

Paper Critique

Campbell, I., & van Rijsbergen, K. (1996). The ostensive model of developing information needs. *Proceedings of the Second International Conference on Conceptions of Library and Information Science (CoLIS 2)* (pp. 251-268). Copenhagen: Danmarks Biblioteksskole.

Summary

This conceptual article outlines a model of information seeking for use in relevance feedback in an information retrieval (IR) system and describes its implementation through integration with the binary probabilistic model. Acknowledging that user needs evolve with successive interaction with an IR system, Campbell and van Rijsbergen's Ostensive Model attempts to represent the user's information need through observing the user's interaction with the system.

Significance and originality

In contrast to conventional relevance feedback approaches which assume a user with a static knowledge state and require the user to specify their information need, the Ostensive Model supports a "query-less" IR system through the use of implicit relevance feedback. The system relies on the observed behaviors of the user (i.e., the acts of selecting information) to make inferences about unobservable characteristics (i.e., the knowledge state of the user as it evolves through exposure to information). They propose that through several iterations, the system is able to converge upon an understanding of the user's interest in order to predict relevance.

Campbell and van Rijsbergen argue that their emphasis on the dimension of time in this iterative approach distinguishes their model from current approaches, which define information needs and relevance only as spatial concepts. As the user's knowledge state evolves, later relevance judgments are considered more indicative of the user's needs than earlier judgments.

Related literature

In its use of the concept of ostension (i.e., defining by example), the Ostensive Model builds on the work of philosopher and logician Quine. In its approach to representing the information seeking process, the Ostensive Model grows out of Bates' notion of berrypicking.

A system built with the Ostensive Model would seem particularly useful for addressing a user in an

anomalous state of knowledge, so the lack of reference to Belkin's work is a notable omission. Likewise, the system's reliance on recognition rather than specification would seem to grow out of Belkin's cognitive task analysis of IR, which contrasts recognition and specification as distinct modes of retrieval.

Limitations

User knows best? The system relies solely on observed behavior of the user and does not collect any direct input from the user. Even in an anomalous state of knowledge, the user can offer a great deal of input to the system to aid in the process of information retrieval. Ultimately, perhaps a hybrid approach would be more inclusive of a variety of information-seeking strategies.

Environmental factors? The model does not consider the user as part of a rich environment and the need is not considered in context. (In fact, in section 2.1, the brain is discussed without regard to the person!) The model does not address task issues or satisficing behaviors and is overly rational.

Knowledge vs. needs? Although they call this a model of information needs, the article emphasizes the user's knowledge state. The model provides an intuitive representation of the evolution of the knowledge state as new information is accessed, but does the need truly progress in parallel?

Discussion questions

- In his dissertation, Campbell notes that one of his goals in this work is "To design a searching environment that hides completely from the user any internal representation and retrieval techniques." What is the value of this approach? What are the drawbacks?
- For what kinds of information-seeking situations would a system built on this model be well-suited? ill-suited?
- How might the "k-a-i-e" model be elaborated to include the information need? the user in context? other important factors?