Preface

You have a requirements engineering problem to solve, if (i) you have unclear, abstract, incomplete, potentially conflicting information about expectations of various stakeholders, and about the environment in which these expectations should be met, (ii) you know that there is presently no solution which meets these expectations and (iii) you need to define and document a set of clear, concrete, sufficiently complete, coherent statements, often called requirements; so that a system is made and operated to satisfy these statements will in fact meet stakeholders' expectations.

Requirements engineering problems are ill-structured problems. Solving them is hard. You typically have to do many complex and interdependent tasks, such as elicitation, categorization, evaluation, prioritization, negotiation and prediction.

Solving a requirements engineering problem relies on intuition and creativity, but more importantly for this book, it mobilizes experiential knowledge which was shaped by your problem-solving experience. This book shows how to create artificial intelligence (AI) from that experiential problem-solving knowledge. You can see such AI as an assistant to which you can delegate some problem-solving tasks.

AI is a combination of formal languages or formalisms used to represent (make models of) problem-solving information and algorithms used to carry out transformations of, and computations on those representations. Formalisms and algorithms preserve and automate the application of that experiential problem-solving knowledge you built into them.

This book focuses on the formalisms part of AI. On the algorithm side, it shows how models made with the various formalisms can be translated, and translations fed into already well-known and general purpose algorithms.

This book was influenced by research which I carried out with John Mylopoulos and Alexander Borgida. I co-authored papers on problem solving in requirements engineering with them, as well as with Neil Ernst, Stéphane Faulkner, Anna Perini, Pierre-Yves Schobbens, Alberto Siena, Angelo Susi, and many others. They have all shaped the content of this book in various ways. This does not mean that we agree on the ideas which I present here.

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