An ontology for
Intellectual Property Rights: IPROnto

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1 Objectives

In order to improve the management of Intellectual Property Rights (IPR), there is a need for a common language for IPR representation in the open and global framework provided by the Web. This language is aimed to help building a reliable Web where intellectual property rights can be managed in an open, global and adaptable form, so people can share, sell, buy, etc. multimedia content subject to IPR, depending on their needs. A semantic approach seems a more flexible and efficient way of achieving these activities than a syntactic one. IPROnto puts into practice this approach, endowing agents with more complete background knowledge, which allows them to work quite autonomously.

An ontology has been developed starting from previous works carried out in our group and elsewhere (IEEE SUO, <indecs> framework, WIPO recommendations, etc.).

The motivation is the vision of a future world based on interconnected and automatic services. It is easier to integrate initiatives coming from different sources when we are using a Semantic point of view[1].

2 The IPR ontology

There are many initiatives around the standardisation of Digital Rights Management. Examples are ODRL, XMCL, XrML, <indecs>2rdd, the W3C's Digital Rights Workshop, and MPEG-21, that is integrating some of the previous initiatives. From this work, we have determined that the use of a Semantic Web approach, and particularly web ontologies, is the optimal way to approach the problem.

The reason is that these initiatives focus on a syntactic approach, the formalisation of some XML DTDs and Schemas that define rights expression languages. The semantics of these languages, the meaning of the expressions, is formalised separately into term-definition dictionaries where definitions are given in natural language, solely for human consumption and not easily automatable.

Our idea is to facilitate the automation and interoperability of IPR frameworks by integrating both parts, called Rights Expression Language and Rights Data Dictionary.

This can be accomplished using ontologies. They can provide the required definitions of the rights expression language terms in a machine-readable form. Thus, from the automatic processing point of view, a more complete vision of the application domain is available and more sophisticated processes can be carried out.

Moreover, the modularity of web ontologies allows its free extension and adaptation without loosing the connection to previous roots.

We have started from a clear definition of the IPR domain, such as that made by <indecs>, whose framework has been incorporated as the core IPR specific part. Then, to provide a robust ontology basis we needed a more generic framework. SUMO achieves this: it was born as an attempt to establish a standard upper ontology inside the Standard Upper Ontology (SUO) IEEE Working Group. This characteristic was crucial to connect our work to other independently developed ontologies with the same basis.

Finally, World Intellectual Property Organisation (WIPO) is defining a common legal framework for IPR. We have used it to complete the legal part of the ontology.

IPROnto is our contribution, and consists of the already mentioned parts plus our work developed from previous IPR related work of our group, DMAG (http://dmag.upf.es). It ranges from security to automatic negotiation of rights using agents, and the application of a semantic approach.