



## Resource Description and Access

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# AACR to RDA



Today the Anglo-American Cataloguing Rules, or AACR, is the most widely-used standard for descriptive cataloguing in the English-speaking world. Resource Description and Access is the new standard for description and access, which will replace AACR in 2009. As well as being adopted in Australia, New Zealand, Britain, Canada and the United States, RDA is being considered for adoption in other countries that currently have their own descriptive cataloguing codes - such as Germany and France.

RDA is being developed as a new generation cataloguing code, designed for the digital world. It will provide instructions for the description of all types of resources, including online. Descriptions created using RDA will be usable in the digital environment – in web-based catalogues and other resource discovery services. The RDA standard will itself be a Web-based tool, not a print tool as it is now.

Today I will talk about some of the problems that RDA is designed to solve, the FRBR conceptual model on which RDA is based, and how RDA is being designed so that the data created using it is usable in the web environment. I will also touch briefly on what you need to do to prepare for RDA's implementation in Australian libraries.

The Australian Committee on Cataloguing has previously held separate whole day seminars on both FRBR and RDA, so you'll understand that I've had some difficulty in cramming all this information into 20 minutes today. The papers from those seminars are available on the ACOC website, so that's a good place to go if you want to follow up on information from today's presentation.

# AACR and descriptive cataloguing

AACR is a robust standard, but ...

- ‘Class of materials’ approach is no longer valid
  - Need for principles-based instructions
  - Need for extensibility
- Designed for the card catalogue not digital world
  - Data needs to be usable in the web environment



AACR has been used for decades, and millions of catalogue records have been created using it as the resource description standard. Why then do we need to change to a new standard?

Although AACR has proved to be a very robust standard, it has reached the end of its useful life – both as a set of instructions *and* as the basis for our catalogues.

AACR is organised around the class of materials to which an item belongs. There are separate chapters for books, sound recordings, motion pictures, electronic resources, and so on. Over time each chapter has evolved to have slightly different rules – even when there is no fundamental difference between that class of material and another class.

In addition, the resources we are trying to describe have changed, and the distinctions between them have blurred. For example, a video, text and music - once so separate - may now be found together on a website. We need now to find a principles-based way to describe every relevant aspect of each resource, and also a way to describe types of resources that may not exist yet.

AACR was also developed in the era of the card catalogue, and much of its terminology reflects that, for example terms like ‘heading’, ‘main entry’ and ‘added entry’. However, just updating the terminology is not enough to bring AACR into the digital world. We also need to ensure that the data we create using RDA is usable in the web environment. To do this we need to define the data elements so that they are machine manipulable and usable in a variety of contexts on the web.

# RDA and FRBR/FRAD/FRSAR

- The value of conceptual models
  - Identify & define the things that are important - **entities**
  - Identify & define the **attributes** that characterise the entities
  - Identify & define significant **relationships** between entities
- FRBR/FRAD/FRSAR
  - Identify & define **bibliographic** entities, attributes and relationships
- FRBR etc in RDA



To achieve the goals we have for RDA we have made great use of the FRBR family of conceptual models so I'd like to tell you a bit about them. FRBR is the Functional Requirements for Bibliographic Records. Its counterparts FRAD (Functional Requirements for Authority Data) and FRSAR (Functional Requirements for Subject Authority Records) extend the model for authority data.

Why have we bothered with conceptual models? Well, conceptual models help us to develop a better understanding of the domain they describe. They are a way of looking at something that concerns us, and identifying the entities that are important, the attributes of those entities, and the significant relationships between the entities

The FRBR model identifies and defines bibliographic entities, their attributes and the relationships between them. It allows us to develop a better understanding of bibliographic and authority data, which we can use to build better systems and services.

The FRBR model will be reflected in RDA in a number of ways – although sadly there isn't time to go into the details of these today. For now I'd like to note that benefits that come from using the FRBR model can't be realised without changes to descriptive standards such as RDA. But equally, those benefits won't be realised through RDA alone, but also require changes to encoding and to the systems used to support resource discovery.

# FRBR entities



Group 1 : Work, Expression, Manifestation, Item

- **Work**: the intellectual or artistic creation as an abstract entity.
- **Expression**: the realisation of a work in a particular form, e.g. a particular language or notation.
- **Manifestation**: is the physical embodiment of an expression of a work
- **Item** is a single exemplar of a manifestation

Group 2 : Person, Family and Corporate body

Group 3 : Concept, Object, Event, Place

I need now to take you on a whirlwind tour of the FRBR family of conceptual models. Don't worry if it doesn't make a lot of sense – it is a bit like trying to do a history of the world in 4 ½ slides! But this brief tour might familiarise you with some of the terminology I need to use.

The entities defined in these models are in three groups.

In Group 1 are work, expression, manifestation and item. Simply put:

*Harry Potter and the Deathly Hallows* by J.K. Rowling is an example of a work.

The Chinese version of *Harry Potter and the Deathly Hallows* is an example of an expression. Both work and expression are abstract concepts.

Together all the copies of *Harry Potter and the Deathly Hallows* published by Bloomsbury in London in 2007, form a manifestation. The manifestation level is the one usually represented in catalogue records.

An item is what you might think of as a copy.

In group 2 : are persons, families and corporate bodies.

In group 3: are concepts, objects, events and places. The group 3 entities won't be covered in RDA when it is first released.

These models go on to describe the attributes of each of these entities – e.g. title of the work; pagination of the manifestation, the name of a person, etc. Importantly, they also describe the relationships between the entities, for example, a person as the author of a work.

# FRBR – user tasks

“ a structured framework for relating the data recorded in bibliographic (*and authority*) records to the needs of the users of those records.”

## ➤ FRBR User tasks

- Find, Identify, Select , Obtain

## ➤ FRAD User tasks

- Find, Identify, Contextualize, Justify



But FRBR does more than simply list the entities, attributes and relationships. It also relates the data elements to the needs of users. It does this by mapping the data elements to the specific user tasks they support.

The user tasks identified in FRBR are: Find, identify, Select and Obtain.

Find may be to find an item by an author; on a particular subject; or with a certain title.

Identify might mean confirming that the item is the one they are looking for; or to distinguish between items with the same title.

Selecting an item might require checking that the format is suitable, or that it's suitable for a particular group, e.g. high school students.

To Obtain an item you might need information to submit a call slip; to purchase an item; or access it online.

FRAD has defined separate user tasks for authority data: Find, Identify, Contextualize and Justify.

## Benefits of FRBR

- Improved efficiency of data creation & maintenance
- Improved navigation of the catalogue for users
- Improved catalogue displays
  - For researchers – a more organised display
  - For the general public – a less cluttered display



So what are the benefits to using these models?

For cataloguers and system administrators use of the models will improve the efficiency of data creation and maintenance. This will happen for example, by allowing data for works and expressions to be created and stored once only, and re-used as needed. Importantly, they will also improve the ease and effectiveness with which users are able to access the data and navigate the database. This is particularly useful for works that exist in more than one expression, or more than one manifestation, such as many music and literature resources.

FRBR-based catalogues have benefits for both the user who cares very much about the different expressions and manifestations, and those who do not care at all. The user who cares about the differences is able to see all those manifestations and expressions of the work in a meaningful display which highlights those differences. The user who doesn't care about the differences can, for example, place a request at the FRBR expression level – and receive the first English language version of *Harry Potter and the Deathly Hallows* that is available – without having to place multiple individual requests at the manifestation or item level.

# FRBR in practice

- Used in databases  
Red Light Green, Fiction Finder, xISBN,  
Austlit, Music Australia
- Used in library systems and catalogues  
VTLS – Virtua
- FRBR Bibliography  
<http://www.ifla.org/VII/s13/wgfrbr/bibliography.htm>



FRBR as a model has been around since 1997. Since that time it has been used in the design of a number of databases, and in various ways in different projects such as those as mentioned on this slide.

If you are interested in learning more about FRBR and its applications you might like to consult the FRBR bibliography. The bibliography is maintained by the FRBR Review Group and covers both theoretical work on FRBR and also implementations and other uses of FRBR, for example, its use in library education.

# FRBR in practice – FictionFinder

The screenshot shows the FictionFinder interface. At the top, there's a search bar with 'GO' and 'Advanced' options. Below the search bar, it says 'You searched: Basic index for harry near potter'. A yellow arrow points from the word 'Work' in the top right to the search results. The main content area displays the title 'Harry Potter and the philosopher's stone.' by 'Rowling, J. K.' with a book cover image. It lists 162 editions in 46 languages, held by 12470 libraries. The summary states: 'Rescued from the outrageous neglect of his aunt and uncle, a young boy with a great destiny proves his worth while attending Hogwarts School for Wizards and Witches.' Genres include Fantasy fiction, Children's stories, English, and Fantasy fiction, English. Characters include Potter, Harry (Fictitious character). Settings include England, Hogwarts School of Witchcraft and Wizardry (Imaginary place), and Inglaterra—Novela juvenil [+]. Subjects include Wizards, Magic, Schools, Witches, Magia—Novela juvenil [+], Escuelas—Novela juvenil [+], Brujos—Novela juvenil [+], Magos—Novela juvenil [+], England, Chinese fiction, and Hechicería—Novela juvenil [+]. There's also a 'More' link. An audience bar shows 'Kids', 'General', and 'Special' with a slider. Below this is a table with tabs for 'Editions', 'Genres', 'Characters', 'Settings', and 'Subjects'. The table has columns for Title / Author, OCLC #, Date, Language, Format, Aud., and Libraries. It lists 9 editions of the book.

Title / Author	OCLC #	Date	Language	Format	Aud.	Libraries
1. Harry Potter and the sorcerer's stone / by J.K. Rowling ; illustrations by Mary GrandPre?	37975719	1998	English	Book	Kids	■■■■■
2. Harry Potter and the sorcerer's stone J.K. Rowling	42883416	1999	English	Audio	Kids	■■■■■
3. Harry Potter and the sorcerer's stone / by J.K. Rowling ; illustrations by Mary GrandPre?	42354631	1999	English	Book	Kids	■■■■■
4. Harry Potter and the sorcerer's stone J.K. Rowling	42693774	1999	English	Audio	Kids	■■■■■
5. Harry Potter and the sorcerer's stone / J.K. Rowling ; illustrations by Mary GrandPre?	42752759	1999	English	Large print	Kids	■■■■■
6. Harry Potter and the sorcerer's stone J.K. Rowling	42696943	1999	English	Audio	Kids	■■■■■
7. Harry Potter and the sorcerer's stone / by J.K. Rowling ; illustrations by Mary GrandPre?	44421772	1999	English	Book	Kids	■■■■■
8. Harry Potter and the sorcerer's stone / J.K. Rowling	48108481	2001	English	Book	Kids	■■■■■
9. Harry Potter and the philosopher's stone / J.K. Rowling	41272049	1997	English	Book	Kids	■■■■■

Let's have a quick look at some catalogues and databases which have used FRBR. They fall into two categories – ones which use existing data to create FRBR-like displays, and ones where the data was created from the start to match the FRBR model.

Here is the results for a search on *Harry Potter and the Philosopher's Stone* on FictionFinder. Fiction Finder is a prototype service offered by OCLC. It uses existing catalogue data to create an "FRBR-inspired view" of the data. In Fiction Finder records are clustered into work sets using an algorithm. Information or data elements from all of the individual records in that work set are aggregated, and used to create a work level record. The resulting record is richer and more complete than the individual records, and makes more information available for the user to search.

The user can then be presented with a display that gives prominence to the common, work level elements. In this example the title, author, summary, subject headings, and genre terms at the top of the display will have been taken from the individual records. The user can go on to further refine the search using other elements for e.g. the language, or the format.

This is a fairly rudimentary application of FRBR, but you can see how much more useful a display like this can be to the user.

# FRBR in practice - VTLS

The screenshot displays the VTLS Library Catalog interface. At the top, the title "VTLS Library Catalog" is followed by the tagline "FOR THE FUTURE OF SMART LIBRARIES" and an image of books. A navigation bar includes links for Home, Keyword, Heading Keyword, Reserve, External Databases, Expert, Cart, and Help. The main content area shows search results for "Harry Potter and the prisoner of Azkaban - Rowling, J. K.". The results are organized into a hierarchical tree structure. Annotations include:

- Expression:** A green arrow points to the top-level title "Harry Potter and the prisoner of Azkaban - Rowling, J. K.".
- Manifestations:** A green arrow points to the "Books - Spanish" sub-expression.
- Work:** A red oval highlights the top-level title.

The search results list various manifestations, including books in Spanish and Italian, non-musical recordings in English, and audio recordings on cassette and CD. The interface also features a "Quick Search" section on the left with search terms, filters (Anywhere, Books, Newspapers, Periodicals), session filters, and active filter settings.

Now let's look at the results of a search on *The Prisoner of Azkaban* using Virtua. This screen shows an expanded hierarchical FRBR structure. At the top you can see the title and author of the work. Different expressions have been clustered together, for example Books-Spanish, Non-musical recording – English and so on. Information on the individual manifestations is listed under the expression to which they belong. Although this is not a particularly attractive results page, it does show one type of functionality that is possible with FRBR, that is, the use of the FRBR tree to navigate a results set.

# FRBR in practice – Austlit (1)

The screenshot displays the Austlit website interface. At the top, there is a search bar with options for 'Keyword', 'Author', and 'Title', and a 'GO' button. Below the search bar, the website logo 'AUSTLIT' and the tagline 'The Australian Literature Resource' are visible. The main content area shows the search results for 'We of the Never-Never', including the author 'Gunn, Mrs Aeneas (birth name: Taylor, Jeannie) (a.k.a. Gunn, Jeannie)', general subjects like 'Station life', 'Women', and 'Australian landscape', and a list of related works. Annotations in orange text and arrows highlight the 'Work' level data and the 'Related works' section. The right sidebar contains options for 'EXPORT / FORMAT ON SCREEN AS (?)' and 'FORMAT AS (?)'.

Here is the results for a search on *We of the Never Never* in Austlit. Austlit was an FRBR based service from the start.

At the top of the screen you can see the work level data, and at the bottom the related works. This is only the top part of the page and I'll show you more on the next slide.

Data is entered into the Austlit database using FRBR style forms. Those entering the data have found it logical and easy to work with. The data elements for particular works and expressions only need to be entered once, and can be inherited by all the manifestations. This results in very rich data being created very efficiently.

# FRBR in practice Austlit (2)

This work has appeared in at least 6 different versions:

1. Publications of this version include the following 4:

## Expression

- London, England : **Hutchinson**, 1908.  
Extent: 252p.  
Description: illus., map, photos.  
Reprinted: 1909, 1954 (*Limited edition of 1000 numbered copies signed by the author*), 1962 (*Numerous reprints between 1962 and 1977*), 1977  
Notes: \* Dedication: Dedicated to 'The Bush-Folk of the Never-Never'

Written as: Mrs. Aeneas Gunn. Author of 'The Little Black Princess' etc.

## Manifestations

- Richmond, Victoria : **Hutchinson Australia**, 1983.  
ISBN: 0091484308  
Extent: xxiii, 238p.  
Description: illus., ports, facsimis.  
Notes: \* With a memoir of Mrs. Gunn by Margaret Berry.
- **Great Australian Writers : Miles Franklin, Henry Handel Richardson, Mrs Aeneas Gunn, Ruth Park** SELECTED WORK  
NOVEL  
Authors: **Franklin, Miles** (birth name: Franklin, Stella Maria Sarah Miles ) (a.k.a. Franklin, Stella ) ; **Richardson, Henry Handel** (birth name: Ethel Florence Lindesay Richardson ) (a.k.a. Robertson, Ethel Florence Lindesay; Robertson, Ethel F. L. ) ; **Gunn, Mrs Aeneas** (birth name: Taylor, Jeannie ) (a.k.a. Gunn, Jeannie ) ; **Park, Ruth** (birth name: Park, Rosina Ruth Lucia ) (a.k.a. Niland, Ruth )  
London, England : **Heinemann**, 1987.  
(pp.341-512)
- Milsons Point, New South Wales : **Arrow Australia**, 1990.  
ISBN: 0091825415  
Extent: 238p.  
Reprinted: 1987, 1989  
Notes: \* First published in paperback 1983. First published in Arrow 1990. No illus.

This is some more of the Austlit results page. At the top you can see that the work has appeared in 6 versions, or 6 expressions. The first expression has four manifestations, all shown on this screen. If you were to scroll down further you would see each of the other expressions, and any related manifestations.

Although some of these examples may be a bit clunky, or lacking in design or display features, they do give a flavour of what is possible in catalogues using FRBR style data. But note that neither FRBR nor RDA dictate how data should be displayed in the catalogue or which navigational paths should be offered.

## RDA implementation scenarios

RDA needs to support:

- **The present** – data stored in bibliographic records, authority records, and holdings records
  - Linked records or flat file
- **The future** – relational or object-oriented databases
  - Separate records for each entity
  - Links using persistent identifiers

<http://www.collectionscanada.gc.ca/jsc/docs/5editor2.pdf>



RDA, as a resource description standard based on FRBR, is being designed for implementation in any number of present and future database structures, although clearly it will offer most when combined with a relational or object-oriented database.

<<Optimally, RDA would be implemented in relational or object-oriented databases, like Austlit, which themselves are modeled on FRBR. In databases using this type of structure there would be separate records for each FRBR entity. Relationships between the entities would be made using links. The links might be access points, but are more likely to be persistent identifiers. The changes made in RDA will help us move towards this future.

But realistically, RDA needs to be able to be implemented in any number of present and future database structures. RDA has been designed to ensure that, however it is implemented, the data will still support the functional objectives that RDA is designed to fulfill.>>

# RDA in the web environment - 1

- Clearly defined element set
  - Better granularity, improved mapping to other schema, e.g. Dublin Core, ISBD, MODS/MADS, MARC21
- Greater emphasis on relationships
  - Better navigation and displays



Let's now look at some other changes which update the RDA standard so it's ready for the web environment. Cataloguers today need to describe resources in a way which maximises the value that can be extracted from the data. This allows the data to be used not only in our own library catalogues but also in other resource discovery systems and in the web environment. Some of the ways in which RDA will help achieve this are:

Defining an RDA element set or element vocabulary for both attributes and relationships. RDA elements now have a greater level of granularity. Some AACR elements have been split if they covered more than one concept, and new elements have been added to parallel elements used in related schema, e.g. MARC 21. Multiple instances of elements are provided for. The increased level of precision will allow cleaner mapping to and from other standards, and also facilitate machine manipulation. RDA data elements will be mapped to encoding schema such as MARC 21, MODS/MADS and Dublin Core.

The ability to show relationships - both between resources themselves, and between the resources and those who have played a role in their existence - is vital if the catalogue is to provide navigational paths for our users, not just keyword searching. In RDA the emphasis on relationships has been strengthened.

## RDA in the web environment - 2

- Better interoperability - common vocabularies
  - Content type, carrier type, media type; Relationship designators; Encoding formats, etc.
  - Making vocabularies accessible
- RDA and the semantic web
  - RDA data element set available freely online
  - Expressed in RDF (Resource Description Framework)



Resource discovery services can offer the most utility to users when there is commonality in the data they base their services on. In recognition of this RDA re-uses existing vocabularies where possible or develops new vocabularies when needed with related communities. One of these is the RDA-ONIX joint framework for resource categorization. The work done on this will underpin improvements to user's ability to select the resource that best meets their needs, and improvements in system's abilities to present that information to users.

The RDA elements are also being designed to be usable in the semantic web. Sherman Young referred to the semantic web on Monday when he showed the video of the "knowledge navigator". Work is continuing with the Dublin Core and semantic web communities on making the RDA data model, data elements and values available for use in a machine readable form consistent with semantic web standards (such as the RDF: Resource Description Framework). The changes in RDA regarding relationships will feed into this, as they allow for statements to be made about resources in the form of subject-predicate-object expressions, called triples. To facilitate the use of RDA data in the web environment, RDA will also incorporate elements for identifiers for all of the defined entities. The element set and some or all of the RDA controlled vocabularies (but not the instructions) will be made freely available online.

# RDA for cataloguers and catalogue users

- RDA as a cataloguing tool
  - Interactive and online
  - Integration with policies, processes & systems
- Better coverage
  - Visual resources, archival resources
  - Online resources



The move to RDA has other advantages both for the cataloguer and for the library user, and I'd like to mention a couple of them now.

Cataloguers will interact with RDA as a fully interactive and customizable online tool. There will be different ways to access RDA: through searching or browsing the contents, through the existing AACR rule or MARC21 tag, or through workflows that guide you through the process of creating a record. Integration with cataloguing systems is planned, so that you will be able to click through from your cataloguing system to the RDA instruction for the data you are inputting.

From the point of view of our catalogue's users, another benefit of the move to RDA is the improved coverage of a broader range of resources, including visual materials and archival materials. The description of online resources in particular has improved.

<<In a record created using RDA you will be able to record all relevant aspects of a resource: both that it is an 'online resource' as well as other aspects such as that it is a text or graphic, or consists of audio or video files. RDA is also introducing the concept of persistent identifiers as a type of resource identifier. Persistent identifiers are permanent, location independent and unique identifiers for resources, most especially online resources. >>

# Preparing for RDA - 1

## ➤ Learning about FRBR and RDA

<http://www.collectionscanada.gc.ca/jsc/rda.html>

## ➤ RDA implementation in Australia

<http://www.nla.gov.au/lis/stndrds/grps/acoc/index.html>

## ➤ International implementation strategy

– Library of Congress, British Library, Library and Archives Canada, and the National Library of Australia



RDA will be released in late 2009, and there will be a period of testing and evaluation before it is implemented in 2010. In the meantime there are many things you can do to prepare for RDA.

For cataloguers and database managers one of the first things to do is familiarise yourself with the concepts and vocabulary found in FRBR. During the pre-publication period, take the opportunity to gain some familiarity with RDA too by reviewing the full draft and trying out the online product. Both the *RDA Prospectus* and the Introduction to RDA are good starting points, as are the FAQs on the website listed on the slide. There are also a number of articles about RDA which provide a good introduction.

The main place to find information about the implementation of RDA in Australia is the ACOC (Australian Committee on Cataloguing) website. This site will provide FAQs, information about training courses, links to relevant presentations and articles, as well as the information on implementation dates, product pricing and availability. It also links to the rdaust email discussion list for Australian libraries. Over time regular information about RDA will appear in issues of In-Cite and other journals.

I don't have time to go into the international implementation strategy today but would like to note that the libraries listed are coordinating this

## Preparing for RDA - 2

- MARC and system changes
  - MARC changes, record creation, import-export, catalogue displays
- Training
  - Training aids in RDA, formal training, online training
- Purchasing RDA
  - Subscription models, Cataloger's Desktop



Most RDA data elements will be incorporated into the existing MARC 21 structure, and proposals for changes to that standard are in the pipeline. Most library systems vendors are aware of the need to prepare for changes to their products, for example changes to their tag tables and indexes. You should speak to your library system vendor about how they plan to incorporate RDA into their software. In addition to talking about the MARC changes, you might also ask if they are planning any changes to catalogue displays. Some changes to library systems will also be required to be able to import RDA records from, and export records to, databases such as Libraries Australia, Te Puna and WorldCat. For those libraries that either purchase records or use external cataloguing providers, you will also need to talk to your vendor about RDA.

Although RDA will incorporate training aids, and online training materials will also be available, it is expected that many cataloguers will require some formal training. The National Library of Australia will work with existing training providers and library schools to ensure that relevant training courses are available. Details of training courses provided throughout Australia and New Zealand will be publicised on the ACOC website and on the various lists as the information becomes available.

The pricing structure and subscription model for RDA will be announced as soon as it is available. The publishers are currently examining a variety of models for RDA pricing, taking into account factors and options such as usage, size of library, consortial licences, educational licenses, etc. The Library of Congress also hopes to incorporate RDA into Cataloger's Desktop, as it has done with AACR.

# Conclusion – thank you



Although the changes in RDA are significant, RDA is nevertheless founded on the strengths of its predecessor, AACR. The move to RDA is an important and necessary step in building better catalogues and resource discovery systems for the future. These are exciting times to be working in the area of resource description and resource discovery.