IFLANET
International Federation of Library Associations and Institutions
Activities & Services

Search   Contacts

Functional Requirements for Bibliographic Records - Final Report

Continued

CONTENTS

Return to contents page

---

1. Introduction

1.1 Background

Almost forty years ago the International Federation of Library Associations and Institutions (IFLA) initiated a fundamental re-examination of cataloguing theory and practice on an international level. The first important outcome of that effort was a set of cataloguing principles agreed to at an international conference held in Paris in 1961 that have subsequently come to be known as the Paris Principles. A second key undertaking was initiated at the International Meeting of Cataloguing Experts held in Copenhagen in 1969 with the adoption of a resolution to establish international standards for the form and content of bibliographic descriptions. The

first of the standards developed under that resolution, the *International Standard Bibliographic Description for Monographic Publications*, was published in 1971. In the years that have followed those initial undertakings the Paris Principles and the ISBDs have served as the bibliographic foundation for a variety of new and revised national and international cataloguing codes.

During that same period, however, the environment within which cataloguing principles and standards operate has changed dramatically. Key factors contributing to the change have been the introduction and ongoing development of automated systems for the creation and processing of bibliographic data, and the growth of large-scale databases, both national and international in scope, that contain records contributed and used by thousands of libraries participating in shared cataloguing programs. The growth of shared cataloguing has been spurred not only by the opportunities that new technologies bring with them but also by an increasing need to reduce cataloguing costs by minimizing duplicate cataloguing effort. Economic pressures have also prompted libraries to try to simplify the cataloguing process and to do more and more "minimal level" cataloguing in order to keep pace with the continued growth of publishing output. On the other side of the coin, there has been an increasing need to adapt cataloguing codes and practices to accommodate change resulting from the emergence of new forms of electronic publishing, and the advent of networked access to information resources. Equally important has been a recognized need to respond more effectively to an increasingly broad range of user expectations and needs.

It was this changing environment that formed the backdrop to the 1990 Stockholm Seminar on Bibliographic Records, sponsored by the IFLA Universal Bibliographic Control and International MARC (UBCIM) Programme and the IFLA Division of Bibliographic Control. While the participants in the Seminar recognized the economic realities faced by libraries and the need to reduce the cost of cataloguing, they also acknowledged the importance of meeting user needs and addressing more effectively the broad range of needs associated with various types of material and the various contexts within which bibliographic records are used. It was recognized that continuing pressure to do "minimal level" cataloguing required a careful re-examination of the relationship between individual data elements in the record and the needs of the user. It was also recognized that in this context the viability of shared cataloguing programs, both nationally and internationally, required an agreed standard for a "basic" or "core" level record.

There were nine resolutions adopted at the Stockholm Seminar, one of which led directly to the current study. That resolution called for the commissioning of a study to define the functional requirements for bibliographic records. The terms of reference that were subsequently developed for the study stated its purpose and scope as follows:

> The purpose of this study is to delineate in clearly defined terms the functions performed by the bibliographic record with respect to various media, various applications, and various user needs. The study is to cover the full range of functions for the bibliographic record in its widest sense--i. e., a record that encompasses not only descriptive elements, but access points (name, title, subject, etc.), other "organizing" elements (classification, etc.), and annotations.

The aim of the study was to produce a framework that would provide a clear, precisely stated, and commonly shared understanding of what it is that the bibliographic record aims to provide information about, and what it is that we expect the record to achieve in terms of answering

user needs.

The terms of reference also gave a second charge to the study group: to recommend a basic level of functionality and basic data requirements for records created by national bibliographic agencies. The purpose of formulating recommendations for a basic level national bibliographic record was to address the need identified at the Stockholm Seminar for a core level standard that would allow national bibliographic agencies to reduce their cataloguing costs through the creation, as necessary, of less-than-full-level records, but at the same time ensure that all records produced by national bibliographic agencies met essential user needs.

The terms of reference for the study were approved by the Standing Committee of the IFLA Section on Cataloguing at the September 1992 IFLA Conference in New Delhi. Members of the study group were appointed from both the Section on Cataloguing and the Section on Classification and Indexing.

The study group completed its lengthy deliberations for its draft report in the fall of 1995. The study group consultants were responsible for writing various interim working documents and the completed draft report. In May 1996 the draft report was sent to the members of the IFLA Section on Cataloguing and the study's volunteer commentators for a six-month, world-wide review. The draft report was also available electronically through the World Wide Web on the IFLA Section on Cataloguing's home page for other individuals and organizations to review and comment on. As a result of the six-month review, the study group received forty responses from sixteen countries. Most of the comments involved the draft report's organization, the definition of terms, the methodology, and conclusions relating to the requirements for specific types of material. Reviewers recommended that more examples be added in order to clarify various definitions and concepts.

In February 1997 the study group met to discuss the world-wide review comments and decide how to revise the report. Following this meeting the consultants incorporated the final revisions into the report. Ms. Olivia Madison, the study group chair, presented the final report to the Standing Committee of the IFLA Section on Cataloguing at the 63rd (1997) General Conference of the International Federation of Library Associations and Institutions held in Copenhagen, Denmark. The Standing Committee approved the study group's final report at its meeting on September 5, 1997.

1.2 Approach

The terms of reference for the study called for the development of a framework that identifies and clearly defines the entities of interest to users of bibliographic records, the attributes of each entity, and the types of relationships that operate between entities. The intent was to produce a conceptual model that would serve as the basis for relating specific attributes and relationships (reflected in the record as discrete data elements) to the various tasks that users perform when consulting bibliographic records.

The study makes no *a priori* assumptions about the bibliographic record itself, either in terms of content or structure. It takes a user-focused approach to analyzing data requirements insofar as it endeavours to define in a systematic way what it is that the user expects to find information about in a bibliographic record and how that information is used.

The study uses an entity analysis technique that begins by isolating the entities that are the key objects of interest to users of bibliographic records. The study then identifies the characteristics or attributes associated with each entity and the relationships between entities that are most important to users in formulating bibliographic searches, interpreting responses to those searches, and "navigating" the universe of entities described in bibliographic records. The model developed in the study is comprehensive in scope but not exhaustive in terms of the entities, attributes, and relationships that it defines. The model operates at the conceptual level; it does not carry the analysis to the level that would be required for a fully developed data model.

For the purposes of the study, the users of bibliographic records are seen to encompass a broad spectrum, including not only library clients and staff, but also publishers, distributors, retailers, and the providers and users of information services outside traditional library settings. The study also takes into account the wide range of applications in which bibliographic records are used: in the context of purchasing or acquisitions, cataloguing, inventory management, circulation and interlibrary loan, and preservation, as well as for reference and information retrieval. As a result, the attributes and relationships identified in the study reflect the breadth of use that is made of bibliographic information, and the importance to users of aspects of both content and form of the materials described in bibliographic records.

The study also endeavours to be comprehensive in terms of the range of materials, media, and formats that are covered. The study group drew on a wide range of sources identifying data pertaining to textual, cartographic, audio-visual, graphic, and three-dimensional materials; to paper, film, magnetic tape, and optical media; and to acoustic, electric, digital, and optical recording modes.

The basic elements of the model developed for the study--the entities, attributes, and relationships--were derived from a logical analysis of the data that are typically reflected in bibliographic records. The principal sources used in the analysis included the *International Standard Bibliographic Descriptions* (ISBDs), the *Guidelines for Authority and Reference Entries* (GARE), the *Guidelines for Subject Authority and Reference Entries* (GSARE), and the *UNIMARC Manual.*
Additional data were culled from other sources such as the *AITF Categories for the Description of Works of Art*, from input provided by experts who were consulted as drafts of the report were being prepared, from an extensive review of published user studies, and from comments received as part of the world-wide review of the draft report.

It is important to note that the model developed for the study does not cover the extended range of attributes and relationships that are normally reflected in authority records. The model defines the entities that are the focus of authority records--persons, corporate bodies, concepts, etc.--and depicts the relationships between those entities and the entities described in the bibliographic record *per se*. The model also defines attributes of those entities to the extent that such attributes are typically reflected in the bibliographic record. But it does not analyse the additional data that are normally recorded in an authority record, nor does it analyse the relationships between and among those entities that are generally reflected in the syndetic apparatus of the catalogue. While it is recognized that an extended level of analysis would be necessary for a fully developed conceptual model, the terms of reference for the current study, with its focus on bibliographic data, as distinct from authority data, and the constraints of time available for the study, ruled out such an extended level of analysis. Nevertheless, the study group recognizes the need to extend the model at some future date to

cover authority data.

The recommendations for a basic level national bibliographic record were arrived at by assessing the relative importance of the attributes and relationships identified in the model to the generic user tasks defined for the study. The assessment was based in large part on the knowledge and experience of the study group members and consultants, supplemented by evidence in the library science literature gathered from empirical research, as well as by assessments made by several experts outside the study group.

1.3 Areas for Further Study

The model developed for this study represents an initial attempt to establish a logical framework to assist in the understanding and further development of conventions for bibliographic description. It is intended to provide a base for common understanding and further dialogue, but it does not presume to be the last word on the issues it addresses. Certain aspects of the model merit more detailed analysis and there are dimensions of the model that could be extended. To fulfill the second charge in its terms of reference, the study group used the model as the framework for its recommendations on a basic level national bibliographic record. It is hoped, however, that the model itself will serve as a useful starting point for a number of follow-up studies of interest to those involved with designing cataloguing codes and systems to support the creation, management, and use of bibliographic data.

The model could be extended to cover the additional data that are normally recorded in authority records. In particular, further analysis is needed of the entities that are the centre of focus for subject authorities, thesauri, and classification schemes, and of the relationships between those entities.

Certain aspects of the model merit more detailed examination. The identification and definition of attributes for various types of material could be extended through further review by experts and through user studies. In particular, the notion of "seriality" and the dynamic nature of entities recorded in digital formats merit further analysis.

The model developed for this study represents, as far as possible, a "generalized" view of the bibliographic universe; it is intended to be independent of any particular cataloguing code or implementation of the concepts it represents. In certain respects, however, it is arbitrary in the way it reflects what are usually referred to in such models as "business rules" (e.g., in the criteria used to define the boundaries of a work). Those responsible for the development of national cataloguing codes might find it useful to adapt the model to reflect the "business rules" or operative principles that apply within their particular cultural context and bibliographic tradition. An exercise of that kind might provide useful insights into the logical concepts that are reflected in national codes, and assist the designers in articulating those concepts more precisely and in reflecting them more consistently as the codes are developed to meet new requirements.

At the international level, the model's mapping of individual attributes and relationships to the specific ways in which bibliographic data are used could serve as a useful framework for re-assessing data recording conventions and standards with a view to rationalizing the level of effort that is expended in "normalizing" bibliographic data. It could also help to frame investigations into the potential for more economic means of data capture. In the same vein,

the recommendations pertaining to the basic level national bibliographic record could serve as a useful starting point for resumption of work on a concise ISBD by the Standing Committee of the IFLA Section on Cataloguing.

The entity-relationship analysis reflected in the model might also serve as a useful conceptual framework for a re-examination of the structures used to store, display, and communicate bibliographic data. Further study could be done on the practical implications of restructuring MARC record formats to reflect more directly the hierarchical and reciprocal relationships outlined in the model. An examination of that kind might offer a new approach to the so-called "multiple versions" issue. The model could also be expanded in depth to create a fully developed data model that would serve as the basis for the design of an experimental database to assess the efficiency and effectiveness of a database structure patterned on the model.

2. Objectives, Scope, and Methodology

2.1 Objectives of the Study

The study has two primary objectives. The first is to provide a clearly defined, structured framework for relating the data that are recorded in bibliographic records to the needs of the users of those records. The second objective is to recommend a basic level of functionality for records created by national bibliographic agencies.

2.2 Scope

For the purposes of this study a bibliographic record is defined as the aggregate of data that are associated with entities described in library catalogues and national bibliographies. Included in that aggregate of data are descriptive data elements such as those defined in the *International Standard Bibliographic Descriptions* (ISBDs); data elements used in headings for persons, corporate bodies, titles, and subjects that function as filing devices or index entries; other data elements used to organize a file of records, such as classification numbers; annotations such as abstracts or summaries; and data specific to the copies in library collections, such as accession numbers and call numbers.

Data associated with persons, corporate bodies, titles, and subjects are analysed only to the extent that they function as headings or index entries for the records describing bibliographic entities. The present study does not analyse those additional data associated with persons, corporate bodies, works, and subjects that are typically recorded only in authority records.

The study endeavours to be comprehensive in terms of the variety of materials that are covered. The data included in the study pertain to textual, music, cartographic, audio-visual, graphic and three-dimensional materials; they cover the full range of physical media described in bibliographic records (paper, film, magnetic tape, optical storage media, etc.); they cover all formats (books, sheets, discs, cassettes, cartridges, etc.); and they reflect all modes of recording information (analogue, acoustic, electric, digital, optical, etc.).

The study assumes that the data included in bibliographic records produced for national bibliographies and library catalogues are used by a wide range of users: readers, students, researchers, library staff, publishers, distribution agents, retailers, information brokers,

administrators of intellectual property rights, etc. The study takes into account the wide variety of applications, both within and outside a library setting, in which the data in bibliographic records are used: collections development, acquisitions, cataloguing, the production of finding aids and bibliographies, inventory management, preservation, circulation, interlibrary loan, reference, and information retrieval.

Within the context of such applications users may make use of bibliographic records for a variety of purposes, for example: to determine what information resources exist, perhaps on a particular subject or by a particular person, within a given "universe" (e.g., within the totality of available information resources, within the published output of a particular country, within the holdings of a particular library or group of libraries, etc.); to verify the existence and/or availability of a particular document for purposes of acquiring, borrowing or lending; to identify a source or sources from which a document can be obtained and the terms under which it is available; to determine whether a record already exists for an item being added to a collection or whether a new record needs to be created; to track an item as it moves through a process such as binding or conservation treatment; to determine whether an item can be circulated or sent out on interlibrary loan; to select a document or group of documents that will serve the information needs of the user; or to determine the physical requirements for use of an item as they relate either to the abilities of the user or to special requirements for playback equipment, computing capabilities, etc.

For the purposes of this study the functional requirements for bibliographic records are defined in relation to the following generic tasks that are performed by users when searching and making use of national bibliographies and library catalogues:

- using the data to **find** materials that correspond to the user's stated search criteria (e.g., in the context of a search for all documents on a given subject, or a search for a recording issued under a particular title);

- using the data retrieved to **identify** an entity (e.g., to confirm that the document described in a record corresponds to the document sought by the user, or to distinguish between two texts or recordings that have the same title);

- using the data to **select** an entity that is appropriate to the user's needs (e.g., to select a text in a language the user understands, or to choose a version of a computer program that is compatible with the hardware and operating system available to the user);

- using the data in order to acquire or **obtain** access to the entity described (e.g., to place a purchase order for a publication, to submit a request for the loan of a copy of a book in a library's collection, or to access online an electronic document stored on a remote computer).

2.3 Methodology

The methodology used in this study is based on an entity analysis technique that is used in the development of conceptual models for relational database systems. Although the study is not intended to serve directly as a basis for the design of bibliographic databases, the technique was chosen as the basis for the methodology because it provides a structured approach to the analysis of data requirements that facilitates the processes of definition and delineation that

were set out in the terms of reference for the study.

The first step in the entity analysis technique is to isolate the key objects that are of interest to users of information in a particular domain. These objects of interest or entities are defined at as high a level as possible. That is to say that the analysis first focuses attention not on individual data but on the "things" the data describe. Each of the entities defined for the model, therefore, serves as the focal point for a cluster of data. An entity diagram for a personnel information system, for example, would likely identify "employee" as one entity that would be of interest to the users of such a system.

At a high level an entity diagram also depicts the relationships that normally hold between one type of entity and another type of entity. The model for a personnel information system, for example, would likely indicate a reciprocal relationship between the entity "employee" and the entity "position": an employee "occupies" a position; a position "is occupied by" an employee.

Once the high-level structure for the model has been charted by identifying the principal entities and the relationships between those entities, the next step in the methodology is to identify the important characteristics or attributes of each entity. For example, in the context of a personnel information system, the attributes associated with an employee might include the employee name, address, birth date, social insurance number, etc.

As an extension of the technique that is used to depict the relationships between entity types, the entity analysis methodology can also be applied at a more detailed level to depict the specific relationships that operate between instances of entities. For example, the model for a personnel information system might show that relationships may exist between an individual employee and another employee (e.g., a spousal relationship). If such relationships are significant for the users of information in the domain being modeled, they will be defined as part of the model.

The entity-relationship structure derived from the analysis of entities, attributes, and relationships has been used in this study as the framework for assessing the relevance of each attribute and relationship to the tasks performed by users of bibliographic data. Each attribute and relationship is mapped to the four generic user tasks defined for the study, and relative values are assigned to each attribute and relationship with specific reference to the task performed and the entity that is the object of the user's interest.

The entity-relationship structure and the mapping of attributes and relationships to user tasks are used as the basis for the study group's recommendations on a basic level of functionality for records created by national bibliographic agencies. The recommendations are focused on the user tasks that are judged to be the most important for the national bibliographic record to support. Based on the relative values assigned to the attributes and relationships that support those tasks, the recommendations identify specific data requirements for the basic record.

The entity-relationship analysis technique and the conventions for graphic presentation that are used in this study are based in large part on the methodology developed by James Martin and outlined in his book *Strategic Data-Planning Methodologies* (Prentice-Hall, 1982). Graeme Simsion's *Data Modeling Essentials* (Van Nostrand Reinhold, 1994), Richard Perkinson's *Data Analysis: the Key to Data Base Design* (QED Information Sciences, 1984), and Ramez Elmasri and Shamkant Navanthe's *Fundamentals of Database Systems* (Benjamin/

Cummings, 1989) were also used in shaping the methodology for the study. All four books are recommended to those who are interested in additional background and more detail on entity-relationship analysis.

2.4 Components of the Study

The entity analysis technique and the mapping of attributes and relationships to user tasks form the framework for this study's assessment of data requirements for records intended to serve the needs of users of bibliographic information, and for the study group's recommendations on basic data to be included in a national bibliographic record. The remainder of the report is divided into two major segments. The first sets out the entity-relationship model; the second presents the study group's recommendations for a basic level national bibliographic record.

The first segment of the study contains four chapters:

> Chapter 3 of the study identifies the entities that have been used in the model, naming, defining, and elaborating on their nature and scope.

> Chapter 4 analyses the attributes associated with each of the entities defined for the model, and provides definitions for each attribute. That analysis is then expanded in Appendix A to give a comprehensive listing of individual data elements associated with each attribute.

> Chapter 5 delineates the relationships used in the model, defining and elaborating on the nature of relationships that operate at a generalized level in the model as well as those that operate between specific instances of entities.

> Chapter 6 maps the attributes and relationships associated with each entity to the four generic user tasks the bibliographic record is intended to support, showing the relevance of each attribute or relationship to each of the user tasks.

The second segment of the study contains a single chapter:

> Chapter 7 uses the mapping in Chapter 6 as the frame of reference for the study group's recommendations regarding basic data requirements for national bibliographic records.

The report also contains an appendix that correlates the logical attributes defined in Chapter 4 with the data elements defined in the ISBDs, the *Guidelines for Authority and Reference Entries*, and the *UNIMARC Manual.*

3. Entities

3.1 Overview

The entities that have been defined for this study represent the key objects of interest to users of bibliographic data. The entities have been divided into three groups. The first group comprises the products of intellectual or artistic endeavour that are named or described in bibliographic records: *work, expression, manifestation*, and *item*. The second group

comprises those entities responsible for the intellectual or artistic content, the physical production and dissemination, or the custodianship of such products: *person* and *corporate body*. The third group comprises an additional set of entities that serve as the subjects of intellectual or artistic endeavour: *concept, object, event*, and *place.*

Sections 3.1.1 through 3.1.3 present the entities in each of the three groups in a simplified schematic form, depicting the underlying relationships between each of the entity types.

Sections 3.2.1 through 3.2.10 provide a more detailed explanation of each of the entities defined in the model.

Chapter 5 (sections 5.2.1 through 5.2.3) provides a more detailed explanation of the relationships between the different types of entities that are depicted in the entity-relationship diagrams in sections 3.1.1. through 3.1.3.

3.1.1 Group 1 Entities: Work, Expression, Manifestation, Item

The entities in the first group (as depicted in Figure 3.1) represent the different aspects of user interests in the products of intellectual or artistic endeavour. The entities defined as *work* (a distinct intellectual or artistic creation) and *expression* (the intellectual or artistic realization of a *work*) reflect intellectual or artistic content. The entities defined as *manifestation* (the physical embodiment of an *expression* of a *work*) and *item* (a single exemplar of a manifestation), on the other hand, reflect physical form.

The relationships depicted in the diagram indicate that a *work* may be realized through one or more than one *expression* (hence the double arrow on the line that links *work* to *expression*). An *expression*, on the other hand, is the realization of one and only one *work* (hence the single arrow on the reverse direction of that line linking *expression* to *work*). An *expression* may be embodied in one or more than one *manifestation*; likewise a *manifestation* may embody one or more than one *expression.* A *manifestation*, in turn, may be exemplified by one or more than one *item*; but an item may exemplify one and only one *manifestation*.

Figure 3.1: Group 1 Entities and Primary Relationships

Figure not available. Please see the pdf version to view the figures.

3.1.2 Group 2 Entities: Person, Corporate Body

The entities in the second group (outlined in bold in Figure 3.2) represent those responsible for the intellectual or artistic content, the physical production and dissemination, or the custodianship of the entities in the first group. The entities in the second group include *person* (an individual) and *corporate body* (an organization or group of individuals and/or organizations).

The diagram depicts the type of "responsibility" relationships that exist between entities in the second group and the entities in the first group. The diagram indicates that a *work* may be created by one or more than one *person* and/or one or more than one *corporate body*. Conversely, a *person* or a *corporate body* may create one or more

than one *work*. An *expression* may be realized by one or more than one *person* and/ or *corporate body*; and a *person* or *corporate body* may realize one or more than one *expression.* A *manifestation* may be produced by one or more than one *person* or *corporate body*; a *person* or *corporate body* may produce one or more than one *manifestation*. An *item* may be owned by one or more than one *person* and/or *corporate body*; a *person* or *corporate body* may own one or more than one *item*.

Figure 3.2: Group 2 Entities and "Responsibility" Relationships

Figure not available. Please see the pdf version to view the figures.

Figure 3.3: Group 3 Entities and "Subject" Relationships

Figure not available. Please see the pdf version to view the figures.

3.1.3 Group 3 Entities: Concept, Object, Event, Place

The entities in the third group (outlined in bold in Figure 3.3) 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).

The diagram depicts the "subject" relationships between entities in the third group and the *work* entity in the first group. The diagram indicates that a *work* may have as its subject one or more than one *concept, object, event*, and/or *place.* Conversely, a *concept, object, event*, and/or *place* may be the subject of one or more than one *work*.

The diagram also depicts the "subject" relationships between work and the entities in the first and second groups. The diagram indicates that a work may have as its subject one or more than one *work, expression, manifestation, item, person*, and/or *corporate body.*

3.2 The Entities

3.2.1 Work

The first entity defined in the model is work: a distinct intellectual or artistic creation.

A *work* is an abstract entity; there is no single material object one can point to as the *work*. We recognize the *work* through individual realizations or *expressions* of the *work*, but the *work* itself exists only in the commonality of content between and among the various *expressions* of the *work*. When we speak of Homer's *Iliad* as a *work*, our point of reference is not a particular recitation or text of the *work*, but the intellectual creation that lies behind all the various *expressions* of the *work*.

Because the notion of a *work* is abstract, it is difficult to define precise boundaries for the entity. The concept of what constitutes a *work* and where the line of demarcation

lies between one *work* and another may in fact be viewed differently from one culture to another. Consequently the bibliographic conventions established by various cultures or national groups may differ in terms of the criteria they use for determining the boundaries between one *work* and another.

For the purposes of this study variant texts incorporating revisions or updates to an earlier text are viewed simply as *expressions* of the same *work* (i.e., the variant texts are not viewed as separate *works*). Similarly, abridgements or enlargements of an existing text, or the addition of parts or an accompaniment to a musical composition are considered to be different *expressions* of the same *work*. Translations from one language to another, musical transcriptions and arrangements, and dubbed or subtitled versions of a film are also considered simply as different *expressions* of the same original *work*.

Examples

- w_1 Henry Gray's *Anatomy of the human body*
  - e_1 text and illustrations for the first edition
  - e_2 text and illustrations for the second edition
  - e_3 text and illustrations for the third edition
  - . . . .

- w_1 J. S. Bach's *The art of the fugue*
  - e_1 the composer's score for organ
  - e_2 an arrangement for chamber orchestra by Anthony Lewis
  - . . . .

- w_1 *Jules et Jim* (motion picture)
  - e_1 the original French language version
  - e_2 the original with English subtitles added
  - . . . .

By contrast, when the modification of a *work* involves a significant degree of independent intellectual or artistic effort, the result is viewed, for the purpose of this study, as a new *work*. Thus paraphrases, rewritings, adaptations for children, parodies, musical variations on a theme and free transcriptions of a musical composition are considered to represent new *works*. Similarly, adaptations of a *work* from one literary or art form to another (e.g., dramatizations, adaptations from one medium of the graphic arts to another, etc.) are considered to represent new *works*. Abstracts, digests and summaries are also considered to represent new *works*.

Examples

- w_1 John Bunyan's *The pilgrim's progress*
- w_2 an anonymous adaptation of *The pilgrim's progress* for young readers

- ■ . . . .
- ■ w_1 William Shakespeare's *Romeo and Juliet*
- ■ w_2 Franco Zeffirelli's motion picture *Romeo and Juliet*
- ■ w_3 Baz Lurhmann's motion picture *William Shakespeare's Romeo and Juliet*
- ■ . . . .

On a pragmatic level, defining *work* as an entity in the model serves a number of purposes. It enables us to give a name and draw relationships to the abstract intellectual or artistic creation that encompasses all the individual *expressions* of that *work*. Thus, when we describe a *work* of literary criticism dealing with Homer's *Iliad*, for example, we are able to relate the *work* of criticism to the *work* that it treats as its subject. By naming Homer's *work* and defining the relationship between it and the *work* of criticism, we are able to indicate that the subject of the *work* of criticism is in fact the abstraction we know as the *Iliad*, and not any specific *expression* of that *work*.

Defining *work* as an entity also enables us to establish indirect relationships between *expressions* of the same *work* in cases where we are unable to draw direct relationships between individual *expressions*. For example, there may exist many translations of a *work* (e.g., *Anne of Green Gables*), and it may not always be possible or necessary to specify the text that has served as the basis for a given translation. In that case we do not draw a direct relationship between individual *expressions* of the *work* (i.e., between the translation and the text or texts on which the translation was based), but we relate those and other texts and translations of the *work* implicitly by relating each of them to the entity we call the *work*.

Relating *expressions* of a *work* indirectly by relating each *expression* to the *work* that it realizes is often the most efficient means of grouping related *expressions*. In effect, the name we give to the *work* serves as the name for the entire set or group of *expressions* that are realizations of the same intellectual or artistic creation (e.g., *Lancelot du Lac*). It is the entity defined as *work*, therefore, that provides us with this grouping capability.

3.2.2 Expression

The second entity defined in the model is *expression*: the intellectual or artistic realization of a *work* in the form of alpha-numeric, musical, or choreographic notation, sound, image, object, movement, etc., or any combination of such forms.

An *expression* is the specific intellectual or artistic form that a *work* takes each time it is "realized." *Expression* encompasses, for example, the specific words, sentences, paragraphs, etc. that result from the realization of a *work* in the form of a text, or the particular notes, phrasing, etc. resulting from the realization of a musical *work*. The boundaries of the entity *expression* are defined, however, so as to exclude aspects of physical form, such as typeface and page layout, that are not integral to the intellectual or artistic realization of the *work* as such.

Inasmuch as the form of *expression* is an inherent characteristic of the *expression*, any change in form (e.g., from alpha-numeric notation to spoken word) results in a new

expression. Similarly, changes in the intellectual conventions or instruments that are employed to express a *work* (e.g., translation from one language to another) result in the production of a new *expression*. Strictly speaking, any change in intellectual or artistic content constitutes a change in *expression*. Thus, if a text is revised or modified, the resulting *expression* is considered to be a new *expression*, no matter how minor the modification may be.

Examples

- w_1 Ellwanger's *Tennis--bis zum Turnierspieler*
    - e_1 the original German text
    - e_2 the English translation by Wendy Gill
    - . . . .

- w_1 Franz Schubert's *Trout quintet*
    - e_1 the composer's score
    - e_2 a performance by the Amadeus Quartet and Hephzibah Menuhin on piano
    - e_3 a performance by the Cleveland Quartet and Yo-Yo Ma on the cello
    - . . . .

On a practical level, the degree to which bibliographic distinctions are made between variant *expressions* of a *work* will depend to some extent on the nature of the *work* itself, and on the anticipated needs of users. Differences in form of *expression* (e.g., the differences between the *expression* of a *work* in the form of musical notation and the *expression* of the same *work* in the form of recorded sound) will normally be reflected in the bibliographic record, no matter what the nature of the *work* itself may be. Variant *expressions* in the same form (e.g., revised versions of a text) will often be indirectly identified as different *expressions* because the variation is apparent from the data associated with an attribute used to identify the *manifestation* in which the *expression* is embodied (e.g., an edition statement). Variations that would be evident only from a more detailed analysis and comparison of *expressions* (e.g., variations between several of the early texts of Shakespeare's *Hamlet*) would normally be reflected in the data only if the nature or stature of the *work* warranted such analysis, and only if it was anticipated that the distinction would be important to users.

Defining *expression* as an entity in the model gives us a means of reflecting the distinctions in intellectual or artistic content that may exist between one realization and another of the same *work*. With *expression* defined as an entity, we can describe the intellectual or artistic attributes of a particular realization of a work, and use the differences in those attributes to signal differences in intellectual or artistic content.

Defining *expression* as an entity also enables us to draw relationships between specific *expressions* of a *work*. We can use the entity called *expression* to identify, for example, the specific text on which a translation is based, or the specific score used for the performance of a musical composition.

We can also use the entity defined as *expression* to indicate that the intellectual or artistic content embodied in one *manifestation* is in fact the same as that embodied in another *manifestation*. If two *manifestations* embody the same intellectual or artistic content, even though the physical embodiment may differ and differing attributes of the *manifestations* may obscure the fact that the content is the same in both, we can make the common link through the entity defined as *expression*.

3.2.3 Manifestation

The third entity defined in the model is *manifestation*: the physical embodiment of an *expression* of a *work*.

The entity defined as *manifestation* encompasses a wide range of materials, including manuscripts, books, periodicals, maps, posters, sound recordings, films, video recordings, CD-ROMs, multimedia kits, etc. As an entity, *manifestation* represents all the physical objects that bear the same characteristics, in respect to both intellectual content and physical form.

When a *work* is realized, the resulting *expression* of the *work* may be physically embodied on or in a medium such as paper, audio tape, video tape, canvas, plaster, etc. That physical embodiment constitutes a *manifestation* of the work. In some cases there may be only a single physical exemplar produced of that *manifestation* of the *work* (e.g., an author's manuscript, a tape recorded for an oral history archive, an original oil painting, etc.). In other cases there are multiple copies produced in order to facilitate public dissemination or distribution. In those cases there is normally a more formal production process involved, and a publisher, producer, or distributor takes responsibility for the process. In other cases there may be only a limited number of copies made of an original exemplar for purposes such as private study (e.g., a dubbing of an original recording of a piece of music), or preservation (e.g., a photocopy produced on permanent paper of an author's original typescript). Whether the scope of production is broad (e.g., in the case of publication, etc.) or limited (e.g., in the case of copies made for private study, etc.), the set of copies produced in each case constitutes a *manifestation*. All copies produced that form part of the same set are considered to be copies of the same *manifestation*.

The boundaries between one *manifestation* and another are drawn on the basis of both intellectual content and physical form. When the production process involves changes in physical form the resulting product is considered a new *manifestation*. Changes in physical form include changes affecting display characteristics (e.g., a change in typeface, size of font, page layout, etc.), changes in physical medium (e.g., a change from paper to microfilm as the medium of conveyance), and changes in the container (e.g., a change from cassette to cartridge as the container for a tape). Where the production process involves a publisher, producer, distributor, etc., and there are changes signaled in the product that are related to publication, marketing, etc. (e.g., a change in publisher, repackaging, etc.), the resulting product may be considered a new *manifestation*. Whenever the production process involves modifications, additions, deletions, etc. that affect the intellectual or artistic content, the result is a new *manifestation* embodying a new *expression* of the *work*.

Examples

- w_1 Harry Lindgren's *Geometric dissections*
  - e_1 original text entitled *Geometric dissections*
    - m_1 the book published in 1964 by Van Nostrand
  - e_2 revised text entitled *Recreational problems in geometric dissections*
    ....
    - m_1 the book published in 1972 by Dover

- w_1 J. S. Bach's *Six suites for unaccompanied cello*
  - e_1 performances by Janos Starker recorded in 1963 and 1965
    - m_1 recordings released on 33 1/3 rpm sound discs in 1965 by Mercury
    - m_2 recordings re-released on compact disc in 1991 by Mercury
  - e_2 performances by Yo-Yo Ma recorded in 1983
    - m_1 recordings released on 33 1/3 rpm sound discs in 1983 by CBS Records
    - m_2 recordings re-released on compact disc in 1992 by CBS Records

- w_1 Jean Jolivet's *Vraie description des Gaules....*
  - e_1 the cartographer's original rendering
    - m_1 the map issued in 1570
    - m_2 a facsimile reproduction published in 1974 by Hier et demain

- w_1 *The Wall Street Journal*
  - e_1 the Eastern edition
    - m_1 the print format of the Eastern edition
    - m_2 the microfilm of the Eastern edition
  - e_2 the Western edition
    - m_1 the print format of the Western edition
    - m_2 the microfilm of the Western edition

Changes that occur deliberately or even inadvertently in the production process that affect the copies result, strictly speaking, in a new *manifestation*. A *manifestation* resulting from such a change may be identified as a particular "state" or "issue" of the publication.

Changes that occur to an individual copy after the production process is complete (e.g., the loss of a page, rebinding, etc.) are not considered to result in a new *manifestation*. That copy is simply considered to be an exemplar (or *item*) of the *manifestation* that

deviates from the copy as produced.

Defining *manifestation* as an entity enables us to name and describe the complete set of *items* that result from a single act of physical embodiment or production. The entity *manifestation* serves to describe the shared characteristics of copies of a particular publication, edition, release, etc., as well as to describe unique productions such as manuscripts, original oil paintings, etc.

With the entity defined as *manifestation* we can describe the physical characteristics of a set of *items* and the characteristics associated with the production and distribution of that set of *items* that may be important factors in enabling users to choose a *manifestation* appropriate to their physical needs and constraints, and to identify and acquire a copy of that *manifestation*.

Defining *manifestation* as an entity also enables us to draw relationships between specific *manifestations* of a *work*. We can use the relationships between *manifestations* to identify, for example, the specific publication that was used to create a microreproduction.

3.2.4 Item

The fourth entity defined in the model is item: a single exemplar of a *manifestation*.

The entity defined as *item* is a concrete entity. It is in many instances a single physical object (e.g., a copy of a one-volume monograph, a single audio cassette, etc.). There are instances, however, where the entity defined as *item* comprises more than one physical object (e.g., a monograph issued as two separately bound volumes, a recording issued on three separate compact discs, etc.).

In terms of intellectual content and physical form, an *item* exemplifying a *manifestation* is normally the same as the *manifestation* itself. However, variations may occur from one *item* to another, even when the *items* exemplify the same *manifestation*, where those variations are the result of actions external to the intent of the producer of the *manifestation* (e.g., damage occurring after the *item* was produced, binding performed by a library, etc.).

Examples

- w1 Ronald Hayman's *Playback*
    - e1 the author's text edited for publication
        - m1 the book published in 1973 by Davis-Poynter
            - i1 copy autographed by the author

- w1 Allan Wakeman's *Jabberwocky*
    - e1 the author's design for the game and text for the notes m1 the game and accompanying notes for teachers issued in 1974 by Longman i1 copy lacking notes for teachers

Defining *item* as an entity enables us to separately identify individual copies of a

manifestation, and to describe those characteristics that are unique to that particular copy and that pertain to transactions such as circulation, etc. involving that copy.

Defining the entity called *item* also enables us to draw relationships between individual copies of *manifestations*.

3.2.5 Person

The fifth entity defined in the model is *person*: an individual. The entity defined as *person* encompasses individuals that are deceased as well as those that are living.

3.3 Aggregate and Component Entities

The examples used in sections 3.2.1 through 3.2.4 to illustrate the entities work, expression, manifestation, and item showed the entities primarily as integral units (e.g., Shakespeare's Romeo and Juliet as an example of a work, a particular performance of Schubert's Trout quintet as an expression, etc.). The structure of the model, however, permits us to represent aggregate and component entities in the same way as we would represent entities that are viewed as integral units.

That is to say that from a logical perspective the entity work, for example, may represent an aggregate of individual works brought together by an editor or compiler in the form of an anthology, a set of individual monographs brought together by a publisher to form a series, or a collection of private papers organized by an archive as a single fond. By the same token, the entity work may represent an intellectually or artistically discrete component of a larger work, such as a chapter of a report, a segment of a map, an article in a journal, etc. For the purposes of the model, entities at the aggregate or component level operate in the same way as entities at the integral unit level; they are defined in the same terms, they share the same characteristics, and they are related to one another in the same way as entities at the integral unit level. Sections 5.3.1.1., 5.3.2.1, 5.3.4.1, and 5.3.6.1 provide additional information on aggregate and component entities in the context of whole/part relationships.

Examples

- w_1 Robertson Davies' The Deptford trilogy
  - $w_{1.1}$ Robertson Davies' Fifth business
  - $w_{1.2}$ Robertson Davies' The manticore
  - $w_{1.3}$ Robertson Davies' World of wonders

- w_1 Visible speech, edited by Howard Bibb
  - $w_{1.1}$ Volume 1: Segmentals, introduced by Alex Hanes-White
  - $w_{1.2}$ Volume 2: Suprasegmentals, by Mary Loftus
    - e_1 the authors' texts edited for publication
      - m_1 the electronic resource issued on 3 disks in 1994 by Partners in Speech

- $m_{1.1}$ volume 1 (1 electronic disk)
- $m_{1.2}$ volume 2 (2 electronic disks + a 104 page manual)

- w_1 The Ordnance Survey's 1:50 000 Landranger series
  - $w_{1.1}$ Mansfield and the Dukeries
    - e_1 revised map with major changes and metric contours
      - m_1 the map printed in 1985
  - $w_{1.2}$ Luton and Hertford
    - e_1 revised map with major changes
      - m_1 the map printed in 1984
  - . . . .

Latest Revision: *April 9, 2000*