
Preface

This book grew out of a most gracious invitation by the Institut Jean Nicod to present the Jean Nicod Lectures in Cognitive Philosophy in Paris in the spring of 2003. Given the broadly interdisciplinary nature of the Institut, I thought it would be fun to offer a fairly wide-ranging series of lectures in a somewhat speculative vein. And I seem to have succeeded: the audiences at the lectures were warm and engaged, and I was delighted with the lively and useful discussion.

The overarching topic of the book is an exploration of the mental structures involved in a variety of cognitive domains: language, consciousness, complex action, theory of mind, and social/cultural cognition. I use the term “mental structures” rather than the more traditional “mental representations” for reasons discussed in chapter 1. The notion of rigorously investigating mental structure is familiar from linguistics, but has had little currency in the rest of cognitive science. Part of my goal is to demonstrate that even in this age of neuroscience, where the ultimate goal is understanding the structure of the brain, there is still a lot to be learned by attempting to describe the more abstract level of mental structure, where issues of combinatoriality can be addressed in a fashion as yet impossible in neural terms.

Part I, the first five chapters, is an augmented version of the Jean Nicod Lectures. Chapter 1 presents an account of what I mean by mental structure as a formal system, how it is related to brain structure as studied by neuroscience, and how this relation affects issues such as processing, learning, and modularity. Chapter 2 summarizes the central arguments of my books *Foundations of Language* and *Simpler Syntax* (the latter in collaboration with Peter Culicover). It considers why linguistics has become intellectually isolated from the other cognitive sciences (without most linguists noticing or caring). The conclusion is that although there are undoubted sociological and historical reasons for this situation, there

are also scientific reasons, growing out of fundamental assumptions about the architecture of language, inherited without question from the early days of generative grammar. The chapter sketches the alternative of a *parallel architecture*, a conception of the overall structure of language that is more in tune with contemporary empirical evidence about the relation among syntax, phonology, and semantics than is the predominant “syntactocentric” approach. The chapter goes on to demonstrate that the parallel architecture is superior to the classical architecture in the approach it affords to language processing, to the overall organization of the brain, and to the evolution of the language capacity.

With a theory of language in hand that answers to larger issues in cognitive neuroscience, we are poised to extend the fundamental questions of mental structure beyond the language capacity. Chapter 3 updates the inquiry into consciousness undertaken in my 1987 book *Consciousness and the Computational Mind*. It poses a counterpart of the neuroscientific question of the Neural Correlates of Consciousness: what are the *mental structures* that are most closely correlated with the character of experience? Posing this question in terms of language—the mental faculty whose structures we understand best—sharpens the criteria for a satisfactory theory of consciousness. It proves easy to reveal fundamental flaws in most of the influential theories in the literature—theories that are confined to visual perception and hardly address other modalities of experience. In particular, examining consciousness in terms of mental rather than (or in addition to) neural structures makes it possible to characterize the phenomenology in much more precise terms than is possible in other approaches, and it allows us to state clearly the issues involved in the relations among language, thought, and awareness.

Chapter 4 was something of a surprise to me. Since topics such as intention, obligation, and social norms, to be studied in the rest of the book, are conditions not on beliefs but on actions, I felt it would be important to understand something about the structure of action. My explorations led to simpler and simpler actions, while still revealing surprising complexity—much of which had been established previously, especially by researchers in robotics. What is novel here is the discovery of significant parallels between the capacity for complex action and the capacity for language production. One outcome is a new take on what is special and what is not special about the language capacity, a hot topic in the current debates on the biological and evolutionary foundations of language.

Chapter 5 deals with a domain that has attracted me for some years: the mental capacities involved in an individual's grasp of society and culture. I have written before on this topic (in *Languages of the Mind* and *Patterns in the Mind*), but this is my most detailed exposition to date. The essential idea is that, like language, culture is learned by individuals; but, like language, it is probably learned by virtue of an innate basis with evolutionary antecedents. This position, rather far out at the time I began exploring it, is now very much in the mainstream among evolutionary psychologists and cognitive anthropologists. What seems still to be new here is the focus on the formal organization of the abstract concepts involved in social/cultural knowledge such as group membership, rights and obligations, values, and reputations, as well as the often peculiar inferences that invoke these concepts. Thus this focus offers a prospect for a more rigorous investigation of what it takes to be a socially interacting human being. In particular, it helps to distinguish social competence per se from such related issues as theory of mind, and to open up the scope of investigation to a far broader range of phenomena, some of which reappear in later chapters.

Part II interlocks with part I. It takes up the challenge posed by chapter 5, developing formal analyses of concepts involved in social cognition and theory of mind. The inquiry is conducted within the overall framework of Conceptual Semantics developed in my books *Semantics and Cognition*, *Semantic Structures*, and *Foundations of Language*. Conceptual Semantics, unlike influential approaches arising from the philosophical tradition, is intended as a theory of meaning *as it is instantiated in the mind*; it thus has rich interactions with cognitive neuroscience and evolutionary psychology. Conceptual Semantics and related approaches, especially within Cognitive Grammar, have been extraordinarily successful in stimulating research in spatial cognition. Chapters 6–11 break new ground in moving to the social domain.

Chapter 6 works out an account of perception verbs such as *look* and *see*, showing that *look* is in a sense “objective,” but *see* is “subjective” and takes into account theory of mind. In addition, it shows how this semantic analysis reflects on the general problem of linking the semantic arguments of verbs to syntactic positions such as subject and object. Chapter 7 extends the machinery to affective/evaluative predicates such as *interesting* and *fascinated*. Here again, one focus is the distinction between ostensibly objective evaluations (e.g. *This topic is interesting*) and subjective evaluations (e.g. *This topic interests me*).

Chapter 8 is concerned with intending and volitional action, and with the relation of intending to that quintessential propositional attitude, believing. Like chapters 6 and 7, it shows how the syntactic patterns associated with verbs that express attitudes are partly a consequence of the verbs' semantics. The chapter also develops a formal characterization of Dennett's notion of the "intentional stance" and its relation to theory of mind, as well as a formal account of joint action and joint intention, crucial to an account of cooperation.

The topic of chapter 9 is values of all sorts: the value of an action or an object to an individual, normative values of actions (morality, etiquette, etc.), the moral worth of an individual, and the esteem in which an individual is held. Like the evaluative predicates in chapter 8, values come in objective and subjective flavors, and chapter 9 explores the consequences of this distinction, as well as the peculiar logic that links all the different sorts of value and helps guide action. Chapter 10 applies this logic of values to develop a conceptual account of fairness and reciprocation. In particular, it draws a distinction rarely recognized in the literature between freely undertaken *reciprocation* (which includes reciprocal altruism) and agreed-upon *exchange*, a joint undertaking with quite a different logic. It also shows that reciprocation has strong parallels in the use of displays of esteem or respect, a category of social action rarely dealt with in the literature on norms and morality. Chapter 11 turns to rights and obligations, which form an indispensable basis for social organization in every culture: they lie behind promises, contracts, marriages, laws, and privileges of authority, and their justification and enforcement create one of the principal motivations for both government and religion. Chapter 12 wraps matters up with a return to the larger issue of what makes humans special.

The discussion in chapters 6–12 veers freely between strict linguistic semantics and more general concerns in consciousness, theory of mind, theory of action, social cognition, and moral theory. Although I have tried to make the formal treatment reader-friendly, it is still probably a challenge. I urge readers nevertheless to stay the course, because issues of interest to a broader spectrum of readers in cognitive science tend to emerge at unexpected places in the formal treatment. These generalizations could not have been discovered in the absence of a suitable formal framework.

For the most part, the chapters are independent of each other, although chapter 1 is a useful introduction to any of them, and chapter 5

is a useful introduction to part II. On the other hand, connections among the chapters keep cropping up, especially in part II, and not by accident. In particular, chapter 7 builds on chapter 6, and chapter 10 builds on chapter 9. Still, to make this into a fully unified volume would take many more years of work. I see the book, then, as offering preliminary snapshots of a territory that I find fascinating, and whose value I hope to persuade my colleagues to appreciate.