Preface

The history of the term "cognition" is rather short, even if the underlying intellectual issues have been with us for quite a while. When I arrived in Jacques Mehler's Paris laboratory in 1984, "cognition" was either unknown or had pretty bad press among most of my fellow graduate students or professors at the Ecole Normale Supérieure. I was advised that there were much more serious matters to be pursued, like, for instance, psychoanalysis or artificial intelligence. Fortunately enough, I was also directed to Jacques's lab where I discovered that there existed a domain, called *cognitive science*, which project was boldly to put the human mind under the scrutiny of rational inquiry, and to do so through the conjoined fire of philosophy, linguistics, computer science, psychology, and neuroscience. Further, I discovered that this field of inquiry had started more than twenty years ago in the United States, and that Jacques was one of its prominent protagonists.

Jacques's contribution to this field is uncontested. He made important discoveries both in adult and infant cognition, some of which are discussed in this book. He created and still is the editor-in-chief of an international journal, *Cognition*, one of the most innovative and prestigious in the field (see the chapter by Bever, Franck, Morton, and Pinker). He started a lab at the Ecole des Hautes Etudes en Sciences Sociales in Paris, featuring one of the very few newborn testing units in the world, and trained with enthusiasm, warmth, and rigor several generations of scientists, who now work in some of the most interesting places in Europe. All of this was achieved in the Paris of the sixties and post-sixties, not a small feat considering the quite unreceptive intellectual

milieu predominant then (see the chapter by Piatelli-Palmarini). Of course, cognition is now well known in France; it excites the public's attention, attracts governmental money. Everybody is doing cognition these days; however, it should be remembered that if this term is to have any substantive meaning, it is in some respectable part due to Jacques's years of uphill battle to establish it as a contentful field of inquiry.

Jacques is now leaving his Paris lab as a legacy to his former students and is starting a new intellectual venture in Italy. His sixty-fifth birthday, which coincides with the opening of his new research center in Trieste, gives us an ideal occasion for both honoring him and reflecting on cognitive science.

Why is this interesting? Where are we going with this? What does this tell us? These are some of the often embarrassing questions that Jacques typically asks his students or colleagues during conferences. In this book, these questions were posed to some of Jacques's close collaborators, friends, and former students. The outcome is a collection of chapters that forms an instantaneous snapshot, a patchwork of what is going on in the active brains of these scientists who are currently studying cognitive science. Some chapters provide critical reviews of where we have gone so far. Others offer bold and provoking hypotheses about where we ought to go. Others point to as yet unresolved paradoxes. If some chapters are in flat disagreement with others, unexpected convergence arises elsewhere in spite of apparently disconnected empirical perspectives. This should not be surprising. It corresponds to a living field which allows for divergent views and paradigms, as long as there is a principled way to settle the issue by confronting the facts.

Through the selection of contributors, however, this book reflects a certain conception of cognitive science. It is a conception that Jacques has always vehemently advocated, in spite of some resistance both from inside and outside the field. It states that it is both valid and of central importance to build a functional characterization of the mind. Such a characterization considers mentation to be essentially information processing: representations and computations over representations, as in a computer programming language. At the methodological level, information processing provides a common vocabulary that allows us to integrate

the conceptual tools coming from analyical philosophy and the experimental tools of the behavioral sciences and neuroscience. At the explanatory level, representations and computations over representations enter into a causal chain and are essential to account for how a collection of neurons produce such and such behavior when immersed in a given environment (see the chapter by Morton for a similar point in the context of developmental disorders). I hope this book illustrates that such a conception has some value and can indeed help bridge the gap between the world of the neurological substrate, the world of observable behavior, and the world of phenomenal experience.

Apart from the first section of the book, which is devoted to an intellectual biography of Jacques, the book is divided into four substantive parts: Thought, Language, Development, and Brain and Biology, each one being presented by some of Jacques's close former students or colleagues. As the reader will quickly notice, many articles could appear in more than one part of the book. Such a flaw in the structure of the book is interesting for two reasons: First, it attests to the degree of cross-disciplinary integration that the field has achieved. Second, it eloquently illustrates one of Jacques's recurrent lessons, that is, that one should *not* study thought, language, development, and brain separately. Specifically, he has argued on many occasions that the study of the developing infant is intrinsically linked to that of the adult (see Christophe's introduction to Development). Second, although he has actually warned *against* too premature a link between brain and cognition, he was among the first to take the cognitive neuroscience turn and strongly advised us to take neuroimaging seriously (see the introduction to Brain and Biology by Dehaene, Dehaene-Lambertz, and Cohen). Third, although Jacques devoted most of his research efforts to psycholinguistics, he always considered that language was only one window onto more general questions regarding the architecture of thought and cognition (see Bonatti's introduction to Thought and Pallier and Bachoud-Lévi's introduction to Language).

So, where are we going with cognition? What have we learned? Where should we go? I hope this book will help the reader to gain some insights on these questions. Some chapters are optimistic, others less so. Some state enthusiastically that we are going toward a new synthesis (Posner), others foresee the end of the "classical era" (Piatelli), others view the

current state of affairs as a mere *crise de croissance* (Bonatti), or even say that is there is not much new under the sun since the ancient Greeks (Marshall). I leave to the reader the pleasure of drawing his or her own conclusions.

Before closing, I would like to point out that Jacques not only provided us with a critical attitude and an urge to turn big issues into empirically testable questions. Most important, he also inoculated us with the cognitive virus, the passion and devotion attached to this quickly changing, still immature, sometimes frustrating, but always fascinating area of study. To Jacques, with all my gratitude and deeply heartfelt thanks.

Acknowledgments

I would like to thank all the contributors and the guest editors for their participation, enthusiasm, and responsiveness in making this book. I would also like to thank Evelyn Rosset for her precious help with the manuscript, as well as to Amy Brand and Tom Stone from The MIT Press for helping to work under tight timing constraints and to an unusually large number of contributors. Last but not least, I thank Susana Franck, who was, as usual, of invaluable help during the whole editorial process.