

# **The Evolution of FRAR and the Future of Authority Control**

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## **Abstract**

In this article I examine the evolution of authority control, from the Paris Principles through the Functional Requirements of Authority Records (FRAR). I review current initiatives for globalization of bibliographic records with a brief overview of several projects, such as AUTHOR, LEAF, VIAF and NACO. I evaluate the future role of authority control in organizing information on the Web by examining examples of controlled and uncontrolled access to Web content, with the Getty Union List of Artist Names (ULAN) and the search engine WebBrain as examples of new movements in controlled Web environment. I examine Google, folksonomies and Wickicite in my review of examples of uncontrolled Web environments and conclude that the future will be a combination of controlled and uncontrolled environments in which traditional authority control will play a major, if changing, role.

## **Introduction**

The history of authority control is an inextricable part of the history of the catalog. Consider the evolution of the card catalog to the OPAC. The changes are conceptual and structural as well as physical. Computers with relatively unlimited storage capabilities affording opportunities for multiple access points to stored records have replaced small, static cards, filed in a limited number of arrangements. With the advent of the OPAC, the catalog went from being one-dimensional to being multi-dimensional. The emphasis on the pre-coordination of a limited number of cards predictably organized to enable finding has switched to an emphasis on post-

coordination, in which a relatively unordered mass of records can be indexed and combined in many different ways.

This tremendous change necessitated a complete revision in how the library community viewed both bibliographic and authority records. In a large part, the necessity was derived from the analysis that programming this information into automated systems required. The logical relationships within the data to be programmed had to be examined in the light of new possibilities of storage and access. This led to the formulation of the Functional Requirements for Bibliographic Records (FRBR), published by the International Association of Library Associations and Institutions (IFLA). In turn, FRBR necessitated a re-examination of the concepts of authority control which led to the publication in 2005 of the Functional Requirements of Authority Records (FRAR).

In spite of the changes, the fundamental purpose of the catalog, and the roles of bibliographic and authority records have remained consistent throughout the evolutionary process. The four functions of the catalog (identifying, collocating, evaluating and finding) remain unchanged, as does the importance of authority control (identifying and collocation) and descriptive bibliographic records (evaluating/selecting and finding) in fulfilling these functions. Indeed, authority control has an even larger part to play in today's Web environment. "The syndetic network that holds equivalent authorized records together is fundamental and has now been completely transferred from the catalog to the authority file." (Buizza, 2004, p.126).

Examining the history of authority control helps in understanding the role that authority control will play in the future. I will begin by examining an early formulation

of authority control requirements, the Paris Principles and briefly describe subsequent activities leading to the creation of FRAR. After describing how FRAR enables implementing authority control in today's multi-faceted, Web-enabled information universe, I will look at future directions in authority control.

## **The Evolution of FRAR**

A catalog is “an organized set of bibliographic records that represent the holdings of a particular collection.” (Taylor, 2004, p.6) A catalog record has three parts: an access point, a bibliographic description, and a location. The access point leads to a description, which enables the user to make a decision if it's the right item and the location takes user to the item. Authority control is concerned with the standardization of access points. (Gorman, 2004)

It is commonly stated that authority work is the most expensive part of cataloging (Tillett, 2004, p.24), although it has also been noted that the expense is not eliminated if the work is not done, since it simply shifts the workload from the cataloger to the user who still has the task of finding what he is seeking.

The functions of the catalog are philosophically unchanged from the time that Charles A. Cutter first stated them in 1904, although certain definitions need broadening to include the many modern formats of intellectual creations. These functions are to enable a person to find “any intellectual creation” of which either the author, the title or the subject is known; to show what the collection has by a given author, on a given subject in a given kind of literature, and to assist in the choice of the intellectual creation

as to edition (bibliographically) or as to its character (literary or topical) collocation and retrieval of the item sought. (Taylor, 2004).

### ***Paris Principles***

The goal of the 1961 International Conference on Cataloging Principles was to achieve international agreement on the fundamentals of author and title catalogs with a perspective of creating uniform rules to enable the future exchange of bibliographic data. The Statement of Principles (commonly referred to as the Paris Principles) described the fundamental aspects of the catalog. These aspects included the finding and collocating functions of the catalog, the structure of the catalog, the devices utilized in the catalog and the creation of some general rules for the selection of main and added entry headings. The technology of the time consisted of typewritten cards. The function of the catalog, as described in the Paris Principles, is to be “an efficient instrument for ascertaining if the library has a particular book specified by its author and title or if the author is not named, by its title, or if author and title are inappropriate or insufficient for identification, by a suitable substitute for the title and which works by a particular author and which editions of a particular work are in the library.” (Rubin, p.188)

The Paris Principles also included recommendations as to the form of headings, including establishing criteria for choosing an authorized heading. A resolution was passed that each country would be responsible for the entry of the personal names of its nationals, and for publication of lists of headings for states and other territorial authorities, uniform titles for some classics and for some national and international corporate bodies. Topics addressed by papers and working groups during the conference

included compound surnames, name variations, surnames with prefixes, bilingualism and transliteration, among others. However, as Buizza notes,

... one cannot say that, because of this, the ICCP was actually concerned with *authority control*. There was no consideration of methods of working on uniform headings, or the actual construction and management of a reference list: solutions were of interest, not the means of achieving them. Authority control was purely an operational aspect of cataloging activity; not codified or discussed – nor, often put into practice by libraries other than empirically, with vary degrees of care and accuracy. The catalog, in which non-preferred headings are inserted as references, simply presents all forms of all names in alphabetical order. (Buizza, 2004, p.120).

At the time the Paris Principles were drafted, most countries did not maintain established authority files. An exception was the Library of Congress, which had been maintaining authority cards for its own records since 1899.

## **IMCE**

In 1969, at the International Meeting of Cataloging Experts (IMCE) in Copenhagen, the emphasis was more clearly placed on the goal of international sharing of bibliographic data when they mandated the use original forms of names rather than the vernacular choices driven by local needs. This same meeting produced resolutions to establish an International Standard Bibliographic Description (ISBD) and Universal Bibliographic Control (UBC). This increased focus on the international sharing of information was due to several changes, most notably technological changes and the development of automated systems. Technological advances made the exchange of data

more efficient. The need to program the developing automated systems led to an awareness of the distinction between bibliographic and authority records, with the heading becoming an independent part of the record. The need for increased authority control became obvious. Cooperative efforts began in Germany, France and the United States, and IFLA began a study of an international authority system.

## **GARE & GARR**

In 1984, the Guidelines for authority and reference entries (GARE) were published, establishing a formal structure for authority records. “A new kind of catalog began to take shape: the *corpus* of an author’s works was no longer presented at one single point in the alphabetical sequence...instead it was shown in the contextual display of all the bibliographic records linked to one authority record...” Buizza, 2004, p.124).

Although technology was simplifying international communication and data sharing, the lack of an international standard on authority records was becoming an obvious barrier. The new version of GARE, the Guidelines for authority records and references (GARR) was published in 2001. In this version, headings that are formulated using different codes are seen as equivalent, allowing multiple authority records to exist for the same entity and ensuring that they will be located together.

## **MLAR**

In the introduction to the report of the working group on Minimal Level Authority Records and ISADN, the members state, “While this Working Group was created under the auspices of UBCIM, we have come to realize that the IFLA goal of Universal Bibliographic Control by way of requiring everyone to use the same form for headings

globally is not practical.” The Group cites the need for users to view names in forms and scripts that are familiar to them. The importance of national or rule-based differences is underlined. To facilitate international sharing, MLAR calls for each member National Bibliographic Agency (NBA) post its official authority files on IFLA’s home page within the next three years. It is hoped that some mechanism will permit the linking of related records across the files. The access would be read-only and the records in question would be limited to authority records for the names of persons, corporate bodies, conferences and uniform titles. Series, subject headings and classification authorities are not included. (IFLA/MLAR, 1996, p.1).

### ***IFLA’s 2005 Statement of Cataloging Principles***

The groundwork created by these initiatives, while creating a cooperative framework and some general guidelines, was still inadequate to create a mechanism to achieve the goal of global sharing of bibliographic information. “The path leading towards an international language mapped out in Paris seems to have reached an impasse just when the OPACs in the Web are turning every library into a world library, hence one with a potentially universal readership.” (Buizza, 2004, p.124).

IFLA’s recently drafted updated Statement of International Cataloging Principles states, “These new principles replace and broaden the Paris Principles from just textual works to all types of materials and from just the choice and form of entry to all aspects of the bibliographic and authority records used in library catalogs.” (IFLA, 2005, p.1).

IFLA notes that these new principles are based on “the great cataloging traditions of the world” (citing Cutter, Ranganathan and Lubetzky) as well as the new conceptual models of FRANAR and FRBR. It is beyond the scope of this paper to discuss the FRBR model

in detail; suffice to say that the entity-relationship model created by FRBR is extended in FRANAR.

### ***FRANAR & FRAR***

The Working Group on the Functional Requirements and Numbering of Authority Records (FRANAR) was created in 1998 by IFLA Division of Bibliographic Control and the Universal Bibliographic Control and International MARC Program in response to FRBR's recognition of "the need to extend the model...to cover authority data" (Patton, 2005, p.40). FRANAR has members from seven countries: Croatia, Finland, France, Germany, Russia, UK and US.

FRANAR was given three objectives: define the functional requirements of authority records, following on FRBR model; study the feasibility of an International Standard authority Data Number (ISADN) and serve as IFLA's liaison with other interested groups concerning authority files.

In its report issued in June of 2005, the Group stated that its liaison function has been the easiest to fulfill and remains one of the most important functions. They have worked with ISO/TC46 (in charge of International Council on Archives), Dublin Core Agents Working Group, Hong Cong Chinese Authority Name (HKCAN), <indecs> (Interoperability of Data in E-Commerce Systems) and Interparty, among others. The Group has provided input into the 2nd edition of the International Standard Archival Authority Record (ISAAR) for Corporate Bodies, Persons and Families and has had an influence on the work of the International Meeting of Experts on an International Cataloging Code.

The task of defining the ISADN has been postponed until the FRAR and the model are completed although The Group has stated that no new numbers should be created but that an already existing standard number should be utilized. Their current charter is to identify the uses and users of such a number, including what types of authority records should be numbered and how the numbers should be structured and managed. A basic question that will need to be answered is whether the number will be assigned to a heading or to a record.

In its objective to define the functional requirements of authority records, following the FRBR model, the Group developed a conceptual model which is intended to help catalogers understand current functionality of authority files, and to show how this can be improved. It is expected that this will broaden the use of authority data both internationally and beyond the library sector. The model has been posted for review and the draft will be revised to include the results of the international review of the document.

Five functions of authority records are identified: document cataloging decisions, serve as a reference tool, control forms of access points, lead to bibliographic files, and link bibliographic and authority files in an automated environment.

Two user groups and four user tasks are identified. Users are librarians and authority record creators or library patrons and the user tasks are find, identify, contextualize (to place in context; clarify relationships) and justify (to document the cataloger's reason for choosing name or form of name on which the access point is based).

The conceptual model follows on FRBR's model of entity-attribute and shares its terminology. The model establishes the bibliographic entities: person, corporate body,

work, expression, manifestation, item, concept, object, event, place and family and defines the entity attributes which are the characteristics of the entities. It shows the process whereby names and identifiers are associated with the bibliographic entities and form the basis for access points. It establishes that the form and content of the access points are governed by rules applied by agencies. (see Appendixes B and C).

The model evolved from earlier versions which had the access points shown as being registered in an authority file as an “authorized heading” or a “variant heading”. The Working Group eliminated this in subsequent versions so that the model would not be so closely tied to current implementation of authority files. This is an attempt to focus on the information carried in authority records, how that information relates to external entities and how the information supports user tasks, rather than focusing on the record or its structure.

Four categories of relationships between entities are described. There are two types of generic relationships: “known-by” names and “assigned” identifiers and “associated with”. A second category is concerned with relationships between specific instances of the entities person-family, corporate body and work (such as earlier name/later name, real name/pseudonym). A third category is relationships between entity and name (see references). The fourth category concerns relationships between specific instances of access points, embedded linking structures such as parallel language forms of the same heading.

The purpose of establishing the FRAR is to permit sharing authority data within the library sector and with other sectors that create and use authority data (such as archives, museums, rights management organizations). As Patton observes, the main

obstacle to achieving this purpose may be incompatibility: the bibliographic orientation of library authority files does not share the same focus as other groups owing to differences in perspective. For example, archives wouldn't use two names for same person whereas libraries would have separate bibliographic identities for an author such as Charles Dodgson/Lewis Carroll; rights organizations would see a work as a legal entity associated with copyright law rather than the bibliographic perspective of the library. This could potentially lead to "asymmetric relationships" between the records created by the various groups and may "argue for sharing the intellectual products of authority-related activity across domains rather than the sharing of authority data itself." (Patton, 2005, p.47). This view is furthered by the Association for Library Collections and Technical Services (ALCTS) which, in its review of FRAR, notes that while authority decisions are difficult to share, factual data about name usage on bibliographic resources would be easy to share, perhaps in the form of an "international, cooperatively maintained database". (ALA ALCTS, p. 14 of 15)

ALCTS lodges several criticisms of the FRAR model, noting that it is not intuitive or easily grasped, that some issues are not addressed at all (such as serial publications and title changes), there is no glossary, which is a problem because common terms are used in novel ways, and there are few examples to illustrate the points made in the text.

LeBoeuf calls the FRBR perspective an embodiment of librarians' "self-restrained view on bibliographic information organization" in that librarians "limit ourselves to organizing information around the notion of work (works being identified by the combination of an author name and a title) and the notion of subject". (2005, p.5) He

claims that, as a result, FRBR excludes any other possible form of organization and that it does not go beyond the first level of organization. He gives four instances in which FRBR is ineffective. In the first instance, authors of a political or legislative nature (he cites authors with multiple bibliographic identities, such as Franklin D. Roosevelt, who has listings under his name as well as under the corporate heading “United States. President (1933-1945)”). LeBoeuf suggests that a more meaningful presentation would display a list, not of the works, but of topics or statements of administrative domains, which would then be subdivided by works. He observes that unless the display is organized in a more concise manner, the information is too complex to grasp. “The way we currently deal with such information can hardly be labeled “information organization”. In such cases, we just organize chaos into slices of “micro-chaos”. (LeBoeuf, 2005, p.6)

In the second instance, LeBoeuf discusses authors whose output resists “frbrisation”, such as Emily Dickinson, who penned many very short poems and letters that have been combined into many different collections, might be better served by an initial sort into category (poems, letters, derived works) and then within category by editor’s names.

The third and fourth instances of FRBR’s ineffectuality are the ways it handles publishers and broad subjects. Describing OCLC’s FictionFinder, LeBoeuf notes that the works are subdivided into sets of manifestations that are listed in order of the number of libraries having holdings of that particular manifestation, which is not a particularly useful sort from a user perspective.

## The Future of Authority Control

With FRAR, authority control now has a viable model for handling the complexity of information available on the Web. There are currently several international projects that are attempting to create global authority records utilizing current authority control concepts. There are also efforts that are occurring at a less formal level, such as Google, folksonomies and Wikicite. There are new uses for authority records with an increase in global sharing enabled by the Web environment in which technological advances permit integrated library systems and information accessibility options for users. Challenges include differences in cataloging rules and practices and the need for interoperability in communication protocols.

Within the library community, there are differing opinions on the role of authority control in the digital library of the future. As more informal information organizations spring up, traditional means of organization are being scrutinized for effectiveness and responsiveness to user needs and a rapidly changing environment. New ways of organizing and accessing information are being developed outside the traditional library community. Broadly speaking, the factions are divided between those who favor a “controlled” Web and those who favor an “uncontrolled” Web. The controls in question are largely the bibliographic controls, including authority control, that have been developed and utilized for centuries.

### The “Controlled” Web

Tillett suggests that the role of libraries in the future is to contribute controlled vocabularies (“ontologies”) to the infrastructure of the Web with the “shared international authority file being an integral part of a future ‘Semantic Web’ ”. (2004, p.38)

Gorman calls authority control and bibliographic control “co-terminous- two sides of the same coin” and states that “at the very least, bibliographic control is literally impossible without authority control.” (Gorman, 2004, p.12). A catalog record consists of three parts, according to Gorman: an access point, a bibliographic description and a location. The access point serves two purposes, finding and co-location. It must be standardized to achieve these purposes. Gorman advocates the creation of a “global authority file in which each person, corporate body, uniform title, and subject is identified by a number (based on the ideas behind the ISBN) – that number identifying a record in which can be found the standardized form of the name or title in each linguistic and cultural context *identified as such.*” (Gorman, 2004, p.20). This would enable users in each country to view the record in a meaningful language and script while at the same time permit the international sharing of the global authority file.

LeBoeuf states that “authority control is definitely our strength. We should not abandon it no matter how “expensive” library managers may think it is. Authority control is the sine qua non for achieving the “navigation objective” that Elaine Svenonius adds to the four user tasks defined in FRBR...it may seem ... paradoxical that I am advocating at the same time authority control and folksonomies; but these two processes are complementary and contribute in two radically different ways to achieving the same objective: make the information we organise easily retrievable by end-users.” (Leboeuf, 2005, p.16).

Authority control enables precision searching and navigation, provides explanations for variations and inconsistencies and helps to collocate works. (Tillett, 2004, p.24)

The possibilities for tailoring individuals' search and display systems afforded by technological developments points out the paradigm change that has occurred over the last 40 years of authority control: the entity is not the same as its representation. As Buizza put it, "This takes to the extreme the distinction between the entity and its nominal representation, which is interchangeable and temporary, like clothing put on by an individual, who remains the same person upon taking it off again." (Buizza, 2004, p.127). Buizza proposes a change in terminology, from authority control to access point control, which emphasizes the shift in the orientation of the catalog to the user interface.

There is still the need to trace an identity between different names and forms of names, to distinguish different entities with the same name, to record variations and to consistently identify uniform or authorized headings for single entry displays

LeBoeuf attempts to clarify the conflicting "Web attitudes" held within the library community. One side favors a "let go" attitude, which LeBoeuf claims is not in fact warranted. "Unfortunately, however, some library managers seem to interpret the "Web paradigm" as instructing us to spend (ie. in their opinion, waste) less time on authority work. This may be too, why Dublin Core is sometimes hailed as a valid simplified alternative to full cataloging". On the other side, there are the proponents of a more ordered approach who note that the lack of controlled vocabularies in folksonomies lead to the problems of synonyms and ambiguity.

LeBoeuf mentions ontologies that may lead to graphic OPACs, citing as an example a search engine known as the WebBrain which presents a map of the term, with various related terms (parent, sibling, related, subcategories) all represented graphically in a quick and intuitive interface.

**Figure 1: WebBrain – A New Way to Organize Search Results**


## The Getty ULAN

The Getty Museum presents an example of a successful catalog that incorporates much of the essence of the new FRBR/FRAR models in its Union List of Artist Names (ULAN). According to the Getty website, the ULAN is a “structured vocabulary containing more than 225,000 names and biographical and bibliographic information about artists and architects, including a wealth of variant names, pseudonyms, and language variants.” (Getty) The ULAN gives all variants of listed names with the following categories: "display" following the name indicates that the name should be used in displays where natural order is preferred, "index" means that this form should be


used in indexes and other lists where inverted order is appropriate. In ULAN, the Preferred Name is generally also the "Index" name. A "V" after the name indicates if the name is in the vernacular (local) language or some other language. Currently in the ULAN, most names are flagged "V".

**Figure 1: An Example of a ULAN Entry**

The screenshot shows a web browser window displaying the ULAN entry for Vincent van Gogh. The browser's address bar shows the URL: [http://www.getty.edu/research/conducting\\_research/ulan/ulan\\_full\\_record\\_display.asp?name=Gogh%2C%20Vincent%20van](http://www.getty.edu/research/conducting_research/ulan/ulan_full_record_display.asp?name=Gogh%2C%20Vincent%20van). The page title is "Union List of Artist Names® Online Full Record Display". The main content area displays the following information:

Click the  icon to view the hierarchy.

**ID:** 500115588 **Record Type:** Person

 **Gogh, Vincent van** (Dutch painter and draftsman, 1853-1890)

**Note:** Except for some brief periods of formal instruction, van Gogh was self-taught; he collected prints and reproductions to study and copy, especially those of Millet. His life and work are legendary in the history of art, making him the quintessential misunderstood, tormented, even insane artist, who sold only one work in his lifetime but whose paintings achieved record auction sales prices after his death. Van Gogh was active as an artist for only ten years, during which time he produced around 1000 watercolors, drawings and sketches and nearly 1250 paintings. His styles included an early dark, Realist style and a later colorful, intense, expressionistic style. Almost more than on his oeuvre, his fame has been based on the extensive, diary-like correspondence he maintained, in particular with his brother, Theo.

**Names:**

- Gogh, Vincent van (preferred, index, V)
- Vincent van Gogh (display, V)
- Gogh, Vincent Willem van (V)
- van Gogh, Vincent (V)

**Nationalities:**

- Dutch (preferred)
- Netherlandish

**Roles:**

- artist (preferred)
- draftsman
- painter
- printmaker

**Gender:** male

**Birth and Death Places:**

- Born: Zundert (North Brabant, Netherlands)
- Died: Auvers-sur-Oise (Val-d'Oise, Ile-de-France, France)

## Globalization Efforts

Several projects are exploring ways to achieve the objective of global sharing of authority information, among them AUTHOR, LEAF, NACO and VIAF.

***AUTHOR***

The AUTHOR Project, sponsored by the European Union, took authority records from seven participating EU countries and converted them to the same communication format, in this case UNIMARC.

***LEAF***

Linking and Exploring Authority Files (LEAF) is developing a model architecture for “collecting, harvesting, linking of, and providing access to existing local or national name authority data...when a user searches for a name string, LEAF will search the records of all LEAF Data Providers and combine these records to one single LEAF authority record.” (Weber, 2004, p.227). The search results will be stored in a central file which will thus contain records for which searches have been made, lending relevance to the collection.

***VIAF***

In 2002 the Library of Congress along with the German National Library (Die Deutsche Bibliothek) and OCLC began working to create a model Virtual International Authority File (VIAF). This model is intended to test the concept of a centralized union authority file utilizing Open Archive Initiative (OAI) protocols. The first phase of the project involved the automatic linkage of LC’s Name Authority Files (LCNAF) with the German Personal Name Authority File (PND) using matching algorithms and software developed by OCLC. The second phase will establish servers for the harvested metadata. Catalogers would have access to search for existing records from these servers. Issues concerning ongoing maintenance and end-user display options will form the last parts of the study. (Kaiser, Lieder, Majcen and Vallant, 2003)

## ***NACO***

A current experiment in shared name authority databases is the Library of Congress project The Name Authority Cooperative (NACO) which was founded in 1976, and now has membership of about 395 institutions and a database containing more than two million authority records in addition to the more than three million records created by the Library of Congress. Byrum attributes the growth of NACO to the “gradual recognition that the utility of the catalog – any catalog- depends on uniform and unique headings as access points to bibliographic data, and that the national library by itself could not provide controlled headings for all materials of interest to the library community as a whole”. (Byrum, 2004, p.238)

## **The “Uncontrolled” Web**

### **Google**

Perhaps the most ubiquitous example of the uncontrolled Web is Google which utilizes a mathematical algorithm known as “PageRank” to match user entered search terms with search results. This is key word searching, not based on any authority control of the terms nor on any indexing of terms, per se, but rather an indexing of results, sorted in order of popularity. (Arnold, 2005).

Bell (2005) quotes Judy Luther, president of Informed Strategies, saying, “The beauty of Google’s simplicity is that it doesn’t require users to be familiar with any tools, techniques or resources to conduct a search.”

### **Folksonomies**

Another good example of this conflict is seen in the comparison of “folksonomies” with more traditional controlled vocabulary environments. A folksonomy is a “user-generated classification, emerging through bottom-up consensus. A fusion of the words folks and taxonomy...the term was coined ...to mean the wide-spreading practice of collaborative categorization using freely chosen keywords by a group of people cooperating spontaneously.” (Quintarelli, 2005, p.4). Users are required to associate keywords with content they post; the reward for using popular keywords is the increased visibility of one’s content. Quintarelli compares folksonomies with the more traditional approach of using formal taxonomy:

Taxonomies, facets and folksonomies have **different potential areas of application**: Taxonomies are suitable for classifying corpora of homogeneous, stable, restricted entities with a central authority and expert or trained users, but are also expensive to build and maintain. Faceted systems (a sort of polyhierarchy) are useful with a wide range of users with different mental models and vocabularies. They are also more scalable because new items (for users) and new concepts (for catalogs) can be added with a limited impact and with no need to start a new classification from scratch. Folksonomies require people to do the work by themselves for personal or social reasons. They are flat and ambiguous and cannot support a targeted search approach. However, they are also inexpensive, scalable and near to the language and mental model of users. (2005, p. 9/12)

Folksonomies are very user oriented and responsive to the needs and vocabularies of the users. On the other hand, they are chaotic, imprecise and uncontrolled. They represent a trend away from authority control. Quintarelli argues that “controlled vocabularies are not practically and economically extensible to the majority of cases where tagging (i.e. a folksonomy) could be used. Building, maintaining and enforcing a

sound controlled vocabulary is often simply too expensive in terms of development time and of the very steep learning curve needed by the user of the system to learn the classification scheme. He does not advocate abandoning traditional hierarchies for tagging but rather proposes that tagging will lead to new ways of thinking about classifying and organizing information.

Quintarelli concludes, “The goal is a **metadata ecology**, where the best tools we have bend towards a real user-centred design.” (Quintarelli, 2005, p. 9/12)

## **Wikicite**

According to the Wikimedia website, the goal of the Wikimedia foundation is to develop and maintain open content, wiki-based projects and to provide the full contents of those projects to the public free of charge. The Wikimedia Foundation Inc. is a non-profit corporation based in Saint Petersburg, Florida, USA, and organized under the laws of Florida. Its existence was officially announced by Wikia CEO and Wikipedia founder Jimmy Wales on June 20, 2003.

MediaWiki is a Wiki software package licensed under the GNU General Public License, and is written in PHP utilizing a MySQL relational database management system. It was written primarily for Wikipedia and other Wikimedia Foundation projects, but is also used by many other wikis, which have become quite popular due to the extremely intuitive interface which allows inexperienced users to create Web pages easily.

MediaWiki interfaces with other programs to improve performance and capabilities.

Wikipedia has proposed a “Wikicite” which would be an online card catalog with an entry for each book and article with a citation, a summary and annotations, with links added to other works such as later versions, and links from bibliographies to other sources. The catalog would grow with contributions from users and would be user regulated, as is the Wikipedia, the Wiki version of an encyclopedia.

## **Conclusion**

With the advent of FRBR and FRAR, the library community has made a successful shift from the two-dimensional card catalog paradigm to the multi-faceted complex information environment of the Web. Work remains to realize a global authority control mechanism as well as to integrate library tools in the rapidly changing social and technical sphere of the Web. As the volume of information increases, authority control, both in names and in subjects, will become increasingly important in information search and retrieval.

Additional work remains in the area of subject authority control. In his article, LeBoeuf quotes Svenonius as saying, “The incidence of subject searches has risen dramatically – so much so that the increased importance of organizing information by subject has been heralded as a paradigmatic change... organizing information if it means nothing else means bringing all the same information together” (LeBoeuf, 2005, p.5)

It is perhaps too soon to know exactly what authority control will look like in the next decade. With the enormous increase in the “social” aspects of the Web (such as blogs, Wikis, podcasts and social networking sites), a correspondingly social, organic form of control seems to be developing. But for the increasing volume of more formal

content, the traditional methods of organization still seem to be required. I suspect that a blend of the two forms will eventually evolve to serve the retrieval needs of the constituent users. In the evolution of authority control, FRAR too will evolve to encompass the changing information environment of the 21<sup>st</sup> century.

## **Appendix A: Timeline**

## **Appendix B: Entity Names & Identifiers**

## **Appendix C: Access Points**

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