Preface

We are all producers, managers, processors, and users of knowledge. This book looks at the lifecycle of knowledge on the World-Wide Web from a programming language perspective.

This book is intended for designers of e-government and e-business systems, for IT professionals who build such systems, and for a general audience interested in the technical background of knowledge processing for the World-Wide Web.

Among the major programming languages, Prolog has possibly the strongest theoretical foundation. Beyond theory, this book presents some results: What do we actually gain from its applications? The authors invite you to join and see for yourself how and why applications of Prolog are important in our complex interoperating world of knowledge processing. We also invite you to use the materials for your own vision of how this kind of system might affect your private, public, and professional life in the coming time.

The papers presented in this book "Web-Knowledge Management and Decision Support" were selected and revised from publications at the 14th International Conference on Applications of Prolog. The conference has a tradition of emphasizing innovative applications as benchmarks for theories and implementations: The applications allow for easier reading of the technical contributions and evaluation of the proposed technology, and they help us to better understand the real-world relevance.

The contributions cover four tightly interwoven aspects: knowledge acquisition, knowledge management, knowledge processing, and knowledge distribution, all in the context of the World-Wide Web, which means distributed in time and space, where the direction is not predetermined. A piece of knowledge may be available now but only used at a much later time, in a novel combination with another piece of knowledge possibly produced on demand, and for a purpose unforeseen by its original authors.

The book is organized into four parts:

Part I "Web Languages and Logic" presents conversions between representations of knowledge.

Part II "Knowledge Acquisition and Knowledge Representation" presents current work on the boundary of computer and natural languages.

Part III "Decision Support by Advanced Logic Programming" presents languages for problem solving and dealing with growing requirements and knowledge.

Part IV "Web-Knowledge Management and Data Mining" presents approaches for actively growing explicit knowledge from existing sources.

The technical scope alone makes for ambitious reading, but we believe that the materials are presented in a readable fashion, so that the synergies of the

papers are accessible for a wide audience: anybody with a keen interest in service-oriented systems for the World-Wide Web.

This is a transition time: we now have the databases installed, the networks to cover distances, and abundant computing power. We also have lots of problems: international tensions, economies in trouble, dragging legal proceedings, and too many medical misjudgements.

Conversion, mediation, and combination are essential notions. In addition to soundness and correctness, the holy goals of traditional computer science, we now also recognize the value of usability and availability.

The lack of intelligent software is a general phenomenon: when we go home even after hours of overwork, we switch off the computers because they are unable to help with our "real" work: the software to do it just does not exist.

This will change, and we have a chance to participate in that change. If this books contributes to our vision of cooperative distributed knowledge processing, then it will have fulfilled its purpose.

September 2002   Oskar Bartenstein
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