Framework

About 15 years ago linguists embarked on a project called the "minimalist program" (or "minimalism"). Minimalism is a research program initiated by Chomsky in two key publications (Chomsky 1993, 1995), and pursued since then by a great many researchers (see Bošković and Lasnik 2006 for a comprehensive collection of minimalist works). Minimalism is an attempt to make sense (in a specific way which I discuss below) of the properties of Universal Grammar that previous research in generative grammar had established, especially those properties uncovered during the so-called "Principles-and-Parameters" era, which crystallized in the late 1970s and early 1980s (see Chomsky 1981).

For 50 years now, linguists and other cognitive scientists have been involved in establishing the necessity of an inborn component of our biological endowment to account for the remarkable (tacit) knowledge and ability we display when we produce and understand (spoken or signed) language. Call this inborn component Universal Grammar (UG). Fifty years of intensive research have shown beyond reasonable doubt that the core properties of our linguistic capacity cannot be acquired by any naïve theory of learning that relies on reinforcement, correction, imitation, memorization, or brute instruction.

Once the existence of an innate language faculty is granted, it is up to linguists and other scientists to determine its content. Succinctly put, the minimalist program explores the possibility that much

of the content attributed to UG by previous research follows from optimal ways of satisfying requirements imposed by the mental modules with which syntax interacts (minimally, the sound/sign and thought systems). The strongest minimalist thesis contends that UG in its entirety is shaped by such optimality requirements. It is often said that were this to be the case, UG would be a "perfect" system for pairing sound/sign and meaning.

Such an ambitious program cannot arise in a vacuum. In order to determine whether UG shows signs of optimal design, one must first establish with some certainty the gross features of UG, for it will be of these features that one will ask whether they have an optimal character. Here, minimalism takes as its point of departure what many, myself included, consider our very best bet as to what the content of UG may be. Technically, it is known as the Principles-and-Parameters approach (often abbreviated as P&P). At the heart of the P&P approach is a distinction between what is invariant across languages, specified independently of linguistic input to the child (what I will refer to as the "principles"), and what is plastic, dependent on properties of the child's linguistic environment, and ultimately what results in linguistic variation (what I will refer to as the "parameters"). In its classic instantiation (Chomsky 1981; see also Baker 2001), the P&P model provides the language learner (child) with a fixed set of principles (laws of grammar, if you wish). Many of these principles contain open values ("parameters"), which the learner must set in the course of language acquisition. One can think of these principles with open values as a menu, a set of courses that the learner can combine in a limited number of ways on the basis of well-defined properties of the linguistic input so as to match the language of her community.

The main advantage of the P&P approach is the principled distinction it draws between invariant and plastic properties of the language faculty. It allows (arguably for the first time in the history of the study of language) linguists to investigate core properties of UG by making abstraction of cross-linguistic variation. The ability to isolate invariant properties of UG was decisive in the formulation of a minimalist program for linguistic theory.

It is fair to say that the P&P approach has been remarkably successful. It has allowed linguists to cover a truly impressive range of similarities and differences across the languages of the world like never before in the history of linguistics, organizing these in a way

that is much less superficial than can be achieved by more traditional approaches to cross-linguistic variation, and in a way that makes sense of the language acquisition process (see Baker 2001, 2005, Boeckx 2006a, Cinque and Kayne 2005, and Yang 2006, for more detailed discussion and references).

The minimalist program grew out of the perceived success of the P&P approach. It took the principles-and-parameters shape of the language faculty for granted. It assumed that the generalizations uncovered under the P&P model were roughly correct. Doing so allowed linguists to focus on a different question, viz. how much of the P&P model could be the direct result of optimal, computationally efficient design. This move in linguistic inquiry is far from trivial. Just imagine: barely 15 years after formulating the first principles and parameters of Universal Grammar, linguists began to ask whether the principles they discovered can be understood in terms of higher standards of inquiry. Do linguistic principles display interesting signs of symmetry, uniformity, economy? Why do we have these principles and not others? How many of these linguistic principles follow from the most basic assumptions/axioms everyone has to make when they begin to investigate language (what Chomsky has called "virtual conceptual necessity")?

As I stated above, the minimalist program for linguistic theory adopts as its working hypothesis the idea that Universal Grammar is "perfectly" designed, that is, it contains nothing more than what follows from our best guesses regarding conceptual, biological, physical necessity. This hypothesis is probably too strong, but in practice scientists often adopt the strongest possible thesis as their working hypothesis. The strongest hypothesis then acts as a limiting case, to see more precisely where and when the hypothesis fails and how much of it may be true.

Chomsky in particular never tires of pointing out in all his writings on minimalism that the minimalist program is, as its name suggests, just a "program," a mode of investigation, and "not a theory" (see, e.g., Chomsky 2000:92, 2002:96; Fitch et al. 2004: appendix). By that Chomsky means that minimalism asks questions and follows guidelines that are broad enough to be pursued in a great many directions. This flexibility, this room for alternative instantiations of minimalism, is what the term "program" emphasizes. At the very beginning of this introductory chapter I used the term "project" to stress the fact that minimalism is neither right nor wrong,

(it may be fruitful, premature, overly ambitious, sterile, fecund, etc.). Its success will be measured, in the long run, by how many insightful hypotheses it helped generate.

The above remarks provide the minimal amount of information necessary to place the present study in its proper context of inquiry. The next section turns to the specific goals and organization of the material developed in subsequent chapters.

1.2 Outline of the Book: Goals and Structure

The principal aim of this book is to shed light on the nature of the minimalist program.

There are at least two ways of "understanding minimalist syntax." One way, which I have pursued at length in Boeckx (2006a), consists in rationally reconstructing the conceptual arguments for a minimalist program in the linguistic theory. Call this the philosophical approach. I hope to have shown in Boeckx (2006a) that minimalist concerns naturally emerge once the logical problem of language acquisition is essentially solved, as it is in the P&P approach. Once a certain level of explanatory adequacy is reached, attempts to be "beyond explanatory adequacy" (to use a phrase introduced in Chomsky 2004a) follow at once. This is by no means peculiar to the practice of the linguistic sciences; it is an inherent property of good scientific practice in general. It is what Richard P. Feynman (1965:26) expressed well in the following quotation:

> Now in the further advancement of science, we want more than just a formula. First we have an observation, then we have numbers that we measure, then we have a law which summarizes all the numbers. But the real *glory* of science is that *we can find a way of thinking* such that the law is evident.

Paraphrasing Feynman, minimalism is in many ways an attempt to find a way, or multiple ways, to make the content of UG evident.

The second way in which to lay bare the internal logic of a research program like minimalism is to simply do it – teach it by example,

as it were. More specifically, select a sufficiently complex, well-studied, and reasonably well-understood phenomenon, dissect it along minimalist guidelines, and see what remains. Call this the empirical approach.

This book takes precisely this tack. It focuses on the well-established phenomenon of successive cyclic movement (the idea, going back to Chomsky 1973, that long-distance dependency formation is actually the conjunction of short dependencies) and tries to determine why such a phenomenon exists, and why it takes the form it does. Adopting a decidedly minimalist perspective, this book is an attempt to show how successive cyclicity is grounded in deeper computational principles of the type minimalism promotes.

Beyond the narrowly empirical concern pertaining to successive cyclicity, I hope to achieve two more general goals in the pages that follow.

First, I hope to show how the phenomenon of successive cyclicity raises questions that touch on virtually all of the issues that are central to minimalist research. I hope that in so doing successive cyclicity can come to be seen as an ideal empirical case study for the program as a whole. If successful, the approach I pursue here will add empirical bite to the program, always a desirable bonus.

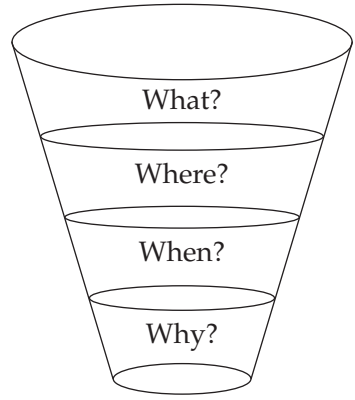
Second, I hope to show that although there are many ways in which successive cyclicity could be captured theoretically (I will discuss quite a few of them in the following chapters), adhering to strict minimalist guidelines constrains the choice of possible theories, and leads to better empirical coverage in several domains of grammar.

The book contains four core chapters (chapters 2 through 5), in which I decompose the phenomenon of successive cyclicity into what I will argue are its natural component parts.

Each chapter builds on the conclusions of the previous one. Each chapter is instrumental in eliminating various alternatives that have been entertained in the minimalist literature (and, in some cases, other frameworks as well), either directly or in conjunction with the conclusions I reached in other chapters. Since later chapters build on the conclusions of previous ones, the volume has a funnel-like structure that makes it necessary for the reader to read the chapters in the order I have chosen.

In the first core chapter (chapter 2) I review the reasons why successive cyclicity was proposed, and what kind of empirical evidence

is used to support it. As we will see, the evidence for successive cyclicity is quite substantial, and not limited to narrowly syntactic considerations. We will see that morphological, phonological, and semantic properties of language are best captured if successive cyclicity is assumed. Once it is established that successive cyclicity exists (i.e., that displacement in natural language is bounded), the first question to ask is what the relevant cycles, or boundaries imposed on movement, are. Does movement stop at selected points (skipping positions that appear to be available), or everywhere it can? This is the question I address in chapter 3. In chapter 4, I consider the timing of the intermediate steps of movement. When exactly does the moving element start moving: as soon as it can, or not until a fair amount of structure is built? In chapter 5 I try to determine whether intermediate steps of movement, the conjunction of which results in long-distance dependencies, are triggered by some requirement such as feature checking (a prime motivation for movement in the minimalist program), or motivated in some other way. The core structure of the book, then, looks like this:



It is important to bear in mind that the questions raised in the following chapters are not new. Most, arguably all of them, were raised in some fashion in Chomsky (1973), the work that introduced the concept of successive cyclic movement. What is new is the theoretical context in which such questions are raised, and the type of answers that minimalism favors.

In chapter 6 I consider a few salient alternative views on successive cyclicity that are compatible with most of the conclusions reached in the previous chapters. After briefly sketching each of them, I provide conceptual and empirical arguments against them, and show the (conceptual and empirical) superiority of the analysis developed here.

Chapter 7 touches on a very broad question: what is the relationship between the type of locality concerns responsible for the phenomenon of successive cyclic movement and other types of locality (island effects, intervention/minimality effects, etc.)? Can we bring all types of locality under a unified theory? These are clearly questions that fall beyond the range of investigation that can be undertaken here. It requires developing equally detailed analyses of islands, intervention, etc. Since the nature of islands and intervention has been the focus of my work until now, I draw on the results I have achieved so far, and sketch ways in which the view on successive cyclicity I propose here can be integrated with them. Needless to say, the conclusions reached in this chapter will be tentative, and will require further extensive investigation.

Chapter 8 is a brief concluding chapter, which summarizes the major results of this study, and asks whether successive cyclicity meets genuinely minimalist expectations.

Let me conclude this introductory chapter by saying a few words about the intended audience for this work. I agree with Chomsky (2000:141n.13) that "[i]t is a misunderstanding to contrast 'minimalism and X,' where X is some theoretical conception. . . . X may be pursued with minimalist goals, or not." It is essentially for this reason that I think that many of the questions that I raise here are, if not theory-neutral, at least relevant to many frameworks. Displacement is a fact about natural languages that all frameworks have to come to grips with. All frameworks have to take a stance on how long-distance dependencies are formed. All frameworks will therefore be interested in the evidence I will use below to justify some of the conclusions I reach.

The book presupposes only minimal exposure to syntactic theory: basic knowledge of Phrase Structure, transformations, binding, etc. Familiarity with the material discussed in introductory syntax textbooks such as Carnie (2002) will be assumed throughout. Familiarity with the minimalist program is, of course, always desirable, but by