Preface

*Understanding Cognitive Science* (Dawson, 1998) was an attempt to present a particular thread, Marr’s (1982) tri-level hypothesis, as a unifying theme for cognitive science. At that time, the 1990s, the primary texts available for survey courses in cognitive science (Gleitman & Liberman, 1995; Green, 1996; Kosslyn & Osherson, 1995; Osherson, 1995; Posner, 1991; Smith & Osherson, 1995; Stillings, 1995) were surveys of research in the many different content areas of cognitive science. A typical text would consist of chapters reflecting different research areas (e.g., concepts and categorization, mental imagery, deductive reasoning), each chapter written by a different specialist. Such texts provided a solid technical introduction to cognitive science and clearly indicated its interdisciplinary nature; over the years, I have used several of these texts in my own courses. However, these works did not successfully provide a “big picture” view of the discipline. Why was it so interdisciplinary? How was it possible for researchers from different disciplines to communicate with one another?

In my opinion, more recent introductions to cognitive science have done little to remedy this situation. Some continue to present a variety of chapters, each written by specialists in different fields (Lepore & Pylyshyn, 1999). A variation of this approach is to produce encyclopedic overviews of the discipline, with many short articles on specific ideas, each written by a different expert (Bechtel, Graham, & Balota, 1998; Wilson & Keil, 1999). Others organize the presentation in terms of diverse proposals about the nature of cognitive information processing (Bermúdez, 2010; Thagard, 2005). This latter approach implies that the breadth of cognitive science leads to its inevitable fragmentation, in a fashion analogous to what has
happened in psychology. “One accomplishment that has eluded cognitive science is a unified theory that explains the full range of psychological phenomena, in the way that evolutionary and genetic theory unify biological phenomena, and relativity and quantum theory unify physical phenomena” (Thagard, 2005, p. 133).

The purpose of the current book is to continue the search for unification in cognitive science that was begun with Understanding Cognitive Science (Dawson, 1998). This search for unification is made more difficult by the advent of embodied cognitive science; a school of thought that may also be composed of fragmentary trends (Shapiro, 2011). Because of this challenge, unification is pursued in the current work in a more informed and constrained manner than in Understanding Cognitive Science. Emphasis is placed on introducing the key ideas that serve as the foundations for each school of thought in cognitive science. An attempt is made to consider whether differences amongst these key ideas can be used to inform conceptions of the cognitive architecture. The hypothesis that I consider in the current book is that the notion of architecture in cognitive science is currently pre-paradigmatic (Kuhn, 1970). One possibility to consider is that this notion can be made paradigmatic by considering a theory of architecture that pays heed to the core ideas of each of the cognitive sciences.

I do not presume to describe or to propose a unified cognitive science. However, I believe that the search for such a science is fundamental, and this search is the thread that runs throughout the current book.

Who Is This Book Written For?

This book is written with a particular audience in mind: the students that I see on a day-to-day basis in my classes. Such students are often senior undergraduates who have already been exposed to one of the core disciplines related to cognitive science. Others are graduate students with a deeper exposure to one of these disciplines. One goal of writing this book is to provide a set of ideas to such students that will help elaborate their understanding of their core discipline and show its relationship to cognitive science. Another is to provide a solid introduction to the foundational ideas of the cognitive sciences.

I will admit from the outset that this book is much more about the ideas in cognitive science than it is about the experimental methodologies, the extant data, or the key facts in the field. This is not to say that these topics are unimportant. My perspective is simply that sometimes an emphasis on the empirical results from different content areas of cognitive science at times obscures the “bigger picture.” In my opinion, such results might indicate quite clearly what cognitive science is about, but do not reveal much about what cognitive science is. Fortunately, the student of cognitive science has the option of examining a growing array of introductory texts
to compensate for the kinds of omissions that the approach taken in the current book necessitates.

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