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Enhancement of Text Representations Using Related Document Titles‡

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Abstract

Various attempts have been made over the years to construct enhanced document representations by using thesauruses of related terms, term association maps, or knowledge frameworks that can be used to extract appropriate terms and concepts. None of the proposed methods for the improvement of document representation has proved to be generally useful when applied to a variety of different retrieval environments. Some recent work by Kwok suggests that document indexing may be enhanced by using title words taken from bibliographically related items. An evaluation of the process shows that many useful content words can be extracted from related document titles, as well as many terms of doubtful value. Overall, the procedure is not sufficiently reliable to warrant incorporation into operational automatic retrieval systems.

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1. Term and Document Relations

Most existing methods for the automatic content analysis of written texts are based in part on the extraction of certain words contained in the original document texts. While many words appearing in ordinary text are in fact useful for content representation, it is often believed that the use of text words does not provide a complete description of text meaning. For this reason, various additional content analysis tools have been introduced in the hope of obtaining more complete text representations. Among these tools are thesauruses that contain groupings of related words [1,2], automatically constructed term association maps based on co-occurrences of words in the texts of documents [3,4], and knowledge frameworks representing the facts and relationships that characterize particular subject areas. [5-7]

Various methodologies have been suggested to help in the construction of the content analysis tools, including for example probabilistic theories of information processing that account for the use of term relationships and associations [8-10], methods that include syntactic considerations for the construction of term phrases [11-13], and finally interactive procedures in which individual users may suggest term relationships of importance in their application based on a dialogue between user and system conducted from a user terminal. [14-16]

Two main problems arise when term associations are proposed for text identification and processing:

a) No theory exists which would help in distinguishing valuable term associations from less valuable ones, and no obvious help is available to aid in the construction of useful thesauruses, association maps,

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