

The well connected catalogue

PATRICIA SCOTT, DENISE TOBIN and HELEN ATTAR

ABSTRACT In an age where our users expect to be able to point and click, links through to other works by the same author, same subject or same series are standard features of a web catalogue that provide relevant retrieval wherever good authority control is practiced. This is an advantage of web catalogue versus web browser searches. The assiduous cataloguer also provides rich information about related works that can help users to find what they really need. If presented as succinctly-labelled clickable links, the user is likely to take advantage of this information. Using the Bib-Linking functionality supplied by Endeavor in WebVoyage, the University of Adelaide Library has been able to provide extended links in its catalogue to lead its users to works related in specific ways. To date these include analysed titles that are part of a serial, earlier and later journal titles, links between different format versions of the same title such as electronic and print, and links to titles belonging to electronic datasets. Hot linking to outside resources from URLs in a variety of fields, including notes, has enabled the Library to link to many other related digital resources or documents. Online contents and abstracts, licence agreements and online indexes for individual print journals are some examples that provide more depth, less clutter in the catalogue and better information that assists the user in choice of item.

A well connected catalogue is one that makes obvious the relationship between one item described in the catalogue and another item. It enables the user to easily link to that other related item that has a specific relationship with the first. It also enables the user to link to other useful resources that are relevant to the item catalogued, whether they are in print or online. It allows the cataloguer, who had researched and understood the item in hand, to provide links to additional relevant material for users. In the Web 2.0 world, where the user increasingly expects interconnectivity and interaction, many library catalogues currently don't provide the user with what they want as easily as search engines on the internet, such as Google or Yahoo. This is a great shame, as much of the cataloguers' art provides a rich fabric for the user to explore. Sophisticated connections that the cataloguer identifies, though often more scholarly and reliable, risk being unexplored because of the complexity of the information provided and the absence of easy "point and click" opportunities.

Some libraries have added services such as book cover art, links to book reviews and links to online book shops. These are all good and useful features that will give users additional information, and may be done with automatic means, rather than on a one by one basis, either by scripting or by using the services of companies such as Syndetic Solutions. Some Integrated Library Management Systems (ILMS) vendors, such as Innovative Interfaces, have started offering the facility to enable users to annotate titles in the catalogue. Open Source catalogue programs allow many of these features if the library has the systems staff to implement and support such a venture.

Patricia Scott is Metadata Services Librarian, Barr Smith Library, University of Adelaide, SA 5005. Email: patricia.scott@adelaide.edu.au

Denise Tobin is a Cataloguer, Barr Smith Library, University of Adelaide, SA 5005. Email: denise.tobin@adelaide.edu.au

Helen Attar is a Cataloguer, Barr Smith Library, University of Adelaide, SA 5005. Email: helen.attar@adelaide.edu.au

A library's core business is to connect the user to the information that they need, so there is no reason for not following some of the best features of web search engines such as "did you mean" or to generate "other books like this" and links to online bookshops. It is even worthwhile to consider enabling users to annotate catalogue records with their views of the title, especially if the users are experienced academics seeking to inform their students.

Libraries should think very hard about their design also. Although there is comfort in a display emulating the card catalogue, those who will be most comforted by it are getting ready to retire, and we are facing challenges in presenting information in a usable way to those who have grown up with the internet. Some of the displays coming from the Library 2.0 idea will appeal, and should enable us to rethink the style of display that is the clearest and most appropriate. However, even with some major improvement in displays, plus additional features, our users may still be disappointed. It should be less true as more of our collections become electronic, but still many catalogues, as Karen Schneider reminds us in her comment about the North Carolina State University (NCSU) Libraries' catalog, are "still an index, not a full-text search engine. Users want full text, and we give them metadata".¹ For as long as we are the curators of print resources this will be the case. What is the challenge is to make them as useful and easy to find as electronic resources, and with the metadata that we provide within our catalogues we have the opportunity to provide access that is far more accurate and reliable than any web search engine.

Our discerning users come to the library to find authoritative, scholarly material, even though most of it is "offline". Willard McCarty, a researcher, not a librarian, discusses working "offline in the library or online at home", and he admits that the web is increasingly supplying his needs.²

Many libraries, like the University of Adelaide Library, have added to their online catalogue direct links, not only to the licenced online resources but also links to other stable scholarly resources available from the web. Our catalogue includes all of the free online resources that we expect our users to need, in as much as we have had time to identify, evaluate and link to them. Research Librarians and other library staff select them, and we are happy to include suggestions from our users. We have tried to make it as far as possible a rich resource for teaching and learning. So if Willard McCarty looked within this online library catalogue, as with many others, he will also find himself online in the library, hopefully with much better guidance than he usually finds on the web.

Intellectual 'value adding' by cataloguers can help the users find what they need, even if they didn't know they needed it, in an informed and scholarly manner. Fully developed this could go some way to resolving Willard McCarty's scholarly problem. For McCarty "the scholarly problem is to imagine ways of working we do not know, to give scholars the means of imagining them".³

There are many links within the core information in every library catalogue that the cataloguer provides that are taken for granted and yet take the users easily down paths that could interest them. Links through to other works by the same author, same subject or same series are standard features of a web catalogue. The user can click on a heading and be taken to all items using that heading. Probably what is needed is a

“more like this” button instead of a simple blue line to make this link useful to the current generation.

Good authority control is the basis of relevant retrieval. It should mean for every author his/her heading, and for every heading only the right books. This is one of the fundamental differences between a library catalogue and the web.

Having understood and valued this fundamental need for good name and title authority control, the report from the University of California’s Bibliographic Services Task Force (BSTF) in December 2005 recommended that the University of California should “consider using controlled vocabularies only for name, uniform title, date, and place, and abandoning the use of controlled vocabularies [LCSH, MESH, etc] for topical subjects in bibliographic records”.⁴ As Karen Schneider noted, despite its Library 2.0 outlook, the NCSU Library catalogue still relies on LCSH as the structure for the topic browse⁵, as indeed do all of the Library 2.0 catalogues we have viewed.

The BSTF suggests that in addition to staff-created resource descriptions, metadata can be obtained from vendors and publishers, derived automatically from data, or contributed by users.⁶ Obtaining LCSH information from vendors and publishers is valid and there is no reason to doubt that they employ excellent cataloguers, even if those cataloguers are cataloguing for the wide world rather than a specific community. Automatic data or that contributed by the user is very useful for up to date keyword searching, but without some controlled vocabulary, relevance is as likely to be a problem in the catalogue as it is on the web. We may all consider that the language used in thesauri such as LCSH is not the natural language that a user might think of, despite best efforts. However, the purpose of gathering material under a single term instead of dispersing it to many terms serves the purpose intended. Once at the heading, as long as a heading exists for the concept, the material is likely to be far more relevant than that retrieved by free text. This relies on the sound judgment and training of the cataloguer.

The advantage of authority-controlled and carefully-selected headings, side by side with keyword access is a feature of the web catalogue that we should promote heavily. The age old argument about relevance and retrieval is increasingly more important in the online world, where too much information is at the users’ fingertips, and the most relevant information is what is most often required. The advantage of point and click in library catalogues means that users can go quickly from a few items to “more like this” with ease.

The assiduous cataloguer provides much more. Some library managers overlook the complex network of headings and notes that are included in the best catalogue records. Very often rich information about relationships between works is added that can help users navigate in a sophisticated way to find what in the Google world might be a “needle in a haystack”, swamped by many loosely related items on the basis of their popularity. If these specific relationships can be presented as succinctly-labelled clickable links in the catalogue the user is likely to take advantage of this information.

At the University of Adelaide Library we have put much effort into making many links available, initially from necessity, due to what seems to be a historical and

unusual predilection for putting items in series together on the shelf. However, the mechanism that grew from the need to link analytic and parent titles in the online catalogue environment was quickly seized for use for a variety of purposes. What follows are some examples of different relationship information and the MARC tags that have been used in the University of Adelaide Library catalogue to make these links.

Table 1.

Tag		Tag	Relationship
09x	→	909	child to parent
909	→	09x	parent to child
*022a	→	780x	preceding title to succeeding title
*035a	→	780w	
*785w	→	022a	succeeding title to preceding title
*785w	→	035a	
024	→	088	electronic child to electronic parent
088	→	024	electronic parent to electronic child
035	→	776	issued in other form (i.e. print to electronic)
776	→	022	issued in other form (i.e. electronic to print)
776	→	035	as above, but works better than 776 to 022
762	→	022	parent to sub series
762	→	035	parent to sub series (where there is no 022)
772	→	035	e-titles in service (parent to child)
035	→	772	e-titles in service (child to parent)
*Pre-set in Voyager			

To be useful to the user these relationships have to be explained, they have to be labelled descriptively, but succinctly, just as subject headings or authors are labelled. This is no mean challenge, and there is always room for improvement. Judiciously presented, however, these can enrich the user's experience and increase the value placed on the catalogue as a trusted source of valuable information.

The feature that has enabled many of these links at the University of Adelaide Library was designed as part of our contract with Endeavor to support analytical linking. Called "Bib-Linking" it has proven to be very adaptable and can be used to link the user directly to many bibliographic records related in different ways. The first Bib-Link that we provided was an analytic link, from an analysed title within a journal to its parent journal title and the reverse.

Analytical linking

The Library has historically purchased many monographs and similar publications as "standing order" or "subscription" sets. In addition to monographs this included much grey literature such as technical and working paper series. This was an acquisition and cataloguing efficiency dating back to the early part of the twentieth century. Intrinsic

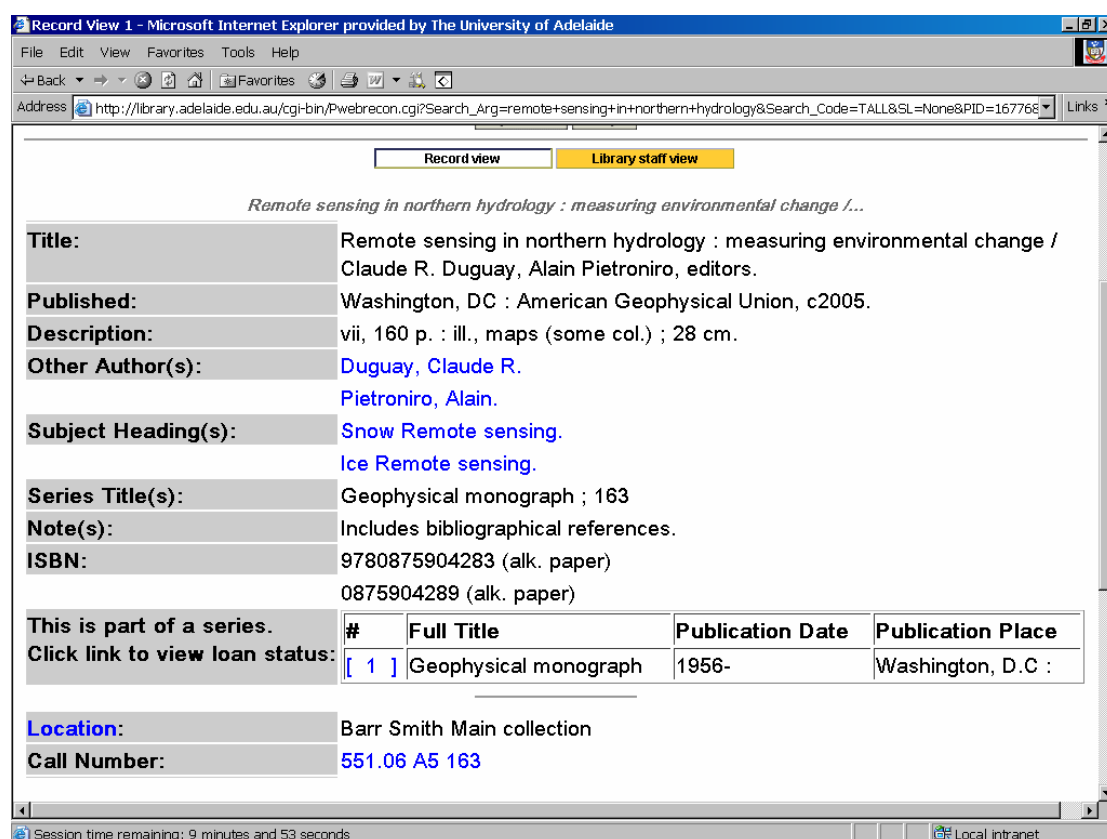
to the decision to purchase and shelve these titles together is the obligation to ensure that users could find each volume as an individual title. There was also the practical need to identify each separate title to prevent duplication of purchases when some publishers reproduced items as books that had previously been published as a collection of articles in their journals. For these reasons providing “in analytics” has long been an accepted norm at University of Adelaide Library. The practice was so endemic that at one point of time in the early 1990s we catalogued as many new analytic titles as separate monographs in a year.

Analytic relationships were simple to deal with in card catalogues - the user looked up the author or subject, the call number was identified and they went to the shelf to find it or to the loans desk if it was not there. The online catalogue tells the user if the item is on loan so that they don't need to take this first step. This presents a problem that is poorly dealt with in most integrated library systems. It is possible to have several independent bibliographic personae for an item, for example under the parent set or journal record, as well as under the child or analytic record. All the bibliographic records for that item need to be linked to the record for that item that holds the loan or other status. Most library systems assume a one to one relationship, or indeed a single bibliographic record to several items, not the reverse. Endeavor offered links from several bibliographic records directly to a single item record, and this is one of the reasons that we chose that system. However, they did not provide links directly from an analytical bibliographic record to an item that is one of many attached to a large set. They made up for this by developing the Bib-Linking mechanism and undertaking a major massage of our data to link all of our analytic titles through the parent bibliographic record to the items attached. This was not quite the solution we sought, but has proved extremely valuable, and is very flexible.

In order to link “in analytics” to their “parents” a standard structure must be identified that will allow reliable manipulation by a program. The program provides links between pairs of records based on matching data in different tags. As series statements are notoriously unreliable, and in some cases University of Adelaide Library standing orders constitute what in cataloguing terms are “made up” sets, we chose our unique call number stems to provide the links behind the scenes. Nearly 300,000 analytic records were linked by the diligent efforts of the Endeavor Development Team working closely with us to identify and parse call numbers into stems and “pieces”. The call number (DDC and Cutter) on the parent record was transposed to a new local parent call number field. Each analytic child was defined as having the same stem, with the volume or part number or date making up the piece. Care was taken to avoid revised editions that also used dates. We ensured that they matched a bibliographic record without a date which had to be a serial record. The analytic call number was then parsed to place the volume/issue/date information in a separate subfield in the traditional local call number field. The resulting records are then linked by matching a parent call number in the new local MARC tag (909) with the data in the first subfield of the local call number (090 #a)

Using a label as an instruction, the user is invited to click from the individual title to the parent to see the loan status. See Figure 1.

Figure. 1.



When at the parent record, the user can, with one click, see all individual titles held in that set. Behind the scenes in the cataloguing client the cataloguer can use a drop down menu to travel to related works by any specific type of relationship that applies to the record in hand.

To assist the continual creation of analytic records with standard reliable links Endeavor provided “derived templates” which enable data from one MARC tag to be automatically added to another MARC tag in addition to the regular information that might be included in a template. For a standard “in analytic” a template when invoked with the parent record open in the cataloguing client will take the call number from parent 909 and add it to the analytic 090 #a, and provide a subfield “v” in which to add the volume. This template allows data to be transposed from several other fields in the parent to the analytic child. For example the 245 to the 440 provides a record with the correct series statement for many, or another template might take data from a 130 into an 830 tag. We have made use of this derived template in other situations. This approach requires much less data to be stripped than if cloning another record for a title in the same series, so provides efficiency as well as accuracy.

Discussion on a variety of email lists over many years indicates that some special libraries, such as music libraries, make heavy use of analytics, and it is from this sector that most empathetic and helpful comments have come. Even if Bib-Linking is not required, they would likely benefit from the derived template structure that we enjoy.

Earlier and later journal titles

The next relationship that we tackled with Bib-Linking was to link earlier and later journal titles. See Figure 2. This feature is set up as a standard feature in the Voyager administration module, linking ISSN or systems numbers from subfields x or w in the 780 to the 022 or 035 tag in the earlier title. The same happens with the 785 tag in reverse. Many good catalogue records come with this data supplied, so these links are created automatically as the records are imported. Care is still required by the journals cataloguer, as publishers sometimes use the same ISSN regardless of change of title or format such as electronic and print. These cases require the untangling of links by removing the ISSN from the 780 or 785 and reliance on data in subfield w. Where necessary the content of subfield w can be a suitably identified local system RID. Links only show where both records are present. Where a match is not found the earlier or later title just displays as a note, so as not to mislead the user regarding titles held.

Figure 2.

The American review of respiratory disease.

Title: The American review of respiratory disease.

Published: [New York] : American Lung Association, 1959-1993.

Description: 68 v. : ill. (part col.), diags., ports. ; 26-28 cm.

Other Author(s): [American Lung Association.](#)
[American Thoracic Society.](#)
[National Tuberculosis and Respiratory Disease Association.](#)

Subject Heading(s): [American Trudeau Society Periodicals.](#)
[American Thoracic Society Periodicals.](#)
[Tuberculosis Periodicals.](#)
[Respiratory organs Diseases Periodicals.](#)

ISSN: 0003-0805

Earlier title: American review of tuberculosis and pulmonary diseases

Later title: American journal of respiratory and critical care medicine

Link to earlier title(s):

#	Full Title	Publication Date
[1]	American review of tuberculosis and pulmonary diseases.	1955-1959.

Link to later title(s):

#	Full Title	Publication Date
[1]	American journal of respiratory and critical care medicine [electronic resource].	
[2]	American journal of respiratory and critical care medicine.	c1994-

Titles in this series: [Click for titles in this series](#)

Session time remaining: 9 minutes and 41 seconds

Electronic titles

This same mechanism can also be used to link items in different formats catalogued on separate records, such as print and electronic titles. At first we weren't sure that this would be a useful feature, as many items in different formats use the same title and are found in the same search. We found anecdotally that these links seem to be helpful reminders to the users and become valuable where the title differs between formats. A more useful function for Bib-Linking was the creation of links for the individual titles in our electronic datasets to the parent dataset, which enable staff to quickly identify how many and with which titles they are dealing. It also gives the user a quick idea of what titles are included in which full text database, before they go to use it. This is not always an easy thing to find once there, depending on the service. It also enables us to dispense with the standard use of a series statement which would make it difficult to find the parent record that gives access to the search engine. This is because the entry of the database name in a title search would bring up all the individual titles that comprise the set. We requested Serials Solutions to add the name of the dataset to an unindexed MARC tag 027 instead of a series tag. The parent record includes this dataset name in an 035 tag.

Electronic chapters and articles

Using the facility in the cataloguing client of a derived template enables us to shift data from author, title, ISSN and date of publication data in parent records to the 773 field in analytic children. This bonus feature, rather than the Bib-Linking, has assisted us with timely provision of record creation of digital teaching material. This enables us to provide much of the metadata required for Copyright Agency Limited (CAL) audits, and hence, 'least effort' record creation for electronic chapters and articles for online teaching.

Streamed music

Universities can now legally provide access to online music materials via password-protected records for course materials. A recent agreement through the Australian Vice-Chancellors' Committee (AVCC) has resulted in the purchase of a music licence, significantly expanding the range of commercial recordings available for copying for teaching purposes. Using the same model we can provide 'least effort' records for individual tracks required for the music students' repertoire with links to the recordings on a streaming server. Similarly this basic bibliographic information may be provided to enable direct access to individual tracks on online websites or other broadcast material. The use of these derived templates facilitates the provision of quality records with quite complex controlled music headings. In addition, the system allows for the material to be readily monitored in terms of the agreement, whilst providing a level of support for teaching and learning that greatly exceeds the staffing limitations and equipment available in a small branch library.

“Hotlinks”

It is commonplace to find web-enabled links to remote resources in most catalogues where libraries currently purchase those items. Services such as those offered by

Serials Solutions and other companies make it easier to keep this information up to date.

However, MARC supports the provision of URLs in a variety of fields, including notes, which has enabled us to link to the full text of many other related digital resources or documents in a more sophisticated and meaningful way. These can be resources created externally on remote servers, or they can be documents scanned and linked either publicly or behind the scenes by us to serve a particular information need.

We have also made extensive use of other links with a mechanism available with most web catalogues, which is “hot linking” using a URL. We initially used standard URLs in the 856 tag, but increasingly in other more appropriate MARC tags that enable us to present these links to the user differently, since our software vendor extended such linking to subfield “u” in other MARC tags.

Some of the tags that support a URL are⁷ :

- 505 (Formatted Contents Note)
- 508 (Creation/Production Credits Note)
- 511 (Participant or Performer Note)
- 514 (Data Quality Note)
- 520 (Summary, Etc.)
- 530 (Additional Physical Form Available Note)
- 538 (System Details Note)
- 545 (Biographical or Historical data)
- 552 (Entity and attribute information note)
- 555 (Cumulative Index/Finding Aids Note)
- 583 (Action Note)
- 670 (Source Data Found) *in the MARC 21 Format for Authority Data*
- 678 (Biographical or Historical data) *in the MARC 21 Format for Authority Data*
- 852 (Location) *proposed*

It is necessary that the catalogue software supports links in these fields. Linking from subfield “u” in many different tags make it possible to label them appropriately and also enable the placement of such links in different places in the record which can improve the display. A link to a subsidiary resource such as an index surely shouldn’t have the prominence of the link to the full text of an electronic item. Some of the few we have used are:

- Online contents and summaries in 520
- Licence agreements and copyright permissions are scanned and linked to an 856 used in holdings
- Annual or cumulative indexes in 555
- Finding aids in 555
- Visual map indexes in 856 holdings tag.

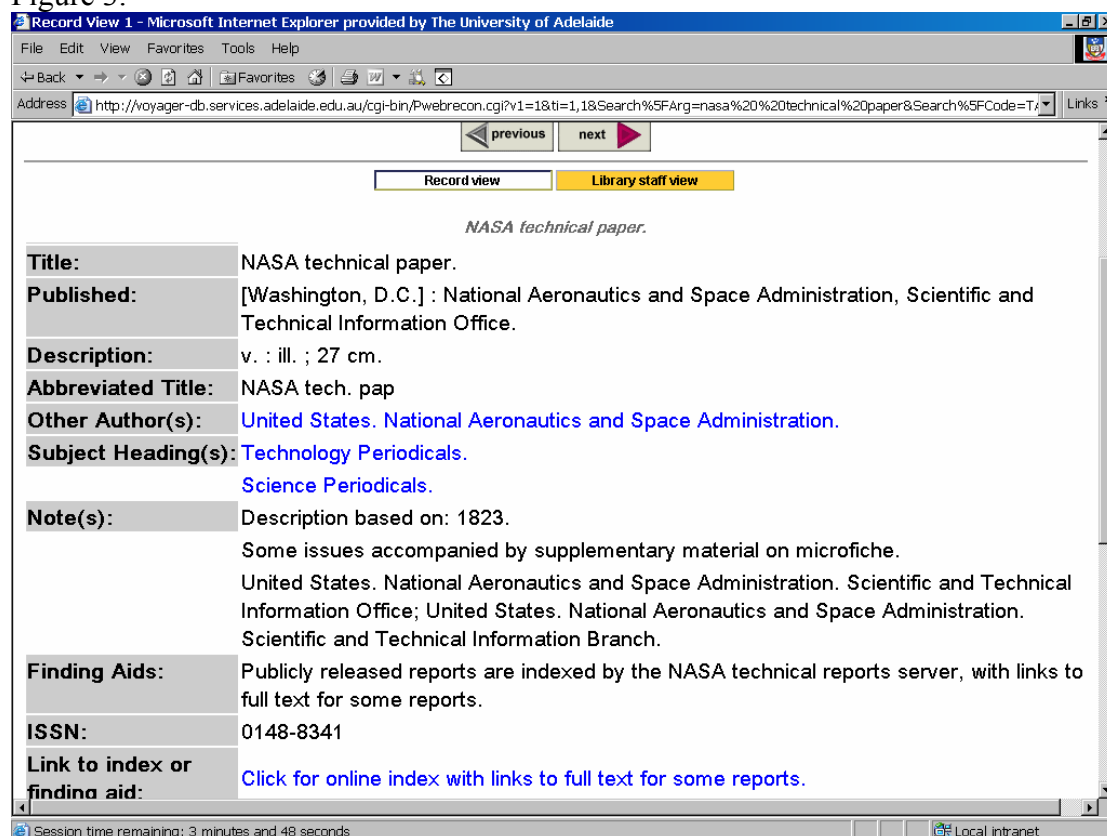
In 2003 we scanned the title page, contents and summary/abstract for all theses held before we sent them to the Library off-campus store. This has led to an increase in the

use of these as users have a far greater awareness in the online catalogue of the relevance of these titles. These scans were initially linked through an 856 tag, but use of this tag meant that access is presented at the top of the record and implies access to full text as it is used in the same way for electronic journals. Confusion then increased in our catalogue when catalogue records were created for theses deposited in full text through the Australian Digital Thesis Project with a link at the top of the record. Moving the links for these summaries further down the record has helped clarity both in position and in the different descriptive label that has ensured that what is available is clear.

Some licence agreements and copyright statements have been scanned and added to a library server for many of the digital teaching objects that we catalogue. Often links to these statements are added to non-public notes, but where users need to be reminded of specific conditions of use or the Library feels the need to make clear the reason for scanning more of a copyright item than is usually permitted, links are added to 856 holdings tags.

Online indexes for individual print journals provide better information before the user gets to the item. It makes sense to link it with the catalogue record that the user needs to access to get location information, and helps the user to ensure that they seek the correct volume, especially before making a request for an item quite possibly in closed access. This principle has enabled the Library to persuade researchers that some little-used older sets could be relegated to the Library remote store after providing highly visible links to online databases that index them. This was most useful with National Aeronautics and Space Administration (NASA) publications. See Figure 3.

Figure 3.



This type of link is also an alternative to providing analytical cataloguing that cannot be overlooked. Access to well-structured third party services have always been part of the decision to analyse or not, and has been one of the main reasons why we have been able to decrease the number of analytics we provide in the catalogue in recent years.

The Library's Special Collections unit has provided many online finding aids to manuscript collections. It seems sensible to link these also to the catalogue record for the collection. As collections are digitised, the link takes on a second purpose, and two links should be provided. However, ensuring that both are noticed is an issue that takes some thought.

The University of Adelaide Geography Department Map Library provided visual indexes to aid identification of the required map from large map series. The now-retired Map Librarian, Max Foale, was firmly of the view that location was impossible to describe well in words. As the Map Library ran out of space the University Library was approached to take the maps. It agreed, however there was no facility or room in the main library, so they were relegated to the off campus store. The obvious course of action was to scan the visual map indexes and link them to the catalogue records. These now provide an easy way to identify exactly what is available and enables just the required map to be physically retrieved. For clarity, the link to these also is placed in a position subordinate to the description of the map itself.

Conclusion

The University of Adelaide Library has used the Bib-Linking functionality from Endeavor to provide a variety of links in as clear and obvious way as possible to give users options that were previously impossible. Users also benefit from the links provided by cataloguers who have independently judged the value of material that passes through their hands. Although some relationships may be reliably predicted, it takes quite complex computer software to identify that an online index is useful to link with a print serial, as it would need to include in a standard place a link to the print title, then scan the life note or holdings to ensure that it covers the years required. Many links cannot be reliably predicted by computer manipulation, but once constructed within a catalogue record they can be supported by software systems.

What then for the future? When constructing new interfaces for the net generation our catalogues will be best served if those designing such interfaces take the time to understand the value and richness of the information provided. Those who build links using catalogue headings need to understand the value of the authority control behind the choice and form of the heading. In the future authority cross references should be added to keyword data if the users are to have all the information available to assist their preliminary searches. At present this doesn't seem to fit with the architecture provided by Integrated ILMs vendors, just as direct links from any number of bibliographic records to item records do not. As library professionals we should aim to ensure future catalogue software will support the interconnections that we have carefully made. Most of what we cannot do at present is due to limitations of software, not our imagination.

We also need to define what we expect of our future catalogues, and ensure that the information provided from within is equally as useful to our users as any number of resources available from without. We need to demonstrate that we provide valuable information that cannot be otherwise easily found. We need to ensure that systems architects of the future seek the advice of those who make the records, which are the building blocks of the catalogue, the cataloguers.

In a world where connectivity is paramount instead of just providing links to bookshops, book reviews and the like, systems architects need to understand that the information provided from within each record is as equally useful to our users, and in many cases intellectually more significant to any number of resources available from standard outside sources. We may then have a chance to create some of the new pathways to resources about which researchers like Willard McCarty can at present only dream.

¹ Schneider, Karen *The revolution will be folksonomied* posted on ALATechSource, 16/1/2006 at: <http://www.techsource.ala.org/blog/2006/01/the-revolution-will-be-folksonomied.html> [accessed 28 August 2006]

² McCarty, Willard *Individual matrix, communal workshop and "the living condition of the human mind"* Keynote speaker, 13th Biennial VALA 2006 Conference Melbourne 8-10 February 2006, at: http://www.valaconf.org/vala2006/papers2006/98_McCarty_Final.pdf [accessed 28 August 2006]

³ McCarty *ibid*

⁴ Schneider *op cit*

⁵ Schneider *op cit*

⁶ Bibliographic Services Task Force (BSTF), *Final Report*, University of California Libraries, December 2005, at: <http://libraries.universityofcalifornia.edu/sopag/BSTF/Final.pdf> [accessed 28 August 2006]

⁷ Library of Congress *MARC 21 Standards 2005* at: <http://www.loc.gov/marc/> [accessed 28 August 2006]