Abstract

This presentation proposes an approach to the generation of guided tours over indexed information resources on user demand. It represents a lightweight alternative to sophisticated hyperdocument generation systems based on knowledge representation and complex resource indexing. The information space is modelled as a hypergraph of resources and resource descriptors. A spanning tree of descriptors is extracted to constitute the guided tour structure. We use a matching between spanning tree edges and a set of transition resources to strengthen guided tour coherence and avoid redundancy. The model relies on an analysis of the cognitive issues of hyperdocument comprehension.

1. Summary

We envisage a field of knowledge that can be parsed into a set of questions each of which has a correct response. We shall consider a basic set of such questions, called the “domain”, that is large enough to give a fine-grained, representative coverage of the field [1]. Moreover, we assume a database containing information resources answering exactly one question of the domain. Examples of such databases can be found in HOW-TOs [4], FAQs [5], help systems [6], on-line scientific exhibits [7], etc. Finally, we state that each resource is indexed by a set of descriptors representing the concepts and objects the resource conveys knowledge about.

A user looking for information may use a list of descriptors as a query to the database. A classic search engine would return a list of hits ordered by relevance, which is of little help if the expected information is scattered among returned resources. This case happens when the user query represents a complex question whose answer is to be inferred from responses to simpler domain questions. It also happens when the user is a newbie who needs an overview of the subject defined by his query. Then, a convenient consultation interface is needed to help the user to make his path through the query results.

Based on hypergraph theory, the proposed solution is a guided tour generation system which facilitates user comprehension by increasing consultation coherence and reducing user cognitive overhead [3], [2]. The user query serves as a basis to generate the guided tour structure, which is an ordered tree of descriptors. Each section of the structure provides the reader with a presentation of the descriptor. Coherent transitions between sections are ensured by a matching between the tree edges and a set of transition resources. The navigation of the user in the structure dynamically allocates resources to one of their descriptors, thus avoiding redundancy in fragment presentation.

2. References


