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Multi-faceted Approach to Citation-based Quality Assessment for Knowledge Management

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Abstract:

One of the key tasks of knowledge management (KM) is to assess the quality of information. Before we transform information to knowledge by knowledge representation and organization, we must first identify quality information in a given knowledge domain. To assess the influence and quality of a scholarly publication, an author, or a journal, for example, citation-based evaluation methods are often employed. The typical citation analysis, however, suffers from two fundamental shortcomings. First, conventional citation analysis methods yield one-dimensional and sometimes misleading evaluation as a result of not taking into account differences in citation quality, not filtering out citation noise such as self-citations, and not considering non-numeric aspects of citations such as language, culture, and time. Second, the coverage of citations in citation databases of today is disjoint and incomplete, which can result in conflicting quality assessment outcome across different data sources. To address these limitations, we are developing a multi-faceted approach to information quality assessment that employs a range of citation-based methods to analyze data from multiple sources. The paper gives a brief overview of a work-in-progress prototype system called CiteSearch, which analyzes combined data from multiple citation databases to produce citation-based quality evaluation measures, and discusses a citation analysis pilot study, which measures the impact of scholarly publications based on the data mined from Scopus and Google Scholar.