

**Legal ontologies- approaches to legal knowledge: linguistics, history, logics,
pragmatics.**

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The Semantic Web is understood as the next step of the World Wide Web, in which the content of information resources is made machine-understandable enabling therefore advanced semantic functionalities (like conceptual instead of keyword based information retrieval, interoperability among intelligent agents, ...). The requirement for enabling the Semantic Web is therefore to add machine-executable descriptions of information resources. This becomes possible thanks to metadata, namely, “data about data” which “capture part of the meaning of data” ([Antoniou and van Harmelen 2008: 10](#)).

One of the ways of adding machine processable descriptions to information resources is through ontologies. Ontologies can be defined as computational artefacts that represent the objects of a domain and the relationships holding among them in a more or less formal way. This clearly has links with the traditional philosophical discipline known as Ontology, since the aim of the latter was to describe what entities compose reality and what the relations that connect them are. There exist several types of ontologies, depending on the degree of formalisation and on the level of abstraction of the domain. On the one hand the formalisation criterion enables us to distinguish between (i) lexical or lightweight ontologies, which are language dependent and contain only lexical relationships with no logical formalisation; (ii) domain ontologies which include some logical axioms to define concepts, and (iii) foundational ontologies, which are highly axiomatised. On the other hand, the abstraction criterion makes a distinction between (i) domain ontologies, that contain the concepts of a specific domain (ex: criminal law); (ii) core ontologies, which represent the basic concepts of the domain common to all its subdomains (ex: in the legal domain: deontic positions; fundamental legal concepts); and (iii) foundational ontologies, which are closer to traditional Ontology since they try to represent the basic categories and relations that compose reality (ex: entity, part, identity, ...).

Ontologies for the legal domain have been proliferating since the beginning of the 90's, with the aim of supporting different applications, from legal information retrieval, to normative content analysis and comparison, inference drawing and information interoperability and exchange, among others. The field of legal ontology building is characterised by a heterogeneity of sources and methodologies for knowledge acquisition and representation. This raises the question of *what is the approach to legal cognition and legal knowledge that guides the whole enterprise of legal ontology building*, which will be the research question of this thesis.

From a theoretical point of view, it can be argued that different theories of the law and of legal knowledge underlie the construction of **legal ontologies**. Positivist approaches will

place a higher importance on corpuses composed of legal texts, whereas teleological approaches to the interpretation of legal sources will probably include as well case-law materials. Linguistic approaches will rely on the analysis of the terms and forms of legal language and will produce mainly terminological resources with little semantic structure (language dependent or lightweight ontologies) whereas conceptually-driven analysis of the law will go beyond the linguistic surface to produce semantically deeper representations of legal conceptual structures. Some approaches question the validity of standard ontological approaches to the law, claiming either that they reduce the complexity of the legal phenomenon (complex systems approach) or that they reduce legal cognition to formal legal knowledge leaving out practical legal knowledge (pragmatic approach).

It will be claimed in this thesis that none of those approaches can stand alone in the trend towards the construction of a full informational architecture for the channelling of legal information through semantically enhanced applications. This is due to the nature of legal knowledge, which, on the one hand, is acquired, used and justified in very formal pre-established settings that require to follow certain formalisms; and which, on the other hand, is based frequently on case-based structures and contextual cues, giving place therefore to complex models of cognition and conceptualisation, not always reducible to definite and pre-established logical formalisms. Precisely due to the double nature of legal knowledge, ontology-driven legal information systems should take into account several possibilities as to the sources, representation and use of legal knowledge.