

Position Paper
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Christopher Wisdo
The Institute for the Learning Sciences
1890 Maple Ave
Evanston, IL 60201, USA
wisdo@ils.nwu.edu

One way to make computerized knowledge sources more useful is to anticipate the kinds of questions that a user is likely to have and to create indices which support these queries. In addition to structuring the user's interaction with the system the articulation of these questions can be used to create knowledge-based indexing tools. My current work is in developing Tapestry, an indexing tool which uses a set of question templates to support the building of a question-based hypertext encyclopedia in the ASK System vein .

ASK systems (Ferguson, et al. 1992) are a particular type of knowledge-based hypermedia system which use a model of conversation coherence (Schank 1977) to structure navigation. ASK System theory identifies a set of conversational associative categories (CACs) which characterize the shifts which occur in conversation. In an ASK System a content node is linked to other content nodes by the questions it raises and answers; these questions are in turned grouped according to CAC.

Currently, human indexers construct the cross links of an ASK System in two stages. During the first stage indexers assign each node a set of questions answered; during the second stage the indexer manually searches through the set of questions answered to select questions to raise for each node (in this methodology there are no unanswered questions). Two difficulties encountered with this approach are indexer saturation, and indexer inconsistency. Indexer saturation occurs when the number of nodes is so large that the indexer cannot remember all of the questions which have been answered. Indexer inconsistency refers to the problem where two indexers assign questions in a different manner, and thus potentially miss important links.

Tapestry facilitates the linking of ASK System nodes by leveraging off the generic nature of questions which are answered in encyclopedic texts. Using a taxonomy of topics and a set of

abstract question templates the tool suggests questions which can be used as the basis for creating links. These question suggestions are made based on the set of topics which a node references. For example, a content node which references George Washington would activate the generic questions associated with 'people' and 'presidents' causing the program to suggest questions such as "What did Washington do?"; "When did Washington live?"; and "When did Washington become president?" The suggestions which are deemed appropriate by the indexer are then used as the basis for building links to and from that node.

The very existence of a standard set of question templates ensures indexer consistency. The problem of indexer saturation is addressed by the indexing of these templates in terms of the topics they focus on, thereby changing the process of assigning questions from that of manually searching a space of arbitrary questions to semi-automatically searching a space of explicitly represented questions.

References

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