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# Computable Models of the Law

Languages, Dialogues, Games, Ontologies

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# Foreword

Information technology has now pervaded all sectors of legal activities, and the very modern concepts of e-law and e-justice show that automation processes or more generally the use of computers to facilitate the legal practitioner, the judge, public administration and above all the citizen are ubiquitous. In spite of some reluctances shown in the past, the law field is experiencing nowadays a new *computer turn*.

Legal professions might have been facilitated in this evolution by the correlative revival of theoretical legal fields such as the study of legal philosophy, logics and reasoning, legal linguistics and legistics, which provide the structural basis to the development of artificial intelligence and law. But one of the most significant trends today is the wish to transpose the use of technology in each field of professional and private life to the legal field as well.

Current cross-border developments of human, economic and social activities add, moreover, the necessity to deal with foreign systems, mostly in foreign languages. The current extensions of European judicial cooperation make practitioners look forward to finding solutions in technology. During the last 18 months, Ministers of Justice of the European Union have showed an unbroken will to push forward the development of a European Justice Portal, to be opened within the next two years.

Needs and expectations today appear to be huge and it seems that every day there is a new legal field where solutions are partly expected from technology. European policies on transparency and information society, for instance, require the use of technology and its steady improvement.

European funding has already stimulated research in the field of computers and law and should continue to do so. The European Union as a system of law—functioning in the national systems of its current 27 member states as well as in its own legal system in 23 languages—needs reliable technological advances to implement its policies aiming at economic and social growth in a liveable environment.

On the level of the institutions of the European Union, organizing access to legal information and documents in 23 languages reveals itself as a new challenge. Nevertheless, strong documentary structures of the databases as well as the use of XML formats today offer a real potential for further development in retrieval and reuse of information.

The research gathered in this volume aims at building knowledge above content, at passing from the simple data retrieval to knowledge retrieval and at showing how artificial intelligence technologies are growing mature in the field of law. All projects share a common point in being supported by the European Union.

*Computable Models of the Law* presents under the subtitle “Languages, Dialogues, Games, Ontologies” not only research projects which seem to produce consequences in a distant future, but projects which can already find implementation areas and meet the needs of the community of lawyers and citizens.

April 2008

Pascale Berteloot

# Preface

The origins of this book go back to a workshop held at the European University Institute of Florence on December 1 and 2, 2006. The theoretical purpose of that workshop was to start a fruitful discussion on the different ways of understanding and explaining contemporary law, for the purpose of building computable models of it (namely, models enabling the development of computer applications for the legal domain).

We realized that we cannot take for granted a single or unique way of modeling legal knowledge, namely, that there are multiple ways of identifying and circumscribing the “law” to be modeled, and multiple ways of representing legal contents into automatically processable information structures. The idea, then, was to get a better understanding of the theoretical assumptions of the different approaches underlying current EU projects on artificial intelligence and law, in order to explore future links and cooperation.

The practical purpose of the meeting was twofold. First, the meeting was meant to share some results obtained through different EU projects focused on computation, argumentation, law and normative systems. Secondly, by doing so, we thought that we could draw a general picture—the European state of the art in the field—and foster future synergies among the universities, institutes, companies, lawyers and computer scientists who were developing EU projects on artificial intelligence and law.

Actually, that workshop was just a starting point. During the next year several new contributions were received, discussed and reviewed. As a result, the volume contains 20 papers on the hot topics under research in the EU projects: legislative XML, legal ontologies, Semantic Web, search and meta-search engines, Web services, system’s architecture, dialectic systems, dialogue games, multi-agent systems (MAS), legal argumentation, legal reasoning, e-justice and online dispute resolution.

Contributions have been provided by several ongoing (or recently finished) European projects on computation and law: ALIS, ArguGrid, ASPIC, DALOS, ESTRELLA, OpenKnowledge, SEAL, and SEKT. Some important national projects have provided their results as well: the Dutch BEST and DURP; and the Spanish Metabuscador, and OCJ-Iuriservice.

The final volume is divided into five sections: (i) Knowledge Representation, Ontologies and XML Legislative Drafting; (ii) Knowledge Representation, Legal Ontologies and Information Retrieval; (iii) Argumentation and Legal Reasoning; (iv) Normative and Multi-agent Systems; (v) Online Dispute Resolution.

We would like to thank all the contributors for their work and the patience they have shown with the editors, and to acknowledge the various publicly funded

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April 2008

Pompeu Casanovas  
Giovanni Sartor  
Núria Casellas  
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