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Call me by your name: towards an authority data control shared between archives and libraries

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ABSTRACT

An important and not often addressed topic – considering the issues opened by cross-disciplinary projects – is the shared control of authority records, or better authority metadata, extended to other documentary and cultural heritage sciences. This paper will examine the potential opened by multi-dimensional and networked logics in the representation of entities in the form of data towards which the document communities are converging. This approach is even more valid if we consider the users' point of view, presently forced to jump from one information environment to another, and confront different names, forms and attributes for the same entities. The core entities to work on are persons, corporate bodies, places, chronological contexts, events, qualifying their relationships. After a brief resume of archival description's peculiarity, the paper highlights the updated standards available, mostly IFLA-LRM and RiC, precious documents to start from and stimulate an active collaboration. To facilitate the sharing, control, and enrichment of authority data in the form of RDF assertions, librarians and archivists may follow several pathways: matching the existing conceptual models, converging on a shared data playground like Wikidata, and developing foundational meta-ontology.

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Introduction: convergences between archives and libraries

In the digital era we live in, and after centuries of applying the profession in archives and libraries, documentary disciplines share some fundamental lines. For example, for preserving paper documents and records, quality and digital resources management, digital preservation, administrative metadata. However, there are traditionally few convergences about principles, methods, and informational approaches. The description seems to be the crucial activity that keeps the two professions furthest away, especially in Europe and mainly in Italy. Whether some bridges were more comfortable to be built, the informational approaches are commonly distinct because of the objects' nature, the separated communities and projects, and the awkwardness in converging towards shared goals. Nevertheless, this paper argues that it is impossible to postpone the goal of a shared, integrated control of authority data, extending the most up-to-date approaches to all the areas of documentary and cultural heritage disciplines. This paper focuses on the potentials of collaboration opened by the multi-dimensional and networked logic in representing information entities towards which the documentation communities are converging. Moving from the presentation of archival description peculiarity, matched with the recent evolutions for bibliographic catalogues, this paper will try to shape the future possibilities to activate the development and control of shared authority datasets.

Archival description and authority control

Traditionally, archival description produces closed information pieces, inventories, or finding aids, representing individual archival fonds, informing about their provenance and internal logical partitions (Duranti 1992). The descriptive standards released by the ICA-International Council of Archives from the 90s to 2008 formalized this approach at the international level. The sage, secular principle of *respect des fonds* provides that every fond has to be managed and described separately, as a particular case due to its creator's unique activity. Moreover, the multilevel description rules state that each level of description has to give «information for the parts being described», and archivists should «present the resulting descriptions in a hierarchical part-to-whole relationship proceeding from the broadest (fonds) to the more specific» (ICA 2000, 12). The context prevails over the content, and rarely inventories reach the item level, offering data about records. This model has necessarily held back any connection among descriptions, isolating every pair creator/fond as a unique informational resource. These standard-compliant descriptions are produced mostly adopting relational databases and made accessible through a textual search on descriptive fields. Consequently, the archival description has not easily followed the World Wide Web's evolutions, markedly in the new century, whether the archival information entities are shaped as definitive records with closed hierarchical relations and hardly could keep the form of graphs, neither hypertextual, nor semantic-based.

Regarding the authority records, the archival access points according to the ICA descriptive standards are referred just to archives' creators (corporate bodies, persons or families). They have to be «based upon the elements of description» and their informational value «is enhanced through authority control» (ICA 2000, 9). The ISAAR(CPF) rules guide archivists in editing authority records, even establishing relations between them, under some defined categories:

hierarchical, temporal, associative, family (ICA 2003, 21-22). We had to underline that those standards' combined effect led to the loss of the access points included in the traditional archival finding aids: personal or corporate bodies' names, places, subjects (*notable things*). Indeed, some crucial elements like names, dates, events, and places were conceived just as attributes of the units of description.
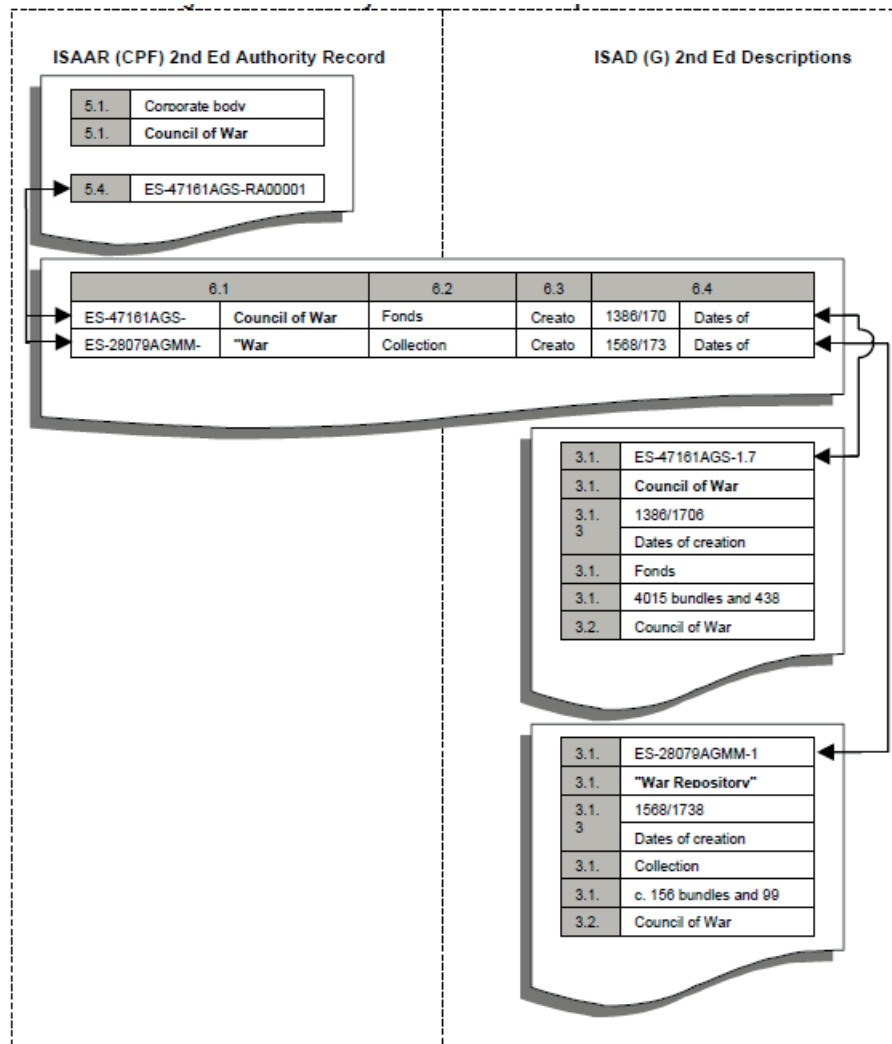

Fig. 1. Representation of how archival authority records can be linked with descriptions of archival materials (ICA 2003, 29)

Furthermore, names (i.e., units of description' titles) have to be extracted from archival files and other sources related to creators' internal organization, with the indication of limiting their normalization as much as possible. To explain better this traditional practice: suppose that the original name of an archival series is "Biccherne" (the magistrate or chancellery of finance from the 13th to the 14th century for Siena, Italy). Archivists are asked to describe this entity under "a formal title or a concise supplied title in accordance with the rules of multilevel description and national conventions." (ICA 2000, 14). This practice underlies two kinds of problems:

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1. interoperability and Autority Control: every description can only be checked by those who produce it, in possession of the bibliographical reference and especially of the wisdom arising from the heuristic study of the fond. It is almost impossible to build distributed authority control features, and the centralized control is allowed to verify the respect of formal rules;

2. users' friendiness: users may not know the fond or series's original name but are forced to query a database adopting Google-like behaviours. The adoption of relational databases caused the prevalence of searching vs. browsing services, and not-expert users may be deluded or lost while performing their research, as some studies clearly demonstrated (Duff, Stoyanova, 1998; Yakel, 2003; Chapman, 2010).

Nevertheless, recently some Linked Open Data data extraction experiments from archival DBs based on ICA standards were provided. Unfortunately, the assertions produced are not easy to be integrated into the Semantic Web *info-verse* because the ontologies adopted are local, representing specific data models, and could not be standardized in the absence of a shared Conceptual Model.

Archives in the *info-verse*: Records in Contexts

The new ICA standard RiC – *Records in Contexts,* defined by the EGAD – Experts Group on Archival Description from 2012 to 2016 turned upside-down the hierarchic and mono-dimensional logics of ISAD(G) and ISAAR(CPF). Proposing a multi-dimensional description, RiC Conceptual Model aims to be the reference for producing graphs of linked information entities instead of hierarchic or bare database rows connections. The 0.1 draft version of the Conceptual Model was published in August 2016 (ICA 2016) and questioned deeply by the international community (Bunn 2016; Duranti 2016; ANAI-ICAR 2017; SAA 2018). The recommendations covered several aspects: the "western" composition of EGAD, and the request to open RiC to existing ontologies like IFLA LRM (Riva et al. 2017), CIDOC-CRM (CIDOC CRM 2021), PREMIS (LoC 2018), and PROV-O (W3C 2013).

The draft version of RiC-CM was then updated in December 2019, publishing another draft version, the RiC-CM 0.2 (ICA 2019a), on which the RiC Ontology 0.1 (ICA 2019b), developed by the EGAD RiC-O team,[1] was based. Recently, in February 2021, the RiC-0 0.2 was released, compliant with the latest version of RiC-CM, 0.2, released in July 2021, and slightly different from RiC-CM 0.2 preview[2]. Again, a draft version explicitly to be corrected and enriched, in the perspective of the release of RiC-O 1.0. First of all, it "does not include the Conceptual Model Introduction, diagrams, or appendices". Moreover, it has to be quoted the absence of any explicit reference to the acceptance of the community's observations to the 2016 consultation draft and to the methodology adopted in the development process. As regards RiC-O 0.2, it lacks examples and tutorials, and it is explicitly declared that it "will continue to evolve, the next milestone being the release of RiC-O 1.0, which will probably take place by the end of 2021, at the same time as RiC-CM 1.0".[3]

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[1] The EGAD RiC-O team is coordinated by Florence Clavaud (Archives nationales de France) and composed by Daniel Pitti (University of Virginia, USA), Aaron Rubinstein (University of Massachusetts Amherst, USA), Tobias Wildi (Docuteam GmbH, Switzerland) and Miia Herrala (National Archives of Finland).

[2] See https://www.ica.org/sites/default/files/ric-cm-0.2_preview.pdf, accessed November 11, 2021.

[3] See https://www.ica.org/standards/RiC/RiC-O_v0-2.html, accessed November 11, 2021.

Ric-CM 0.2 deeply changed the entities articulation present in version 0.1, adopting a four-level hierarchical logic: the macro-entity RiC-E01 *Thing* (first level) includes the entities RiC-E02 *Record Resource* (containing RiC-E03 *Record Set*, RiC-E04 *Record* e RiC-E05 *Record Part*), RiC-E06 *Instantiation*, RiC-E07 *Agent* (containing RiC-E08 *Person*, RiC-E09 *Group*, articulated in RiC-E10 *Family* and RiC-E11 *Corporate Body*, RiC-E12 *Position* e RiC-E13 *Mechanism*), RiC-E14 *Event*5 (specifiable with RiC-E15 *Activity*), RiC-E16 *Rule* (specificabile con RiC-E17 *Mandate*), RiC-E18 *Date* (specifiable with RiC-E19 *Single Date*, RiC-E20 *Date Range* or RiC-E21 *Date Set*), and RiC-E22 *Place* (see fig. 2). The entities and sub-entities of RiC-O are expressed as classes, and the properties are detailed in the datatypes. It has to be noted that the Internationalized Resource Identifier of RiC-O is not yet active, so it is not possible to refer to the namespace and allow applications to be automatically processed. This draft state of the new standard, and the Experts Group on Archival Description's isolation from the international community cannot help slow down the development of description tools based on RiC, any projects of conversion of existing catalogues, and the availability of archival linked triples in the semantic info-verse. Anyway, some isolated experiments, not ascribable directly to EGAD, started. We can quote the case presented in a spanish paper (Llanes-Padrón, Pastor-Sánchez and Juan-Antonio, 2017), the French proof of concept PIAAF, *Pilote d'interopérabilité pour les Autorités Archivistiques françaises* (Clavaud 2018),[4] and the Matterhorn RDF Data Model, based on RiC but open to existing ontologies (Dubois, Nef, 2017).

Another archival ontology to consider is the EAC-CPF Ontology (Mazzini, Ricci, 2011), based on the XML schema maintained by the Society of American Archivists with the Berlin State Library. It is used for encoding contextual information about persons, corporate bodies, and families related to archival materials, encoding the rules published in ISAAR(CPF). Some updated archival description applications are offering the export feature of RiC-like RDF triples, converting the hierarchical descriptive structures into multi-dimensional graphs. Nevertheless, nowadays, archives' global semantic interoperability is quite tricky without a wide-accepted, stable and accessible ontology.

Metadata integration between archives and libraries

The notion of catalogue could be taken in its broadest sense: ordered and systematic collection or record of items. Its function could not be reduced to the retrieval and identification of a single item, having the role of activating unexpected connections between different items:

> *Functions of the Catalogue*: The catalogue should be an efficient instrument for ascertaining 2.1 whether the library contains a particular book […] and 2.2 (a) which works by a particular author and (b) which editions of a particular work are in the library. (Statements 1961, 1).

Adopting this broad notion of catalogue, archival finding aids can also be considered catalogues (term commonly used in English). This phenomenon is even more reasonable considering that the outlines of informative objects tend to blur on the web, and in the web of data they are reduced to minimal assertions[5]. Considering the present tendencies in the archival and bibliographic de-

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[4] See also http://piaaf.demo.logilab.fr/, accessed april 7, 2021.
[5] See Michetti 2020, 28, note 9.

scription, we may dare to say that both inventories and catalogues are conceptually and technically outdated. The documentary communities are asked to produce, control, share, monitor and enrich pieces of data, no more deep-web records, entrusting them to be accessed in the *infoverse*, understood, used and re-launched by human or web agents.

Authority control represents an important function to ensure the quality of linked open meta/data, produced through the intermediation of libraries networks but more e more in collaboration with the other memory institutions such as Archives and Museums. Firstly, it is no longer sustainable the management of authority control just at a local or national level. Then, the perspective must be broadened beyond the provenance descriptions, bibliographic, archival or relating to other human artifacts, such as artworks. While respecting the specificity of disciplines, the priority sandbox for archivists and librarians could be sharing authority data, giving to persons, agents, organizations, dates, places, and activities more knowledge facets. Despite the uncertainties, the road of data integration seems to be drawn. The approach driven by RDA and IFLA-LRM (Riva et al. 2017), jointly with the future, stable version of RiC-CM, could be the starting pillars to base on the collaboration. Several pathways to reach this goal could be followed. The first, maybe more manageable, is enabling the quoted conceptual models to talk, i.e. converging on the same concepts (entities) and defining the possible relations.

To open the work to be done, the Table 1 is a starting, tentative of matching the core entities of IFLA-LRM and RiC-CM 0.2. The RIC-E01 *Thing* is not that far from the *Res* entity of IFLA-LRM, considering their relations on the one hand with *Record Resource*, *Agent* , *Event*, and *Date*, on the other with *Work/Item* (considering the substantial unicity of records), *Time-span*, *Place* and *Agent* (Person, Collective Agent). The LRM conception of *Nomen* as an appellation of *Res* could be an interesting question to be addressed in the stable version of RiC, considering the complexity of appellations in archival description: original, derived, normalized, synthesized.
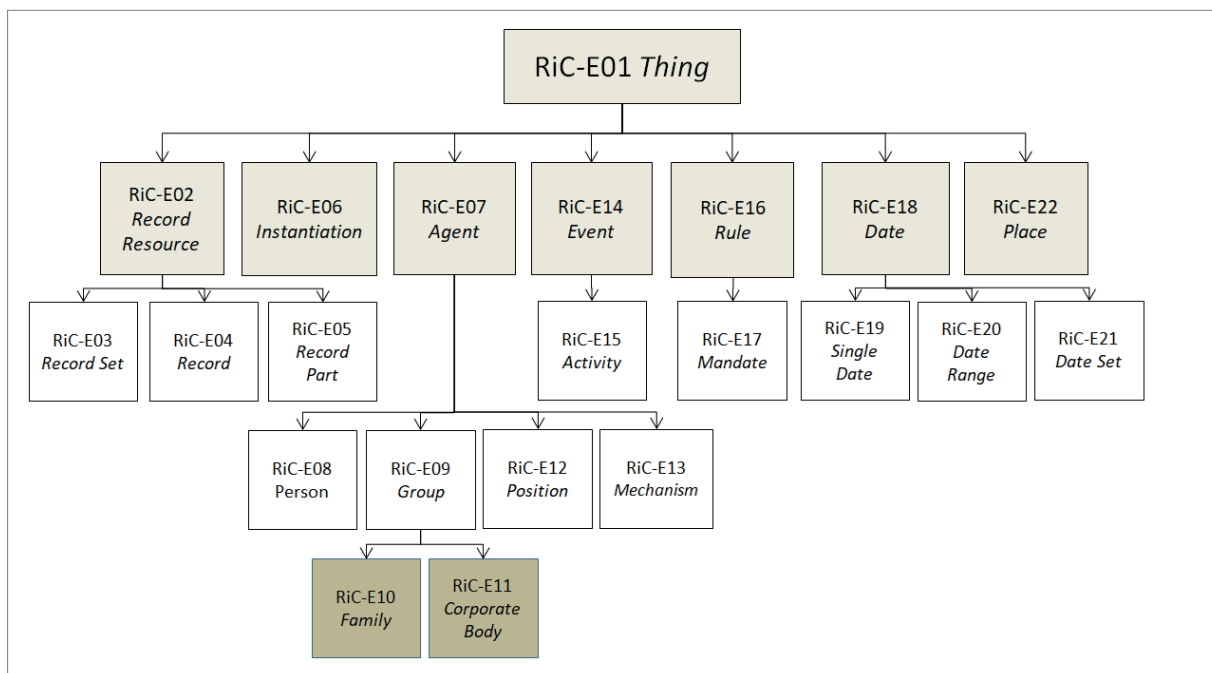

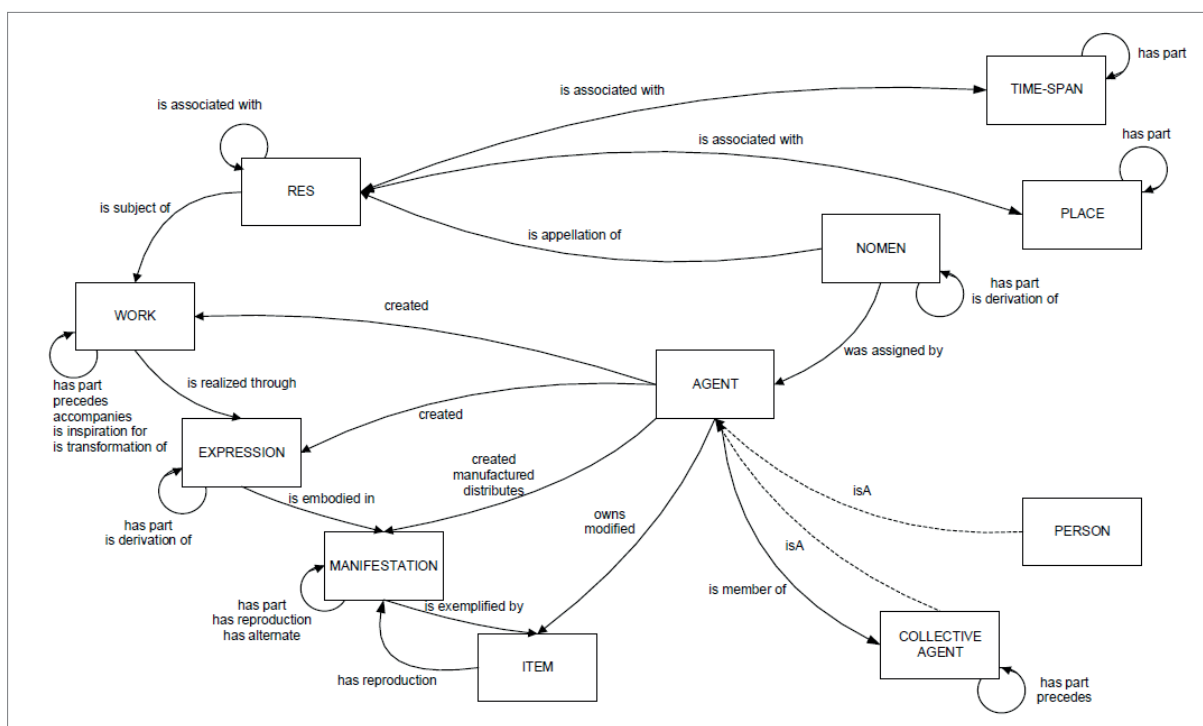Fig. 2. RiC-O *diagram of entities* (Feliciati 2021, 99)

Fig. 3. IFLA-LRM table 5-6, *final overview diagram*

IFLA-LRM	RiC-O
Res + Nomen	Thing
Time-span	Date (Single Date, Date Range, Date Set)
Place	Place
Agent (Person, Collective Agent)	Agent (Person, Group, Position, Mechanism)
Work/Item	Record Resource

Table 1. Tentative correspondence between IFLA-LRM and RiC-O core entities

The second path to be followed is cooperating actively on a meta platform, a shared data play-ground, like Wikidata.

Wikidata (https://www.wikidata.org) is a project developed starting from its mother project, Wiki-pedia (https://www.wikipedia.org), both free and open repositories accessible over the web. Un-like Wikipedia, Wikidata stores information as structured data in a database. While the primary mission of Wikidata was to serve as a central repository for Wikipedia and other Wikimedia proj-ects, it plays now the role of an independent, open, collaborative, and versatile platform. It could be used for «many different services and applications, from reusing identifiers to facilitate data integration, providing labels for multilingual maps and services, to intelligent agents answering queries and using background knowledge» (Vrandecic, 2013, p. 90). Wikidata uses Linked Open Data to store facts about items as nodes linked by properties as vertices; thus the project is often

referred to as a linked open data repository of facts, available under an open CC 0 license. Tim Berners-Lee argued that his Semantic Web vision was hard to be realized because the ontologies must be developed, managed, and endorsed by (missing) practice communities. With Wikidata successfully serving as a LOD repository of facts, the Semantic Web's vision idea seems feasible. If we regard archives and library metadata as (functional) statements of facts that facilitate access of knowledge materials, Wikidata can be adopted as an ideal tool to make these facts accessible and discernable to machines and intelligent algorithms. In fact, «Wikidata can be used to make these facts accessible and discernable to machines and intelligent algorithms to realize the vision of the Semantic Web. For instance, it is quite conceivable to imagine that library patrons in the future may no longer use library catalogues and depend on intelligent devices and algorithms to search and access library holdings over the web» (Tharani, 2021, 2).

Many working groups of librarians are active on Wikidata managing and enrichment, defining a metadata structure for libraries and uploading and sharing local metadata globally (Bergamin, Bacchi 2018)[6]. Some archivists launched recently the *Wikidata:WikiProject Archival Description*, with the aim «to create the world's most comprehensive high quality database of archival fonds and heritage collections, to represent archival structures within Wikidata where this is deemed useful and to ensure the interlinking between archival finding aids and Wikidata»[7]. The project, connected with the *Wikidata:WikiProject Archives Linked Data Interest Group*, is leaded by French archivists and is considering the elaboration of ICA descriptive standards before RiC. In Italy, since 2020, is active the *Wikidata:Gruppo Wikidata per Musei, Archivi e Biblioteche* (GWMAB)[8], inspired by the Wikidata Affinity Group[9], launched mainly by librarians but open to the potentialities of Wikidata for Museums, Archives and Libraries. The purpose of this group to support culture professionals is going to produce some results in adding and correcting metadata related to museum and archives.

In order to figure out the shared work to be done on Wikidata, it could be useful the presentation of a case of possible trans-disciplinary integration: Umberto Eco. Umberto Eco (1932 –2016) was an Italian medievalist, philosopher, semiotician, cultural critic, political and social commentator, and novelist. After his death, his library is presently going to be split into two collections: the ancient books sold to Biblioteca Braidense (Milan) and his modern books and archival records, donated to the University of Bologna. The "Eco, Umberto" authority records in ISNI (0000 0001 2283 9390), VIAF (108299403), and other sources like the Italian SBN (CFIV006213) refer just to his being an author of works. Nevertheless, he was a library collector and owner, an archives creator, a subject of books and essays, of art portraits, photos. Besides the authority record and the Wikidata entity of interest concerning him, the places related to his life and work, the institutions holding his personal library and archives, his political activity, his family, his relationship with many other people should be semantically represented by letting different professionals working on the same information units. The Wikidata element referred to Umberto Eco (Q12807)[10], relatively poor at the time of the

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[6] See https://www.wikidata.org/wiki/Wikidata:WikiProject_Libraries, accessed November 21, 2021.

[7] See https://www.wikidata.org/wiki/Wikidata:WikiProject_Archival_Description, accessed November 21, 2021.

[8] See https://www.wikidata.org/wiki/Wikidata:Gruppo_Wikidata_per_Musei,_Archivi_e_Biblioteche, accessed November 21, 2021.

[9] See https://wiki.lyrasis.org/display/LD4P2/LD4-Wikidata+Affinity+Group, accessed November 21, 2021.

[10] See https://www.wikidata.org/wiki/Q12807, accessed November 21, 2021.

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Bibliographic Control Conference, was enriched in the subsequent weeks. It attributes properties about his personal and professional life, his *notable work* (P800), *awards received* (P166), and his being the *owner of* (P1830) a personal library. The collaboration of archivists to enrich this element could add more properties, like his being a *creator* (Q59275219), *collection creator* (P6241), enrich the element *Umberto Eco's library* (Q35029860) and create the element referred to his archive.

The third pathway to build shared authority control between archivists and librarians could be the convergence towards a brand new foundational Conceptual Model.

The focus of this line of work could be the selection of shared classes, entities and properties, such as agents (persons, corporate bodies, families), their roles/functions in different contexts, geographic names (even historical), chronological data (exact dates or data range), actions/events, qualifying their multiple relationships. To develop this needful reference model and trans-ontology could facilitate and ebnable the integration of authority records in the form of RDF assertions. Collecting, connecting, enriching and controlling high-quality semantic information provided from different data sources will increase the potential of online services, making them richer and more useful for final users.

Conclusions

A shared approach to authority control would be even more valid considering the final users' perspectives. At present, as users, we are often forced to jump from one online source to another, even produced by the same institution, to compare and choose different forms of names and attributes referred to the same entities. Our time is not saved. The quality of use for documentary environments needs to be increased through an integrated approach to authority control and the adoption of updated metadata technologies. This strategy could represent a virtuous opening to the wisdom of crowds, by systematically sharing rich LODs, allowing users' annotations, using UX mining and collaborating with a global multilingual knowledge graph like Wikidata.

Interoperability should be possible with other cultural semantic sets of LODs, mostly produced by cultural heritage institutions different from archives and libraries. The goal could be the extension and enrichment of contexts and relations, representing the actual complexity of human activities in times, without reducing the semantic richness of descriptrive data. This perspective marks a step ahead compared with web portals, harvesting simplified metadata sets from data providers' repositories and necessarily affected by the issues of overwhelming search results. In this sense, the CIDOC-CRM model paved the way for semantic models in the cultural heritage sector. Any interoperability perspective can not help but compare with its classes and properties. The challenge posed by the semantic web forces the culture professionals to take a step forward in representing human activities. We have to break down disciplinary walls, enlarge the concept of provenance (Lemieux 2016) and respect the complexity, heterogeneity, discontinuity and transversality of contexts.

Some issues could slow down this process: organizational, the availability of models for standardization, the disciplinary edges. Some organizations, better if international, should take the initiative to launch this ambitious project by calling on experts from different sectors, archivists, librarians and cultural heritage experts to action. We have just to be ready to answer.

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