Metadata Creation in Socio-semantic Tagging Systems: Towards Holistic Knowledge Creation and Interchange

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Abstract. Fuzzzy.com, a social bookmarking website has been developed to study collaborative creation of semantics. In a shared online space, users of Fuzzzy continuously create metadata bottom-up by categorizing (tagging) favourite hyperlinks (bookmarks). The semantic network of tags created by users evolves into a people’s fuzzy common ontology (“folkontology”). We discuss several social and cognitive aspects of Topic Maps technology and scalability by analyzing the use of the system. We further argue that holistic knowledge creation and interchange is highly needed. Our results from Fuzzzy suggest that this can be realized by connecting distributed knowledge centric communities of dedicated users within specific domains.

1 Introduction

Studies have shown there is an ongoing reluctance among both users and institutions to create metadata [1]. The reluctance towards metadata creation causes the Web to sink into a morass of information overload and become a source of frustration and for many users.

There is also the need for existing metadata to be updated. Manual creation and updating is costly. Automatic processing often leads to poor quality because it is still suboptimal compared to human reasoning [2].

In dynamic and evolving knowledge centric communities knowledge structures must be able to evolve and adapt. Semantic Web research has revealed that one of the most challenging tasks has proven to be the development and maintenance of ontologies. Several languages now exist for computer mediated ontologies, but the creation and managing of these ontologies is time-consuming, difficult and often requires the involvement of both domain experts and ontology engineers [3], [4], [5], [6], [7]. In recent years we have seen diverse research targeting ontology creation and management with approaches ranging from automatic inferencing, to ontology engineering methodologies to collaborative environments for achieving consensus on ontologies [8]. Among the most widely researched approach to ontology creation is the Self-annotating Web paradigm [9] with the principle idea of using the available data of the Web to automatically create semantics.

Our approach to the problem of ontology evolution is the pragmatic approach of the Socio-semantic Web (S2W), which relies on flexible and evolving description languages for semantic browsing [10]. S2W emphasizes the importance of humanly created loose semantics as a means to fulfil the vision of the Semantic Web. Instead
of relying entirely on formal ontologies and automated inferencing, humans, aided by socio-semantic systems, are collaboratively building semantics [11].

Folksonomies [12] have become widely popular in recent years because of their ease of use. Folksonomies and ontologies can be placed at the two opposite ends of a categorisation spectrum. The process commonly known as “tagging” has proven to be effective for creation of metadata. However, the quality of metadata created by folksonomy tagging is poor [13], [14], [15]. Also, current folksonomies used by popular sites such as Del.icio.us and flickr.com do not allow for sharing tags between applications [16]. Fuzzzy.com, described in this article, is the result of a semantic adaptation of the folksonomy which we label a ‘folktology’.

Our contributions are two-fold. On the one side, we draw insights from the experience with Fuzzzy to discuss the feasibility of folktologies. On the other side, we develop the folktology approach further and show how this approach can be used as a basis for holistic knowledge creation and interchange.

The rest of this paper is organized as follows. Section 2 describes Fuzzzy.com and its folktology. In section 3 we evaluate the ontology-near categorization method of the Fuzzzy folktology by comparing it against folksonomies. We then go on to discuss the unsolved issues of the Fuzzzy folktology, the main of which is the persisting reluctance against metadata creation. In the fourth section we lay out a proposed strategy to tackle these issues.

2 Fuzzzy.com

The main concepts of the Fuzzzy system are bookmarks, tags and users. Bookmarks are created and tagged by users. By the end of October 2007 Fuzzzy had 221

Fig. 1. Screenshot of a tag page. The current tag is presented in the yellow panel with related tags above, beneath and to the right. The right side of the screen shows a list of bookmarks that are tagged with the current tag.