Looking for Books in Social Media: An Analysis of Complex Search Requests

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Abstract. Real-world information needs are generally complex, yet almost all research focuses on either relatively simple search based on queries or recommendation based on profiles. It is difficult to gain insight into complex information needs from observational studies with existing systems; potentially complex needs are obscured by the systems’ limitations. In this paper we study explicit information requests in social media, focusing on the rich area of social book search. We analyse a large set of annotated book requests from the LibraryThing discussion forums. We investigate 1) the comprehensiveness of book requests on the forums, 2) what relevance aspects are expressed in real-world book search requests, and 3) how different types of search topics are related to types of users, human recommendations, and results returned by retrieval and recommender systems. We find that book search requests combine search and recommendation aspects in intricate ways that require more than only traditional search or (hybrid) recommendation approaches.

Keywords: Book Search, Social Media, Evaluation, Recommendation.

1 Introduction

The rise of social media has had a major impact on how we search for and share information. For instance, it has radically changed the nature of book discovery, which has become easier than ever due to social cataloging sites, such as LibraryThing, GoodReads, Shelfari, BookLamp, Libib, and The Reading Room. We focus on LibraryThing (LT), a popular social cataloguing site. The book collections shared on LT by its 1.8 million members cover over 8 million unique works in total. They describe not only the contents of those books, but also how the books engaged them, what their impact was, and how this related to other reading experiences. LT also offers a popular discussion forum (see Figure 1) for readers to discuss and review books, authors, and literature in general. A prominent use of the LT forum is book discovery: thousands of LT members use the forum to receive or provide recommendations for which books to read next. These book requests display a remarkable breadth, ranging from search-type requests for books on


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specific topics or for certain moods, to recommendation-type requests for books similar to what a member has already read.

The general aim of this paper is to investigate whether explicit information requests in such social media, in particular related to book search, can be used to gain insight in complex information needs, i.e., those that cannot be solved by a straightforward look-up search. We study this in the context of the INEX Social Book Search Track\(^2\) [12, 14, 15]. In recent years, this track has focused on book requests posted on the LT discussion forums. This paper provides a more detailed investigation into the nature of such requests. In the forums anyone can ask for book recommendations for a specific topic and other members reply with book suggestions. These suggestions can be seen both as relevance judgments and recommendations. The search requests go beyond topical relevance [13] and include many subjective aspects such as quality, interestingness, engagement, and familiarity. Cosijn and Ingwersen [7] and Saracevic [20] are among many that argue for the existence of different types of relevance in addition to pure topical relevance, such as situational, motivational, and affective relevance. A comprehensive survey of different interpretations of relevance is given by Borlund [4]. In this paper, we explore the relevance aspects present in the book domain by annotating and analyzing a large set of book requests from the LT forums.

We aim to address the following research questions in this paper:

**RQ1.** How comprehensive are book requests on the LT forum in terms of explicit information on the information need, the context of use, and the context of the user?

**RQ2.** What topical and non-topical relevance aspects are present in book search requests on the LT forums?

**RQ3.** How do different types of topics relate to user characteristics, human recommendations, and retrieval and recommender system results?

The rest of this paper is organized as follows. Section 2 presents related work, followed by an overview of the rich contextual data about book requests we can extract from the LT discussion forums in Section 3. Section 4 analyses the book requests with respect to the topical and non-topical relevance aspects expressed in them. Section 5 explores how book requests relate to the context of the user, human book recommendations, and retrieval or recommender system results. Finally, in Section 6 we discuss our results and draw conclusions.

## 2 Related Work

The INEX Social Book Search Track [12, 14, 15] investigates book search in collections with both professional metadata and social media content. For evaluation they use book requests on the LT discussion forums as search topics and book suggestions by members as relevance judgments and recommendations. Koolen et al. [13] observed that these requests are complex and contain non-topical aspects, and found that the forum suggestions are different in nature than editorial relevance judgments with respect to system evaluation. In this paper we focus on the search requests themselves.

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