

Preface

For the last twenty-five years, we have witnessed some important changes in the way we think about knowledge, the mind, and the relationship between literal and figurative meaning. We are moving away from a framework where the mind was seen as separated from a body built to contain it, and the mind alone governed all the rules of searching for an objective and comprehensible world. Mark Johnson's *The Body in the Mind: The Bodily Basis of Reason and Imagination* (1987) was one of a number of texts that showed how the meaning of a discourse has to be found out, ultimately, in our bodily interaction with the world—a world that is physical, social, and cultural. In this new framework, abstract things such as ideas, thoughts, and cognitive processes are seen to be embodied—that is, determined by the way our bodies interact with the environment. George Lakoff and Mark Johnson's *Philosophy in the Flesh* (1999) is another powerful evocation of this.

Another component of this new framework is the discovery of how significant the use of metaphors is in both our everyday language and more specialized discourses. Metaphors are a fundamental part of our comprehension of the world, as Lakoff and Johnson showed in *Metaphors We Live By* (1980). People usually consider metaphors to be rhetorical figures (and they certainly are often poetic); accordingly, it is hard to think that metaphor might be considered as a fundamental cognitive process underlying most of our thinking.

A third crucial strand of this new approach is the concept of *conceptual integration* or *blend*. In 2002, Gilles Fauconnier and Mark Turner completed *The Way We Think*, a book that aims to explain how new concepts originate as a blending of older concepts, giving rise in the process to new, emergent properties.

The story we are telling in this book is how the evolution of the concept of mind means that the use of stories, metaphors, blends, and figurative language

is becoming increasingly important in software engineering (SE) and human-computer interaction (HCI). This is quite contrary to traditional ideas of basing computing principles in algorithms, mathematical theories, and formal notations to avoid “sloppy intuitive thinking.” We want to encourage well-informed, sensitive design by providing software engineers and HCI professionals with a new framework of concepts.

Francisco Varela describes how the mind works: “The mind is not in the head.” The immediate question this raises is, Where is it then? But this question itself is a consequence of using underlying metaphors whereby *concepts are things*. If we believe that concepts are things, it is evident that if the mind is not in the head, it must be somewhere else. Yet, if we adopt a different stance by saying that the mind is in the interactions with other people and things, we no longer look for a simple container that holds these things called concepts that make up this thing called “mind.” This simple exercise of questioning the classical ideas about the mind shows how the use of different metaphors and concepts may help us to uncover new aspects of something. This is what we want to do to SE and HCI.

Turner called one of his books *The Literary Mind* (1996). In it, he explains that the same cognitive processes that are used in everyday language and literary writings are used in scientific discourse as well. It has been assumed for a long time that something opposed the literary mind—characterized as vague, obscure, and figurative—with the rigorous, precise language of the sciences and technology. It is a big surprise to discover that tales and novels are able to describe and predict exactly many of the complex human, social, and cultural phenomena. In *Designing with Blends* we are trying to develop a digital literacy, a fluency in the concepts of software and the interaction of people and software.

This book has evolved and developed over an extensive ten-year collaboration between the two authors. Manuel Imaz has a background in SE and has taught software design methods to professional software engineers. David Benyon has a background in systems analysis, and has taught database systems and HCI to university students. Benyon supervised Imaz’s MSc and PhD, and they have published several papers together. Along the way, a number of people have contributed to and influenced the ideas here, and the authors would like to acknowledge their debt to them.

At the same time, the concepts that make up the framework here have themselves been evolving as the group of linguists, philosophers, psycholo-

gists, and others involved in this loose-knit community have argued about as well as collaborated on theories of metaphor, meaning, and thinking. This evolving framework is ongoing, and is broadening to include people from a phenomenological background interested in embodied cognition.

We hope, then, that this book is the start of another process. We are at the beginning of a fascinating period when digital “new media” will dominate people’s lives in a way hitherto unimagined. We believe that this change demands a shift in our approach to SE and HCI. With this book, we hope to provide a foundation for that change. We also hope to offer some provocations and inspirations for a new generation of software designers and new media creators.

Finally, one of the authors (Imaz) is grateful to Mauricio Milchberg for his revision of the manuscript and valuable comments.