Mutual contextualization in tripartite graphs of folksonomies

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Overview

Objectives
- To understand the dynamics in folksonomies
- To investigate how semantics can be extracted from folksonomies
- To study the potential applications of the information extracted from folksonomies

Methods
- Apply network analysis techniques on graphs of folksonomy
- Apply results on various applications: e.g. tag disambiguation and recommender systems

Study Individual Elements in a Folksonomy

To study individual elements in a folksonomy, we extract bipartite graphs from the folksonomy hypergraph.

For example, for a particular user, we can extract all the tags used and all the documents tagged by this user; this is similar for a tag or a document.

We can then fold the bipartite graphs into different one-mode networks for analysis.

Findings are expected to be useful and beneficial to various applications on the Web.

Potential Applications
- Disambiguate tags with multiple meanings
- Constructing of user profiles
- Generating of personal ontologies
- Improving recommender systems
- Deriving social networks of shared interests
- Generating annotations for documents

Case Study: Tag Disambiguation

To investigate tag semantics, we try to examine the document and user networks of a single tag.

Focusing on the tag sf, we extract the document network and user network.

We study the possibility of automatic tag disambiguation by examining the topology of the networks.

Results show that majority of the users use the tag to refer to one meaning only, resulting in different clusters of documents.

A paper on this work will be presented in the International Workshop of Emergent Semantics and Ontology Evolution (ESOE 2007) on 12 Nov. You can also visit http://www.ecs.soton.ac.uk/~cmay06r/ for more information.