

Foreword

Over the last years management of legal information has been significantly influenced by formalized and shared knowledge modelling, organized in thesauri, taxonomies, semantic networks or ontologies. In particular, legal reasoning, advanced semantic and cross-language legal information retrieval, legal drafting and document classification, have proved to be fertile areas where knowledge modelling is successfully applied.

Legal ontologies usually play the role of shared vocabularies as well as formal conceptualisation of legal notions. They often stand in the tradition of legal theory and philosophy, but may be grounded in common sense as well.

Legal ontologies are usually used in different applications as multilingual document annotation and drafting, multilingual legal information retrieval, legal reasoning, case-based reasoning, legal assessment, legal concepts comparison and harmonization. Moreover the ways in which ontologies are developed and used (as either bottom-up or top-down, hand-crafted or automatically, or semi-automatically, constructed) is a matter of wide discussion in the legal information scientific community.

This special issue of the “Informatica e Diritto” Journal on Legal Ontologies and Artificial Intelligence Techniques aims to offer an overview of theories and well-founded applications that combine Legal Ontologies and AI techniques, with regard both to theories and implementations. It includes revised versions of the contributions presented at the fourth edition of the Workshop on Legal Ontologies and Artificial Intelligence Techniques (LOAIT) held on July 7th, 2010 in Fiesole (Italy), in conjunction with Deon 2010¹.

The first three editions of the LOAIT Workshop, held in conjunction with ICAIL Conference² (2005 – Bologna, 2007 – San Francisco, 2009 – Barcelona), provided valuable opportunities for researchers and practitioners in Artificial Intelligence and Law to discuss problems, exchange information and compare perspectives on legal ontologies and their use.

A selection of papers of LOAIT '07 were published in the volume J. Breuker, P. Casanovas, M. Klein, E. Francesconi (eds.), *Law, Ontologies and*

¹ 10th International Conference on Deontic Logic in Computer Science.

² International Conference on Artificial Intelligence and Law.

Semantic Web (IOS Press, 2009), collecting state-of-the-art contributions on legal ontologies.

Recently ontology learning approaches for the legal domain were discussed in the LREC 2008 Workshop on “Semantic Processing of Legal Texts”, and selected contributions are published in E. Francesconi, S. Montemagni, W. Peters, D. Tiscornia (eds.), *Semantic Processing of Legal Texts. Where the Language of Law Meets the Law of Language* (LNAI 6036, Springer 2010).

These results point at an increasing interest of the AI&Law community on the study and use of Legal Ontologies as well as in Natural Language Technologies for legal information extraction and organization.

This special issue collects contributions dealing with legal knowledge extraction and modelling focusing on ontologies for legal concepts description.

In particular this volume is organized into two sections.

The first one deals with different NLP approaches to legal knowledge extraction from cases (Wyner), to the distinction between legal and world knowledge (Bonin et al.), NLP techniques for legislative documents semantic annotation and modelling (de Maat and Winkels), as well as polylingual legal document classification (Gonçalves and Quaresma).

The second one deals with knowledge modelling for legal document identification (Francesconi et al.), multilingual legal information retrieval (Schweighofer) (Haydée Di Iorio et al.), representation of temporal dimensions in legislation (Palmirani and Ceci), argumentation (van Engers and Wyner), as well as the use of description logic for formalizing legal knowledge (Haeusler et al.).

As result of a careful peer-reviewing, this special issue aims to offer an overview of theories and well-founded applications that combines Legal Ontologies and AI techniques, for an effective implementation of the Semantic Web in the legal domain.

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