

Panel: Conceptual Models of Aboutness

1. Background

IFLA FRBR Group 3 entities "represent an **additional** set of entities that serve as the **subjects** of works. The group includes concept (an abstract notion or idea), object (a material thing), event (an action or occurrence), and place (a location)" (IFLA, 1999: 16, emphasis added). This part of the model has been questioned as if it is sufficient to cover everything that can be viewed as a "subject" of a work, for example, "time" (Heaney, 1997; Delsey, 2005). A third IFLA Working Group of the FRBR family was formed in April 2005 and charged with the task of developing a conceptual model for the Functional Requirements for Subject Authority Records (FRSAR). One of the terms of reference builds a conceptual model of Group 3 entities within the FRBR framework as they relate to the "aboutness" of works. In this framework, all controlled access points related to all three entity groups as defined by the FRBR conceptual model have the potential to be the topic of a work. In other words, Group 1, 2 and 3 entities can have an "is-the-subject-of" relationship with the work.

2. Other conceptual models

From the time the FRSAR WG was formed, there seems to have been a general agreement in the FRBR research community that Group 3 entities should be revisited. In the process of developing a conceptual model for the Functional Requirements for Subject Authority Records, the FRSAR Working Group investigated the approaches of other models, which include: the <indec> model, the Ranganathan's facets, and the pragmatic list of entities developed by two Italian researchers (see below).

a) The <indec> model:

The main focus of the <indec> model is intellectual property and rights management, but it also overlaps significantly with FRBR (Rust and Bide, 2000). The FRSAR Working Group has attempted to map the FRBR Group 3 entities with the <indec> model in order to see if by adding the missing entities the FRBR model could be established (see Figure 1).

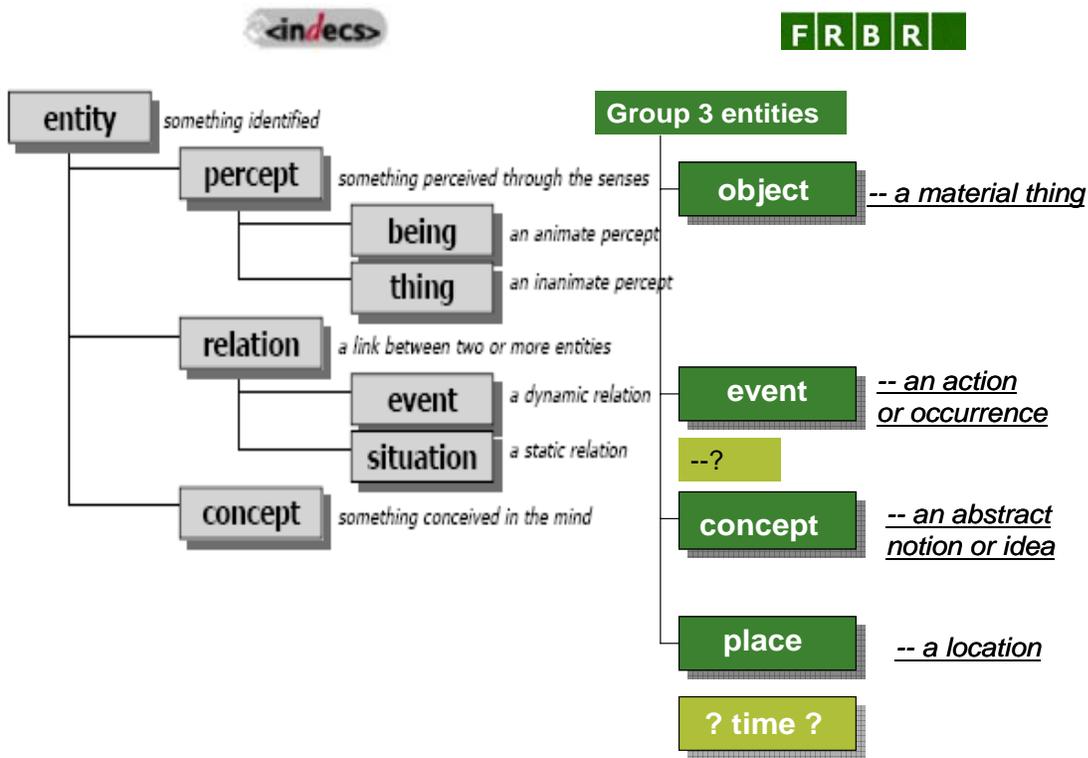


Figure 1. Mapping FRBR Group 3 Entities with <indec> Entities

b) Ranganathan's facets

By taking Ranganathan's facets as a basis, it is possible that these five facets could become entities: Personality, Matter, Energy, Space, and Time. The advantage is that this approach is well known and fully covers all areas of "aboutness." The issues are whether we would still have problems defining some of the entities, and whether librarians would have trouble understanding and applying them.

c) A pragmatic list of entities:

Another approach is to make a pragmatic list of entities. One example of such a list is the one developed by Buizza and Guerrini (2002). On the list there are: Object (material thing), Abstraction, Living organism, Person, Corporate body, Work, Matter/material, Property/quality, Action, Process, Event, Place, and Time. *Concept* in their proposal is different from FRBR. It is defined as: a unit of thought, each of the single elements that make up a subject. The problem with such lists is that the entities are not mutually exclusive and would rely on individual lay everyday definitions of the entities, which would be a serious disadvantage for a theoretical model.

These models present good references for revising the FRBR conceptual model. The FRSAR WG analyzed and discussed possible solutions based on these models, from conservative (making minor amendments of FRBR Group 3) to radical (proposing a completely new model). Because the WG was only thinking to enhance the existing model based on FRBR Group 3 entities, a lengthy discussion occurred on what should be added in 2006. A proposal based on the <indec> was developed, with the terms "time" and "space" added. Both entities exist in <indec>, but are limited to the context of "events" in <indec>.

3. Two studies conducted by the FRSAR WG

The FRSAR Working Group felt strongly that in order to define user tasks, an actual user study was necessary. An international survey sent to information professionals throughout the world in 2006 received about 800 responses. Based on the results from two user surveys, five user tasks have been defined. They represent uses of subject authority data by all the user groups we identified prior to the surveys. In the following figure, the user tasks defined by FRBR, FRAD, and FRSAR are compared. FRSAR has added *Explore* to the FRBR list that already contains *Find*, *Identify*, *Select*, and *Obtain*, with context in subject authority data use. The user task of *Explore* is to explore relationships between subject entities, correlations to other subject vocabularies, and the structure of a subject domain.

User Tasks

<p>FRBR (1998): Find entities of Group 1 that have entities from Group 1, 2, 3 as their subject Identify Select Obtain</p>	<p>FRAD (2007): Find one entity or entities Identify an entity Contextualize, place in context, explore relationships Justify the form of an access point</p>	<p>FRSAR (2006, 2007): Find one subject entity or entities Identify Select Obtain Additional information about the subject entity Bibliographic records or resources about this subject entity Explore</p>
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Figure 2. User Tasks defined by FRBR, FRAD, and FRSAR

Another small study was performed, in which four students and faculty members at the Kent State University School of Library and Information Science classified existing subject terms used by U.S. National Science Digital Library (NSDL) contributors. These include about 3,000 terms assigned to NSDL metadata records based on a variety of subject vocabularies and free keywords. The participants of the study classified terms into six categories:

concrete stuff, abstract stuff, event, time, place, and other. The results show there is little distinction between concrete and abstract concepts, and there are difficulties in the classification of named instances, which result in many terms being put into the 'other' category. This indicates that it would be difficult for any user (end user, librarian, or vocabulary developer) to conduct such a task when using subject authority data. These categories also do not seem helpful or necessary for end users. As a result, the FRSAR Entity sub-group proposed a more abstract conceptual model.

4. FRSAR New Model

The FRSAR Entity sub-group proposed a more abstract conceptual model and presented in the 2007 IFLA Conference in August 2007 (Figure 3):

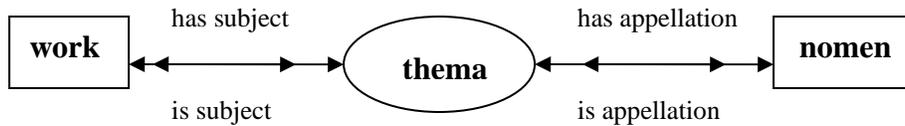


Figure 3. FRSAR Conceptual Model

This model confirms what FRBR has already defined: **WORK has-subject THEMA**. Here **thema** is the term used to temporarily refer to *anything that can be subject of a work*. Thema includes any FRBR entities.

This model also proposes a new relationship: **THEMA has appellation NOMEN**. Again, **nomen** is a term used to temporarily refer to *any alpha numeric, sound, visual etc. symbol or combination of symbols by which a thema is known, referred to or addressed as*.

A similar model was also proposed by the Italian Research Group on Subject Indexing in 2004 for development of FRBR Group 3 entities and was sent to the FRSAR WG after the draft model was proposed by Bultrini in 2007). Here “concept” is regarded as “a unit of thought” (Figure 4):

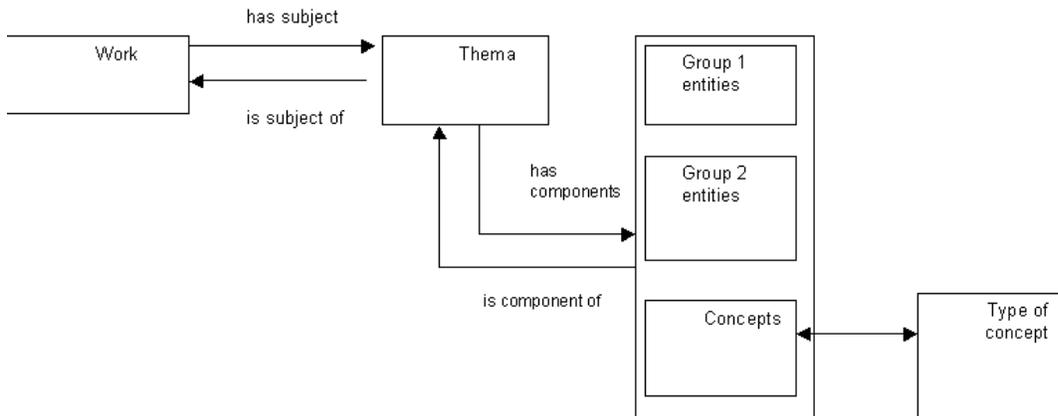


Figure 4. A Conceptual Model developed by the Italian Research Group on Subject Indexing in 2004

5. Discussions

The final term of reference for the FRSAR Working Group is to assist in an assessment of the potential for international sharing and use of subject authority data both within the library sector and beyond. The challenges in true sharing come from many aspects: heterogeneous structures, various languages and scripts, diverse construction rules and best practices, and dynamically developed encoding schemas. When developing a conceptual model to facilitate the international sharing, it is important to separate what we usually call *concepts* (or topics or subjects)

from what they are *known by*, *referred to*, or *addressed as*. Among the efforts to achieve global sharing and use of subject authority data, some have focused on *nomen* (for example, a translated metadata vocabulary, a symmetrical multilingual thesaurus, a multi-access index to a vocabulary, etc.). However, many efforts have focused on the conceptual level (for example, mapping between two thesauri).

A preliminary study by the WG also reveals that this thema-nomen conceptual model also matches the encoding schemas such as SKOS (Simple Knowledge Organization System), OWL (Web Ontology Language), and more general, RDF. SKOS, for example, is based on a concept-centric view of the vocabulary, where primitive objects are not terms, but abstract concepts represented by terms. The Dublin Core Abstract Model (DC AM) specifies a record may contain description sets that can further contain descriptions composed by statements. Consequently, information can be processed, exchanged, referred to, and linked at the *statement* level. This information model is independent of particular encoding syntax, thus facilitating better mappings and cross-syntax translations (DCMI, 2007). The FRSAR model corresponds to DC-AM in that it allows any *thema* to be independent of any *nomen*, including any syntax a *nomen* may use. Accordingly, it will facilitate the sharing and reuse of subject authority data among subject vocabularies and interoperability of resource metadata.

This panel will present the very similar, yet still different models, developed by the Italian Research Group on Subject Indexing and FRSAR WG. Then, experts who are invited to participate in the panel will raise questions and stimulate discussion around the conceptual model for “aboutness.” These experts have been doing research in conceptual modeling in knowledge organization and representation and have not directly involved in the FRSAR model development. Even though FRBR models are used as the starting point of this discussion, the discussion will not be limited to them. Audience participation is highly encouraged.

References:

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