Organizing information/knowledge using Topic Maps and Subject Headings

Motomu Naito

Knowledge Synergy Inc. (Visiting Associate Professor, CIAS, Kyoto University)

We have been gathering a lot of digital contents, in other words information and knowledge through our research activities. How to organize and manage them is a big concern for us. As one of the solutions of this problem, we are using Topic Maps which is a semantic technology and plays role like index in cyberspace. Topic Maps is series of ISO standards. ISO/IEC 13250-2 Topic Maps Data model, one of the series standards describes itself as follows:

> "Topic Maps is a technology for encoding knowledge and connecting this encoded knowledge to relevant information resources. Topic maps are organized around topics, which represent subjects of discourse; associations, representing relationships between the subjects; and occurrences, which connect the subjects to pertinent information resources."

The critical factor of applying Topic Maps successfully is to make well organized knowledge such as taxonomy, thesaurus, ontology, etc. Making well organized knowledge from scratch is very time-consuming work and requires knowledge and views of domain experts. Fortunately there are already many well organized knowledge in the world and some of them are published on the Web.

There are several SHs which we can download and use. We are trying to use SHs as well organized knowledge at the moment. Wikipedia redirects "Subject heading" to "Index term" and define the term as follows:

> "An index term, subject term, subject heading, or descriptor, in information retrieval, is a term that captures the essence of the topic of a document. Index terms make up a controlled vocabulary for use in bibliographic records."

They consist of subject headings, relationships among subject headings, scope note, etc. As relationships there are Broader-Narrower (BT-NT), Related (RT), Use-Use for (USE-UF) etc. Usually each subject heading has own ID that can be used as subject identifier. SHs are thesauri and we can transform them to topic maps easily. By keeping the relationships included in SHs in topic maps, information or knowledge can be organized and linked together according to the structure of SHs. In this demonstration we report our efforts to organize and link information and knowledge using Topic Maps and SHs. We will show our experimental applications and discuss practical uses of them with you.