A Theory of Syntax

Human language seems to have arisen roughly within the last 50–100,000 years. In evolutionary terms, this is the mere blink of an eye. If this is correct, then much of what we consider distinctive to language must in fact involve operations available in pre-linguistic cognitive domains. In this book Norbert Hornstein, one of the most influential linguists working on syntax, discusses a topical set of issues in syntactic theory, including a number of original proposals at the cutting edge of research in this area. He provides a theory of the basic grammatical operations and suggests that there is only one that is distinctive to language. If this theory is correct then this narrows the evolutionary gap between verbal and non-verbal primates thus facilitating the rapid evolutionary emergence of our linguistic capacity.

Norbert Hornstein is Professor in the Department of Linguistics at the University of Maryland, College Park. He has written several books on minimalist syntax including Understanding Minimalism (with J. Nunes and K. Grohmann, 2005) and Move!: A Minimalist Theory of Construal (2000).
A Theory of Syntax

Minimal Operations and Universal Grammar

Norbert Hornstein

University of Maryland
## Contents

*Preface*  
page vii  

1. Minimalism and Darwin’s Problem 1  
2. Deriving c-command 17  
3. Labels, recursion and movement 53  
4. Some thoughts on adjunction 81  
5. The emerging picture: Basic operations, FL and the Minimalist Program 106  
6. Stop AGREEing! Keep Moving! 126  
7. Conclusions, consequences and more questions 155  

*References*  
181  

*Index*  
190
Preface

Books are to insights what belatedly closed barn doors are to horses. By the time they get finished, it is not entirely clear (at least to the author) why you wrote them and why it all took so long. This particular project has some immodest aims. Here are the two central ones.

First, it tries to outline (yet again) a way of understanding the minimalist project. This time around, I try to provide a rarefied empirical motivation. Following the lead of Hauser, Chomsky and Fitch (2002) I trot out an evolutionary argument called, unoriginally, “Darwin’s Problem.”1 I couple this with a second neurobiological reason based on Poeppel and Embick (2005) which, following them, I call the Granularity Mismatch Problem. These two problems, I propose, should function as high-level empirical boundary conditions on adequate accounts of the properties of Universal Grammar (UG) and the structure of the Faculty of Language (FL), much as Plato’s Problem has in earlier inquiry. Thus, theories of UG and FL will have to address all three problems to be explanatorily adequate. The addition of this pair of requirements on explanatory adequacy is the central contribution of the Minimalist Program.

Second, it outlines a way of operationalizing these concerns by proposing a particular theoretical project: to derive the properties of UG from simpler, more natural empirical primitives. This project is very like the one outlined in Chomsky (1977) with regard to Ross’s islands. Both begin from the assumption that earlier accounts are roughly empirically correct. Thus, Chomsky (1977) assumed that Ross’s (1967) constraints were more or less empirically adequate and wanted to “explain[ed them] in terms of general and quite reasonable ‘computational’ properties of formal grammar” (p. 89). So too we will here assume that Government Binding Theory (GB) correctly limns the properties of UG/FL and our aim is to explain them on the basis of simpler, more general, more natural cognitive operations and principles. The effort requires moving from general programmatic desiderata to particular theoretical proposals, i.e. from Minimalist Program to Minimalist Theory. The core of the present proposal is

1 I am sure that Chomsky is responsible for this term. However, I have not been able to track down where it was first introduced. Cedric Boeckx has used this term in Boeckx (forthcoming).
Preface

a theory of basic operations, one of which is unique to language (viz. Label). The aim is to show how the general features of FL might be derived from this inventory. The basic idea is that Label together with the other basic operations (Concatenate, Copy) plus a computational principle which requires minimizing dependency length suffice to yield a system with many of the properties of a GB style account. The chief novelty of the proposal involves a reinterpretation of Minimality in terms of Paths and a particular understanding of labeling. Labeling functions to “close” concatenation in the domain of the lexical items (LI). As a result it creates equivalence classes of objects grounded in each LI. By closing concatenation in the domain of the LIs, hierarchy emerges. By creating equivalence classes, constituency arises. That grammatical operations target constituents follows from how Concatenate is restricted to LIs and their labeled “equivalents.” Thus, three of the central features of natural language grammars emerge as by-products of labeling.

This is the basic proposal. The details are what take up seven chapters.

One last word before plunging in; most books are social constructions. They live in a rich eco-system populated by the research of others and, further, require the support and indulgence of many colleagues to grow. This is especially so for this one. I have many intellectual debts. Most prominently, the project is inconceivable in the absence of Chomsky (1995a) and the subsequent minimalist papers, especially Hauser et al. (2002) and Chomsky (2005a). Though I differ in detail with many of Chomsky’s later minimalist proposals, I have found the general problem he outlined to be endlessly stimulating and have also found that the contours of my own views emerged most clearly when backlit by these later minimalist proposals.

The style and substance of the present project has also been greatly influenced by Boeckx (2008). Boeckx’s work is the most carefully thought out version of an Agree-based minimalism that I am acquainted with. Given my skepticism concerning such approaches, it has been extremely helpful to have Boeckx’s views (as well as Cedric himself) to consult.

To an equal degree, the ideas contained here reflect ones contained in a forthcoming book by Paul Pietroski on basic operations in semantics. This book has heavily borrowed from his. Being able to talk to Paul and read his stuff has been invaluable and this project would have seriously floundered without his generous indulgence. He is the Platonic form of the colleague.

Let me also thank Juan Uriagereka. Since 1993, we have carried on a spirited conversation about Minimalism. We have argued about the aims of the program, the basic theoretical concepts to develop and the best techniques for their

---

2 I say “GB style” for I include in this GB’s cousins including LFG, GPSG, HPSG and RG. Though the particulars of GB are what I concentrate on, all the above mentioned approaches cut grammars along more or less the same joints.
implementation. We have agreed, disagreed, reagreed and even misagreed over issues large and small. From all of this I have learned immeasurably.

Last of all, Chametzky (1996) and Epstein (1999) have heavily influenced the ambitions of the present project. Both are unabashed theoretical works whose aim is to elucidate and polish the basic concepts of our discipline. All too often such work is disparaged as non-empirical. This is unfortunate. There are many roads to insight. One of these faces inwards to the basic concepts rather than outward to empirical consequence. There is value in outlining how basic ideas fit together independently of whether they have empirical utility. This kind of theoretical enterprise, I believe, is of particular value right now and is central to the minimalist enterprise. Of course, like all potentially valuable pursuits, it carries its own risks. But this is a very bad reason not to pursue its potential rewards.

Many people have discussed the issues contained in what follows with me at length. Only those who have had the misfortune of having me descend upon them with an idée fixe can truly appreciate how much this puts me in their debt. I would like to specifically mention Cedric Boeckx, Željko Bošković, Rob Chametzky, Sam Epstein, Tim Hunter, Bill Idsardi, Jairo Nunes, Paul Pietroski, David Poeppel, Juan Uriagereka and Matt Wagers.

Last of all, special thanks to Cedric Boeckx, Jairo Nunes and Paul Pietroski for comments on an earlier draft, endless interminable discussion of half-baked ideas and well-placed skepticism that I have only occasionally taken to heart. Also, special thanks to Akira Omaki for his hard work in getting the MS ready for publication.

A final point, on going to press I discovered that Robert Berwick (1997: Syntax facit saltum, Journal of Neurolinguistics, 10:2/3, 231–249) had earlier developed the general line of attack pursued here.