**Type of Contribution: PAPER**

**Reshaping the Identify of Bibliographic Information in the Digital Age**

**Keywords: IFLA LRM, bibliographic data, user needs, user tasks**

**Introduction**

User information needs and interactions with bibliographic database interfaces, such a library catalogs have long been the subject of research studies. The Support of user tasks by the information currently available in the bibliographic records and catalog interfaces is still problematic.

In this digital age, research on user interactions with bibliographic dataset interfaces to meet their information needs has demonstrated that catalogs provide optimum support for known item searches, such as when specifying an author’s name or a specific published title but for more complex needs, they are less successful.

For example, studies examining users in their effort to find and select works of fiction (Sapp, 1986; Pejtersen and Austin, 1983; Beghtol, 1994; Saarti, 1999; Saricks, 2005), have found that they may be looking at affective aspects or the relationships between setting, time, plot, and the “feel” of a book in addition to their bibliographic characteristics or the objective description of their content. Several of these studies have examined elements and terminology that would needed to be added to current bibliographic data in order to support users in finding and selecting works of fiction for their personal needs or professionals offering reader’s advisory or information literacy services.

Conceptual models have addressed the need to identify the functional requirements for supporting user tasks when interacting with bibliographic information.

A number of studies used the Functional Requirement for Bibliographic Records (FRBR) model to examine potential improvements in system design, display of results, and hierarchical browsing of work-based information, including exploring relationships among related works, variations of a work, and relationships between a number of entities represented in the bibliographic data with one of the more significant improvements being the potential to enhance users’ experience when searching and browsing bibliographic data (Mimno, Crane and Jones, 2005; Carlyle, 2006; Zhang and Salaba, 2009; Merčun, Žumer, and Aalberg, 2017; Salaba and Merčun, 2018). The consolidated and revised conceptual model, replacing FRBR, namely, the IFLA Library Reference Model (IFLA LRM), defines entities and basic attributes and relationships necessary to support a user’s tasks.

IFLA LRM specifically has defined the following general tasks a user may need to accomplish when approaching a bibliographic search interface:

* Find: to bring together information about one or more resources
* Identify: to clearly understand the nature of the resources
* Select: to determine the suitability of the resources found
* Obtain: to access the content of the resource
* Explore: to discover resources using the relationships between them and thus place the resources in a context (Riva, LeBoeuf and Žumer, 2017).

Entities such as *work, expression, manifestation, item,* and *agent (person, family,* or *corporate body), among others,* and the relationships that exist between them is a focus of the IFLA LRM. Any system implementing IFLA LRM has the potential to provide a better, more enhanced information searching experience.

This paper examines whether current bibliographic systems support tasks beyond known-item searching and makes recommendations on LRM-based bibliographic structures and content for improved user experience.

**Methodology**

Considering that current bibliographic system support well know-item searching, but are not successful with complex information needs and even less with exploration, browsing, or discovery, our goal was to test typical systems with a set of exemplary user information needs.

The questions tested were:

1. Which works by a prolific author are available in this collection?
2. Who are the translators of a prolific author into a particular language?
3. Which works were inspired by Pride and prejudice?
4. Does a particular novel have any sequels?
5. Does a particular novel have any movie adaptations?

Four systems were chosen:

* WorldCat
* A public library catalogue
* A national bibliography
* Amazon

We tested each of the systems from the end-user perspective: could a user with typical skills and experience reach an answer within reasonable effort and time?

**Research Results & Discussion**

The results are not encouraging. Neither of the systems provided answers directly. The first two would require inspection of a large amount of records, the last three are impossible due to missing relationships. The link from the sequel to the prequel is occasionally provided, the reverse practically never. Similarly, the link from a movie to a novel is often recorded in a note, but not the link from a novel to a movie.

Current bibliographic record structures and content do not provide the infrastructure needed to support such information needs. This is partly because catalogers do not record such information, particularly relationships. To some extent the formats we use do not support options for machine-actionable recording of relationships. Entering them as unstructured notes, while better that nothing, requires a user to inspect records instead of formulating a search statement.

New models, such as IFLA LRM, are focused on end-user needs. The entities declared in LRM represent objects of interest. Describing instances of entity types (*agents*, *works*, *expressions*, *manifestations* and *items*) separately and in appropriate detail also enables recording relationships, thus better supporting complex user tasks.

In LRM five general *work* to *work* relationships are declared:

* WORK has part (is part of) WORK
* WORK precedes (succeeds) WORK
* WORK accompanies / complements (is accompanied / complemented by) WORK
* WORK is inspiration for (is inspired by) WORK
* WORK is a transformation of (was transformed into) WORK

If needed, an implementation may refine these general relationships into more specific relationships, for example a relationship ‘is a movie version of/has a movie version’ for the transformation relationship. The relationships listed above would enable answers to questions 3 to 5.

The first question is directly supported by LRM: the creation relationship of an Agent to all the Works created by that Agent provides a direct answer. Similarly, the recording of specific type of creation of Expression (translation in this case) would link Agents to Expressions in a particular language of all Works of an author would provide an answer to the second question.

**Conclusion**

Supporting user tasks of finding, identifying, selecting, obtaining and exploring, IFLA LRM defines the infrastructure needed to support complex user needs. Creative works are described as *works*, *expressions*, *manifestations* and *items* (WEMI), which represent different levels of abstractness of such creations and their carriers. *Agents* are the entities involved in the creation process or other significant relationships with WEMI. Describing *agents*, *works*, *expressions*, *manifestations* and *items* separately and in appropriate detail also enables recording relationships, thus better supporting complex user tasks. Each creative work is thus represented as a network or graph of interconnected nodes and relationships as links. Relationships between instances of *works*, *expressions*, *manifestations* provide additional information, enabling a user to not only find answers to complex questions, but also provide the infrastructure for exploration and serendipitous discovery.

Since LRM is declared at a general and abstract level, without specific provisions for particular material types or contexts of use, future efforts need to be devoted to the development of refinements and extensions, which would identify and define material-specific attributes and relationships, either the ones already present in current bibliographic and authority data or additional ones deemed important for users. In particular, for example, it would be interesting to explore attributes describing the content of literary works, such as complexity of language, level of humor, feelings (sad, happy, emotional …), which are known to be among the criteria by which people choose fiction.

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