

#Unfair #Law: Folksonomies & Law between Openness and Knowledge

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Abstract. In this poster I suggest that folksonomies could be fruitfully used in legal information management as a collective process of “codification” carried out by the users of legal documents available on line. In this sense, through the “lattice” topology of collective tagging systems could arise a synthesis between “openness” and “knowledge”, legal information retrieval and legal artificial reasoning.

Keywords. Folksonomies, Legal ontology, Legal artificial reasoning, Semantic Web

1. Background

From data to metadata: collective tagging systems. Today each Internet user might be aware that the tag is identified by the “#” (hashtag) and is associated with a hyperlink. By tagging we can: (1) describe the contents of an object, (2) label the item freely, without having to follow a preset taxonomy, (3) use any lexical expression, even belonging to natural language, (4) allocate many tags to an object or assign the same tag to different objects, and (5) share or recommend our choices and preferences.

Introducing folksonomies. Sets of categories resulting from the use of tags in the description of resources are commonly defined as “folksonomies”. In folksonomes, the spontaneous activity of users generates information. Let us assume that collective tagging systems consist of three elements: (1) the users of the system (people who actually do the tagging), (2) the tags themselves, and (3) the resources being tagged.

Empirical findings on legal information management in the Internet. A few features should be addressed: (1) the relationship between legal texts and legal concepts, (2) multilingual contexts, as, for example, in the European Union, (3) transposition in different characters, such as those of Chinese, and (4) technical difficulties that affect availability of documents.

2. Theoretical framework

The theme can be addressed taking into consideration four theoretical aspects. For each level we can focus on three key concepts. Among them we can establish cross-cutting relationships.

Metaphorical level: “bottom-up”, “top-down”, “lattice”. The figure of the “network” is often used in contemporary thought to represent the ideal synthesis between two functional patterns, the “bottom-up” and the “top-down”. The pattern of

the human mind, the topology of social relations, and the logical structure of computer networks are all represented with the “lattice structure”.

Epistemological level: inferential logics, deductive systems, complexity theory. The “bottom-up” model provides a reliable empirical analysis but fails to provide a satisfactory synthesis. The “top-down” model, on the contrary, allows achieving a rigorous classification of the data but excludes those which leak from *a priori* categories. Through the “complexity theory” have been developed patterns suitable to organize the data into information constructing flexible representations, that is, systems that can adapt their structure to changes in the environment.

Philosophy of law: codification of sources of law (French Civil Code), codification of legal reasoning (German Civil Code), codification as process (contemporary complex legal systems). The most recent applications of the “complexity theory” to the law are trying to overcome the limitations of the modern conception of “system” combining the theory of the sources of the law with the theory of legal reasoning. This is done by means of a “lattice” logic structure that has two main functions: (1) to open the system to the changing influences of its context, and (2) to articulate the information in a permanent organization.


Legal informatics: inferential theories (openness), legal ontologies (knowledge), folksonomies. There are two key aspects: the sharing of resources by Internet users and the representation of data in a logical-mathematical structure. In overall terms, I may refer to the former element as the “openness” and to the second as “knowledge”. As of “openness”, it is worth highlighting the efforts to increase as much as possible the interaction of the legal system with the social environment. Concerning “knowledge”, it should be considered that the widest amount of data remains meaningless if not organized.

Considering legal information management, the two issues above outlined affect both its main research fields: legal information retrieval and legal artificial reasoning. As regards the first aspect, nowadays information technologies enable us to access not only to the legal documents, but also to the data held by public institutions (Legal Open Data) (in Italy, see <http://www.dati.gov.it>). With regard to the second aspect, the amount and diversity of data that we face is such as to overwhelm not only our ability to understand but also processing capabilities of the computer. The application of folksonomy to the law allows the interaction of “openness” and “knowledge” through users activity of tagging.

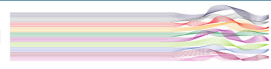
3. Main issues on folksonomies and law

Several remarks have to be made. (1) Law aggregates vast communities of users, since there is an obvious interest in that matter. (2) Users belong from different cultures, backgrounds, skills and jobs. The essential difference between “experts” and “novices” nowadays seems to fade, especially if we consider the ongoing process of specialization sustained by the legal professions. (3) It could be acknowledged that law has a taxonomy that is understood or that can be learned in its broad lines by all users without special endeavour. (4) Certainly there is a huge amount of disparate legal documents (for example, legislative texts, judicial decisions, regulations, comments, scientific research, manuals, notes, but also video footages, audio tracks, and even images or pictures). (5) It seems that the description of the legal documents by users can be made more efficient and effective with some simple measures, such as


integration with legal ontologies or the suggestion of labels by users who release the documents on line (the drafters of the legislative texts, for example), namely by applying “narrow” folksonomies. (6) Through folksonomies it would be possible elaborate qualitative elements that would hardly be considered otherwise: individual feelings and beliefs, collective principles, ethical values, legal arguments. These elements, suitably treated, could be useful for the assessment of what is identified as “implicit knowledge” of the legal system and thus for building legal ontologies and graduating defeasibility in the representation of the rules. (7) Final addressees of legal system may directly influence the creation of the legal ontology that is its logic representation, in this way pushing the legal system to an effective “openness”.



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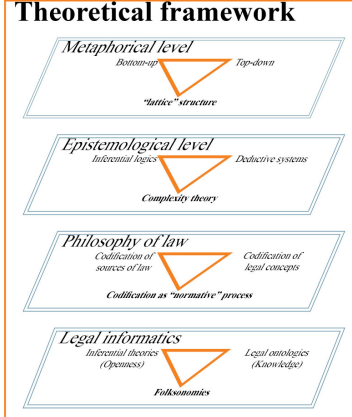
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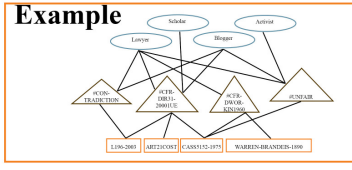
Theoretical framework



Main issues

- (1) Law aggregates vast communities of users, since there is an obvious interest in that matter.
- (2) Users belong from different cultures, backgrounds, skills and jobs. The essential difference between “experts” and “novices” nowadays seems to fade, especially if we consider the ongoing process of specialization sustained by the legal professions.
- (3) It could be acknowledged that law has a taxonomy that is understood or that can be learned in its broad lines by all users without special endeavor.
- (4) Certainly there is a huge amount of disparate legal documents (for example, legislative texts, judicial decisions, regulations, comments, scientific research, manuals, notes, but also video footages, audio tracks, and even images or pictures).
- (5) It seems that the description of the legal documents by users can be made more efficient and effective with some simple measures, such as integration with legal ontologies or the suggestion of labels by users who release the documents on line (the drafters of the legislative texts, for example), namely by applying “narrow” folksonomies.
- (6) Through folksonomies it would be possible elaborate qualitative elements that would hardly be considered otherwise: individual feelings and beliefs, collective principles, ethical values, legal arguments. These elements, suitably treated, could be useful for the assessment of what is identified as “implicit knowledge” of the legal system and thus for building legal ontologies and graduating defeasibility in the representation of the rules.
- (7) Final addressees of legal system may directly influence the creation of the legal ontology that is its logic representation, in this way pushing the legal system to an effective “openness”.

Example



Thesis

Folksonomies could be fruitfully used in legal information management as a collective process of “codification” carried out by the users of legal documents available on line. In this sense, through the “lattice” topology of collective tagging systems could arise a synthesis between “openness” and “knowledge”, “legal information retrieval” and “legal artificial reasoning”.

Background

Labels, bookmarks, keywords and tags are everywhere. Labeling is an activity that belongs to the common experience of home and at work, in front of the infinite applications we use or in a list of online services, for natural objects and tangible items, such as television, or images, such as Flickr or Instagram, or short messages, such as Twitter and Facebook. The impact of these simple tools is even clearer if we consider that they allow us to combine and share a common information structure in different values.

From data to metadata: collective tagging systems. In the Web 2.0, with the explosion of services that allow users, even those who don't have technical skills, to publish content, we want to catalogue information quickly and easily. The more effective solution are tagging tools, which consist in providing the URL with metadata that describe the resource according to user preferences. Today each Internet user might be aware that his tag is identified by the “#” (hashtag) and is associated with a hashtag. Through it the user can select the resources to which that particular tag has been associated by other users of the service in which it was created. By tagging we can: (1) describe the content of an object; (2) link the main function, software having to fulfill a precise mission; (3) use key lexical expressions, even belonging to natural language; (4) allocate many tags to an object to assign the same tag to different objects; and (5) share or recommend our choices and preferences.

Introducing folksonomies. Sets of categories resulting from the use of tags for the description of resources are considered “folksonomies”. The word “folksonomy” is a blend of the words “taxonomy” and “folk”, and stands for conceptual structures created by people.

The key features. Folksonomies can be created using “simple cooperative systems”, which can be defined as “tagging systems” that separate resources in users on the process of cooperation. The main activity of tagging is viewed as “tagging” by the users, as “taxonomy”, “collective intelligence” and “social computing”, but in this case the human effort is backed by a system: the operations is assigned by the system and accomplished by the users, which makes them work like computers in order for to be processed again. It will have an example of this regard in the next APPENDIX.

Main features. There are seven key essential features which have to be taken into consideration: (1) Intersubjectivity: We can observe that, in perspective, the existence of the Internet tends to increase with the growth of the network structure through more connections (e.g., WWW); (2) Spontaneity: Nobody forces a user to publish content and to tag items, yet thousands of people do in every single second. Of course, users share information and resources for different personal reasons, but we can say that the main supporting factor is a common underlying interest; (3) Language: The task of organizing information is done by applying local tags in the system and through the association of these concepts with the tagged objects. We can argue that tagging could be considered a kind of language game concerning the descriptive ontology; (4) Multiplicity of content: The number of possible combinations is virtually infinite, since variables are often not only in the resources, but also in the way in which they connect with their environment; (5) The description does not relate to the individual approach of the users towards the resources; (6) “Other” content: From the analysis of the relations between tags we can obtain a broader description of resources and their meanings – also details about the structure of the links between them, and have elements which could be useful for describing the social structure.

Legal Informatics and legal information management in the Internet. A few features should be addressed: (1) The relations between legal texts and legal concepts is difficult. Due to changes in legislation, instead, it may also be necessary to redefining legal concepts; (2) The problem of searching meaning on large unstructured sources, as, for example, in the European Union; (3) The problem about the translation of legal texts from one language to another, across different legal systems, we should study the difficulty of mapping one legal system onto another, via the establishment of stability of concepts; (4) Another issue is the translation in different characters, such as those of Chinese; (5) There are related difficulties that affect the availability of resources, accessibility and diversity of information resources, lack of integration between different databases.

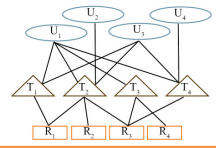
Definition

Definition 1. A Folksonomy is a triple $F = \langle U, T, R, Y, \dots \rangle$ where:

- U, T, R and Y are finite sets, whose elements are called users, tags and resources,
- $Y \subseteq U$,
- Y is a transitive relation between them, i.e., $\forall u, v \in U, \forall t \in T, \forall r \in R$, called tag assignments (TAGS) and
- u is a user-specific subtagging/semantic relation, i.e., $\langle \langle U, T \rangle \times T \times R \rangle$, called sub-tagging relations.

The property \mathcal{F}_u of a given user $u \in U$ in the restriction of F to u , i.e., $\mathcal{F}_u = \langle \{u\}, \{t \in T \mid u \text{ tag } t\} \cup \{r \in R \mid u \text{ tag } r\} \rangle$, is called \mathcal{F}_u . \mathcal{F}_u is a transitive relation between them, i.e., $\forall u, v \in U, \forall t \in T, \forall r \in R$, $\langle \langle \{u\}, \{t \in T \mid u \text{ tag } t\} \cup \{r \in R \mid u \text{ tag } r\} \rangle \times \langle \{v\}, \{t \in T \mid v \text{ tag } t\} \cup \{r \in R \mid v \text{ tag } r\} \rangle \rangle$, where \mathcal{F}_u denotes the projection on u and \mathcal{F}_v on v .

Hofman, Andrea, Robert Heiliger, Christoph Schmitt, and Gerd Stremmer. "Information retrieval in folksonomies: Search and tagging." In The semantic web: research and applications, edited by Y. Zhao and J. Domingos. Dordrecht: Springer, 2009.



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Figure 1. Poster image.