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Work-to-Work Bibliographic Relationships from FRBR Point of View: *A Canadian Perspective*

Abstract: This study examines bibliographic relationships between Canadian publications published in 2009 available in AMICUS (Canadian National Catalogue). It consisted of categorizing bibliographic relationships in the taxonomy of work-to-work relationships available in the FRBR Final Report. The study indicates frequencies of occurrences of bibliographic relationships based on manifestations found in AMICUS.

Résumé : Cette étude examine les relations bibliographiques entre les documents canadiens publiés en 2009 et répertoriées dans AMICUS (le catalogue national du Canada). L'objectif était de catégoriser les relations bibliographiques suivant la taxinomie des relations entre une œuvre et une œuvre disponible dans les SFNB : Rapport final. L'étude présente les fréquences d'occurrences de relations bibliographiques selon les manifestations trouvées dans AMICUS.

1. Purpose

The main purpose of this study is to investigate the characteristics of Canadian publications (e.g., books, video recordings, sound recordings, e-books, electronic resources, etc.) by analyzing their bibliographic relationships based on the Functional Requirements for Bibliographic Records (FRBR) model. This study examines the FRBR bibliographic relationships between Canadian publications published in 2009 available in AMICUS (Canadian National Catalogue). A thorough understanding of bibliographic relationships is required to utilize the FRBR model. The research presented is an empirical study which consisted of manually identifying and categorizing bibliographic relationships in the taxonomy of work-to-work relationships available in the *FRBR Final Report* (table 5.1). The study indicates frequencies of occurrences of bibliographic relationships based on manifestations published in 2009 and available in the AMICUS catalogue. This study of connectedness was conducted to add valuable information regarding the degree to which bibliographic records are related to other records within the Canadian national catalogue.

Bibliographic relationships between Canadian publications have not been measured or examined to date in relation to the FRBR model. Therefore, the current study is a novel contribution to the literature on the FRBR bibliographic relationships.

The purpose of this study is to identify and explore the characteristics of Canadian publications. It attempts to answer the following research questions:

1. Are there any work-to-work relationships between Canadian publications expressed in bibliographic records?
2. How are bibliographic relationships in the 10 classes of DDC different from each others? What proportion of these publications are scattered per each DDC class?

3. What proportion of Canadian publications are members of each category of the FRBR taxonomy of work-to-work relationships?

This study also provides a possible answer to following questions: are the current linking devices in the cataloguing rules for bibliographic relationship adequate for Canadian publications? If not, how should they be improved? The second group to benefit could be the Canadian cataloguers. By investigating and identifying the characteristics of the bibliographic relationships and the linking devices (and connector keywords) of Canadian publications, it would much easier for cataloguers to catalogue materials that bear bibliographic relationships.

2. **Methodology**

In the present study, research was conducted for detecting bibliographic records exhibiting at least one type of work-to-work relationship. The first steps in this study involved creating a list of English-language and French-language keywords representing work-to-work bibliographic relationships, listed in table 5.1 of *FRBR Final Report*. Second, the data were collected using AMICUS (the Canadian National Catalogue).

As the bibliographic relationships (e.g., summarization, transformation, imitation, abridgement, and arrangement) are not systematically encoded in unique MARC fields, we have chosen to use keyword searching to track them. We found that bibliographic relationships would not be detected or clustered correctly if automatic identification using MARC tags were used. Therefore, in the first experiment, a list of relevant keywords was manually constructed for each type of bibliographic relationship. Keyword searching was used based upon a simple assumption that there are key terms representing bibliographic relationships in bibliographic records. These terms are found in bibliographic records generally in titles, statements of responsibility, and notes fields. Searches were carried out using the "any keywords in all fields" option in order to be as broad as possible.

Each bibliographic record was analyzed with the intention to discover the bibliographic relationship or relationships the work represented had. The frequency of relationships is thus determined and calculated according to the bibliographic description. Finally, we manually analyzed the data to determine the type of bibliographic relationships. The analysis of the results was carried out by constructing frequency and cross tables in a spreadsheet application.

The decision to use the AMICUS catalogue had several advantages. First AMICUS is the national union catalogue of Canada, containing a very large number of records. The size is large enough for the current study to obtain data representative of general Canadian publications in all classes of the Dewey Decimal Classification (DDC) system. To limit ourselves to a reasonable number of records all searches were restricted to manifestations published in the year 2009. Second, AMICUS is publicly accessible online to the researchers, therefore, making it possible to search keywords related to the FRBR taxonomy of work-to-work bibliographic relationships and to allow checking whether the catalogue includes bibliographic relationships or not. As a result, the AMICUS catalogue was chosen for the source for this study. However, this option also had its limitations. For example catalogue records in the AMICUS database were potentially contributed by all types of libraries, including libraries whose cataloguers might not implement AACR2 thoroughly. Also, the researchers did not have physical access to the material that was retrieved via AMICUS. Furthermore, because it is a union catalogue there are many incomplete and dupli-

cate records in AMICUS. Thus, these catalogue records might not be detailed enough to include information about bibliographic relationships.

In an attempt to find as many bibliographic relationships as possible, several search queries were constructed for every bibliographic relationship listed in Table 5.1 (Work-to-Work Relationships) of the *FRBR Final Report*. In some cases, judgment and even searching in WorldCat, Amazon and Google Books was required to determine whether two works were related or not. In some few cases, it was not clear whether all members of a bibliographic family had been located in AMICUS.

The retrieved bibliographic records were used as the data for the analysis of bibliographic relationships. But to determine whether the bibliographic records provided sufficient data on the bibliographic relationships, we carefully analyzed the bibliographic information contained in each record, especially the note fields.

The total number of monographs published in Canada during 2009 is 28,633 (data provided by Library and Archives Canada). A total of 1,250 Canadian publications were found to exhibit a work-to-work relationship. These were identified by using combinational keyword searching from the subset of Canadian publications from 2009 included in the AMICUS catalogue. The frequency of each type of bibliographic relationship was empirically assessed. The searches were carried out over a four-month period, from September 1st 2010 to December 22nd 2010.

The frequency of original or parent works, if any, was calculated, including *successors* (succeeding works or sequels of original or preceding works), *supplements* (e.g., an addendum, a separate volume, or a commemorative issue of the original or parent work), *complements* (e.g., cadenza, libretto, choreography, etc.), *summarizations* (digest, abstract, summary, etc.), *adaptations* (e.g., adaptation, paraphrase, free translation, variation (music), harmonization (music), fantasy (music), etc.), *transformations* (e.g., dramatization, novelization, versification, screenplay, "filmization", etc.), and *imitations* (e.g., parody, imitation, travesty). The output of this process resulted in several tables with columns for the number of bibliographic relationships and the DDC classes.

3. **Findings**

This study poses two main questions: What is the structure of work-to-work bibliographic relationships in Canadian publications? Do differences exist across the 10 classes of DDC? The analysis shows that bibliographic relationships between Canadian publications exist in each class of Dewey Decimal Classification (DDC). The results show that approximately 4.5 percent of the 2009 bibliographic records in the AMICUS catalogue contain a work-to-work bibliographic relationship. Of the Canadian publications with a work-to-work bibliographic relationship that were studied, 59 percent were found to be supplementary works, and the rates of bibliographic relationships were relatively high in the fields of Literature, Technology and Science. The percentage of bibliographic relationships was as follows: supplement (59%), successor (23%), transformation (10%), adaptation (6%), complement (1%), summarization (1%), and imitation (0%).

It is worth noting that the majority of successor (sequel) works are in Literature (88%) while the majority of supplements are in Science (23%), Technology (23%), Social Sciences (23%),

and Language (15%) respectively. It is also shown that the majority of complements are in the Arts (75%). Also, it is interesting to note that adaptations are mainly in the Literature (33%), Arts (24%), and Technology (13%); but the majority of transformations (84%) occurred in Arts (84%) followed by the Literature (8%) and Social Sciences (4%). No imitation works were found in the current study. The results of this study suggest better guidelines for establishment and maintenance of bibliographic relationships.

4. Implications

With the application of AMICUS, the data collected answered the first research question, that there are work-to-work bibliographic relationships in Canadian publications. This suggests that the Canadian cataloguers should pay more attention to bibliographic relationships. This research provides a baseline for improvement.

The results of the present study will help cataloguers and software developers to develop information systems capable of providing users with a clearer and better collocation and navigation of bibliographically-related works, better searching, browsing and retrieving facilities, and a thorough display of the results. However, it should be noted that providing users with better search results needs improving the understanding of bibliographic content and the relationships among the content. It seems that the success of information retrieval process in supporting the user tasks, i.e. searching, finding, identifying, displaying and obtaining bibliographically-related works depends on establishing and maintaining bibliographic relationships.