Preface

These essays pay tribute to Jörg H. Siekmann on his 60th birthday, which gave reason to his friends, former and recent students, and colleagues to celebrate his career as a scientist who has contributed to many diverse fields. These are covered by the wide range of essays that make up this volume. The way the scientific contributions were grouped reflects the development of Jörg's research interests over the many years of his professional life. Moreover, many of them are directly influenced by his own work.

Part 1 starts with contributions on basic deduction techniques, from decision theories, rewriting, constraint solving and unification to entire systems for automated theorem proving. When Jörg started his academic career, the area of automated reasoning and also Jörg's early work were almost completely dominated by these disciplines. Today, after two or more decades of substantial improvements, techniques like those developed in his groups and those discussed in this volume provide the basic machinery for application-specific, more comprehensive support systems.

Shortly before and during his time in Saarbrücken Jörg became more and more involved in several forward-looking and application-driven developments that use "automated deduction inside." Part 2 focuses on various application scenarios like knowledge representation and retrieval, natural language processing and e-learning.

As opposed to applications in education and Web technology, for example, the use of deductive techniques in formal software development goes back to the 1970s. Jörg was in contact with the developers of these early approaches primarily through his collaboration with Peter Raulefs in Karlsruhe and Kaiserslautern. However, it was through the VSE project that he became active in this rapidly growing research area, which became an important role for his group at the DFKI.

Besides the more technical research issues mirrored in most of the contributions of this volume, Jörg was always concerned about the fundamental problem of explaining human intellectual behavior by means of computer models. In particular the study of emergent behavior and self-organization attracted him beyond the use of agent architectures for theorem proving or, in the other direction, the application of deductive techniques for agent planning. Part 4 presents work in the spirit of Jörg's research group on multiagent systems.

Compiling this volume has been a great pleasure. We are grateful that everyone who we asked to contribute responded positively, expressing their desire to honor Jörg H. Siekmann. We thank the authors for their patience during the long period between the first ideas on preparing this volume and its later publication. Special thanks goes to Jörg for providing us with a preliminary draft of his autobiography which illuminates various facets of his eventful life. The draft turned out to be an invaluable source when writing the appraisal of his career.

Jörg has had a major impact on our lives. I, Dieter, first met him in 1979 when I was an undergraduate student at the University of Karlsruhe, obliged to give a proseminar on Lenat's AM system. His inspiring enthusiasm and energy for this kind of AI system stirred my growing interest in automated theorem proving in general and guiding such provers in particular. Not surprisingly, after finishing my MSc thesis I registered as a PhD student of Christoph Walther and Peter Deussen, joining the development of the inductive theorem prover INKA. Years later, Jörg offered me a research position in Saarbrücken to incorporate proof guiding techniques into VSE; I accepted willingly.

At the time when Jörg moved to Karlsruhe I, Werner, was working in Wolfgang Menzel's group, which together with Deussen's group formed the institute of theoretical computer science. Despite countless controversial discussions on AI-related topics and developments in the common academic context, as well as ongoing changes in the German society of the early 1980s, we shared many basic views and soon became friends. But also, in a more restricted sense, my academic work was influenced by Jörg's often more than enthusiastic way of standing up for AI and, in particular, automated deduction. Being interested at that time in the semantics of programming languages and logics, the discussions with Jörg's group sharpened my view that computer-assisted deductive systems (together with "model based" analysis techniques) "animate" formal development techniques thereby enabling their application in software engineering.

Since then, our work at Jörg's research department at the DFKI has been guided by the search for a close integration of formal methodology and deductive support, bringing together two communities that, still today, are often far from working hand in hand. Throughout all the years, Jörg has been a constant source of inspiration, friendship and humor. In presenting Jörg with this book we hope that he will enjoy reading it, and since his work is by no means finished, we hope to return the favor by reading more of the essays he has promised to write in the coming years.

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