

FRBR and serials: the PRESSoo model

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Abstract:

In 2013, the Bibliothèque nationale de France and the ISSN International Centre developed an extension of the FRBRoo model devoted to serials and continuing resources: the PRESSoo model. This initiative is intended to address some long-standing issues related to the application of the FRBR model to serials.

This paper provides background information about the application of the FRBR model to serials and a detailed presentation about the PRESSoo model itself. It demonstrates in particular how PRESSoo “captures and represents the underlying semantics of bibliographic information about continuing resources”¹ in a satisfactory manner. The paper also presents the methodology of the project (short-time project developed at the “local level” by both cataloguers and experts in modelling, then presented to international standards bodies, followed by the first practical application of PRESSoo).

Keywords: PRESSoo, Functional Requirements for Bibliographic Records, CIDOC Conceptual Reference Model, Resource Description Framework, continuing resources

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Introduction and background

The *Functional Requirements for Bibliographic Records* (FRBR)² do not fit well with the dynamic nature of serials. This has been acknowledged for a long time and the harmonization process between RDA³, ISBD⁴ and ISSN rules⁵, launched in 2011, has revived this long-standing issue. As a matter of fact, some of the discussions regarding the rules for serials descriptions were related to the interpretation of FRBR, since RDA is based on this bibliographic model. In 2011, the members of the harmonization panel agreed that the application of FRBR to serials should be investigated again⁶. At the same time, the ISSN International Centre started to think about the relationships between FRBR concepts and the fundamental data elements of the ISSN Register⁷, the authoritative database for serials and other continuing resources it maintains.

In the end, and further to discussions and exchanges with various experts, it appeared that the *FRBR object-oriented model (FRBRoo)*, approved in June 2009⁸, could be a possible and promising solution. FRBRoo, which is both an object-oriented version of the FRBR family of conceptual models and an extension of the *CIDOC Conceptual Reference Model (CIDOC-CRM)*⁹, appeared indeed to provide useful classes and properties for modelling seriality. At the end of 2012, the ISSN International Centre and the Bibliothèque nationale de France agreed to establish a Working Group in charge of the development of an extension of FRBRoo, named PRESSoo and devoted to serials and continuing resources in general. The Working Group started to work in January 2013 and version 1.0, after being endorsed by the IFLA FRBR Review Group, was released in June 2014. PRESSoo is to be used by the ISSN International Centre for exposing ISSN Data in RDF¹⁰ in the framework of the ROAD project (Directory of Open Access Scholarly Resources)¹¹.

This paper aims to present the PRESSoo model and also the project itself, from its origins and the discussions about the applications of FRBR to serials, until the endorsement of PRESSoo by the IFLA FRBR Review Group and its first practical application for exposing ISSN data in RDF.

1. FRBR and serials, a complicated story

The background section of the *FRBR Final Report*¹² is useful and exciting reading for a reader from 2014. It shows that the issues raised during the Stockholm Seminar on Bibliographic Records of 1990 are still current: “while the participants in the Seminar recognized the economic realities faced by libraries and the need to reduce the cost of cataloguing, they also acknowledged the importance of meeting user needs and addressing more effectively the broad range of needs associated with various types of material and the various contexts within which bibliographic records are used.” In short, this background section reminds us that library catalogues are designed for end-users, not for cataloguers, and that librarians have to find ways and means to provide efficient services while reducing production costs in a period of economic pressures.

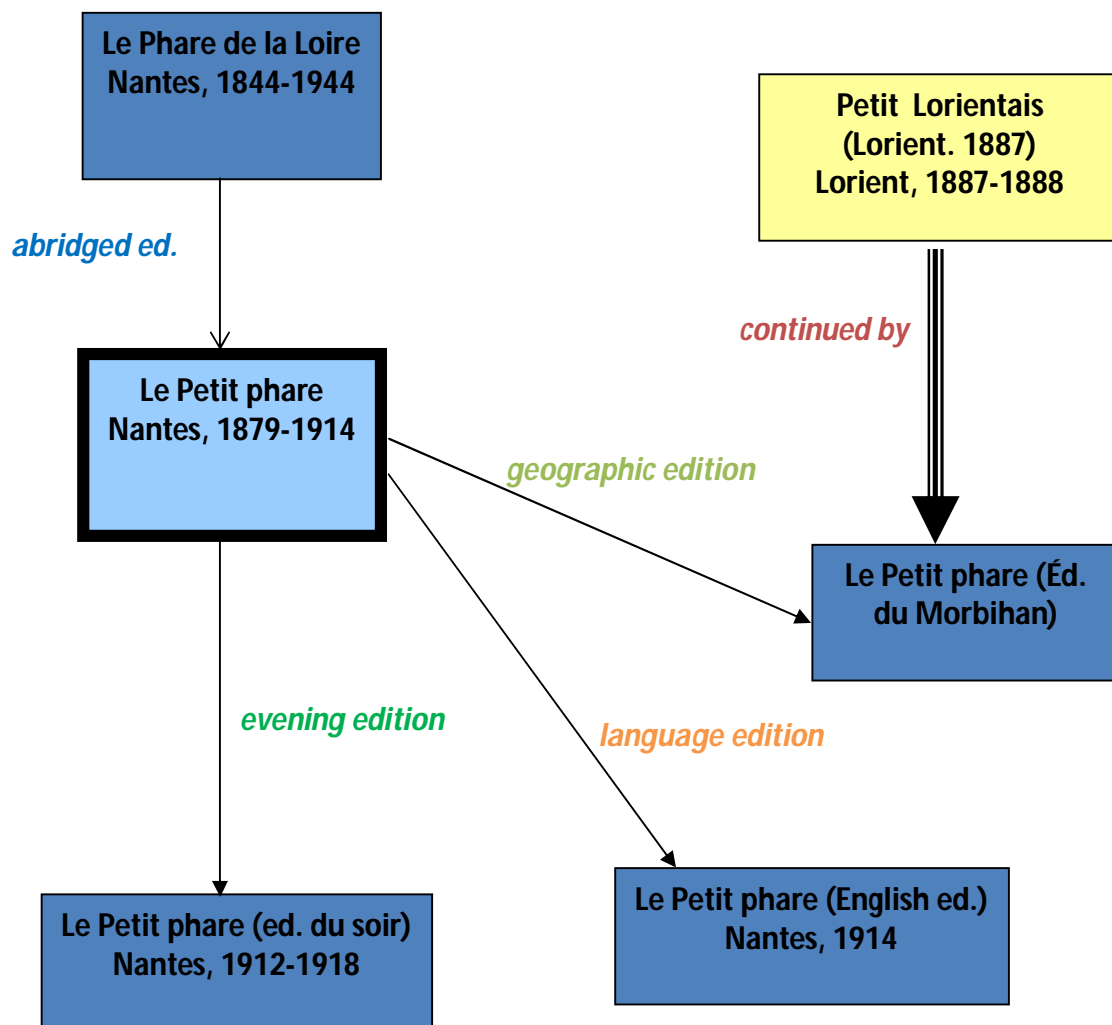
The members of the IFLA Study Group on the Functional Requirements for Bibliographic Records were charged to “produce a conceptual model that would serve as the basis for relating specific attributes and relationships [...] to the various tasks that users perform when consulting bibliographic records [...] and to recommend a basic level of functionality and basic data requirements for records created by national bibliographic agencies [...] that would

allow national bibliographic agencies to reduce their cataloguing costs through the creation, as necessary, of less-than-full-level records...”.

Everyone knows the rest of the story and the famous WEMI (*Work, Expression, Manifestation and Item*) structure expressed as an Entity-Relationship (E-R) model. FRBR has been widely discussed within the bibliographic community following publication of the report in 1998, often with passion and enthusiasm, sometimes with questions, and two standards based on this model were successively released in 2009 (*REICAT, Regole Italiane di Catalogazione*)¹³ and in 2010 (*RDA, Resource Description and Access*). Thereafter, the FRBR model was extended to authority data with the release of *FRAD (Functional Requirements for Authority Data)*¹⁴ in 2009 and to subject data with the release of *FRSAD (Functional Requirements for Subject Authority Data)*¹⁵ in 2011.

However, the application of FRBR to serials has always been considered problematic, even as early as the release of the *FRBR Final Report* in 1998 whose authors themselves explained that the "notion of seriality... merit[ed] further analysis"¹⁶. And indeed, FRBR does not fit the complex and dynamic nature of resources which can cease and then resume publication, merge, split, be translated or published simultaneously in different languages, be released for specific publics or various geographic areas... The FRBR model appears to not be flexible enough to accommodate serial relationships and above all, its static nature can lead to inconsistent assertions when applied to serials.

Pierre Drouhin, curator at the Bibliothèque nationale de France and member of the PRESSoo Working Group, has provided a summary of this kind of inconsistencies by using as an example a local newspaper published in France at the end of the nineteenth century, *Le Petit Phare*.



Over time, without necessarily changing titles, one local newspaper may start out as an independent title, then be bought out by a different publisher and serve as the local edition of a large regional newspaper for a period of time, then regain its independence or be sold to yet another publishing company, etc. This is exactly what occurred with three of the above titles.

As a local edition, the Morbihan edition of *Le Petit phare* is, according to FRBR, an expression of the work *Le Petit phare*. It is also the successor title to the work *Le Petit Lorientais*. Yet *Le Petit phare* and *Le Petit Lorientais* bear no relationship whatsoever to each other, other than the fact that *Le Petit Lorientais* was bought out by the publisher of *Le Petit phare*. Drouhin's conclusion is somewhat severe: "how can one *expression* which expresses a *work* succeed to another *work* to which it has no relationship?"

Drouhin has also showed how envisaging the historical run of *Le Petit Phare* through FRBR can lead to another odd assertion. In 1912, *Le Petit phare* began to be issued in parallel with an evening edition, thus serving de facto as a morning edition. In 1914, *Le Petit phare* was absorbed by *Le Phare de la Loire* and ceased publication while its evening edition lived on a little longer. If *Le Petit phare (Evening edition)* is to be characterized as an *expression* of *Le Petit phare (Nantes, 1879-1914)*, how can an *expression* possibly outlive the *work* it is supposed to express?

In a similar fashion, Ed Jones (2005) has confronted cataloguing practices for title changes and FRBR modelling by using the example of the English translation of a Russian journal, *Математический сборник*, which changed title while the title of the original version remained the same. In his paper, Jones notes that “catalogers create a new bibliographic record when the title of a serial changes, whether or not it is the title of a translation [...] and this may cause problems [...] [with] the FRBR model [and] its commonality of content between *expressions* and *works*”¹⁷. Jones summarizes this issue by saying that the “different operational definitions of *work* used within the Anglo-American cataloguing community [...] (a content-based definition for most bibliographic resources and a title-based definition for serials) [...] and implicitly present in the FRBR model [can] create contradictions within the model by leading to different boundaries for the same *work* at different levels of abstraction.”¹⁸ One can note also that Jones underlines in the same article that the serial example provided in the FRBR Final Report (the geographic editions of the *Wall Street Journal*) is “very straightforward and, to that extent, might be considered very unserial-like”.

The analyses by both Drouhin and Jones show that the *expression* is the most problematic area when it comes to the application of FRBR to serials. This is probably why many of the solutions proposed following the release of the *FRBR Final Report* consisted mostly in the redefinition of the concept of *work* which becomes the focus point from which the relationships between serials are envisaged. For instance, Steve Shadle (2006)¹⁹ has suggested that each serial should be considered a separate *work*, each with its own expressions and manifestations while Adolfo R. Tarango (2008)²⁰ has envisaged the serial work as the “historical run of a serial through its various major changes,” each successive title of this serial *work* being a “Work segment”. The proposal from Tarango was to describe the serial *works* in authority records and the *work segments*, blending both *expression* and *manifestation* levels, in bibliographic records.

FRBRoo, the first version of which was released in 2010, has provided very useful concepts, in particular the class F18, Serial Work, for moving forward on the way paved by experts such as Drouhin, Jones, Tarango and Shadle. In 2012, when the ISSN International Centre was in search of solutions for defining a suitable model for representing bibliographic information related to serials, they solicited BnF staff knowledgeable about both serials and FRBRoo.

2. Methodology

The project was bounded by two constraints. The first one was related to the agenda of the FRBR Review Group. It appeared that this Review Group was already busy with work on the consolidation of the FRBR models and would not have much time to participate in all the discussions about a possible extension of FRBRoo applied to serials. Additionally, it was necessary to have some cataloguers and serials specialists as participants in order to ensure that the extension of FRBRoo to cover serials would, in fact, fit serials accurately and take into account both the entire range of serials’ behaviour and also current cataloguing practices. In the end, a Working Group was established with two serials specialists from the BNF, Pierre Drouhin and Philippe Cantié (Director of the French ISSN National Centre), two representatives of the ISSN International Centre, Pierre Godefroy and François-Xavier Pelegrin, and two FRBR experts from the BNF, also members of the FRBR Review Group, Françoise Leresche and Patrick Le Boeuf. The idea was to work on the extension and then to

gather input and advice from the FRBR Review Group and from the CIDOC CRM Special Interest Group co-responsible for the maintenance of FRBRoo.

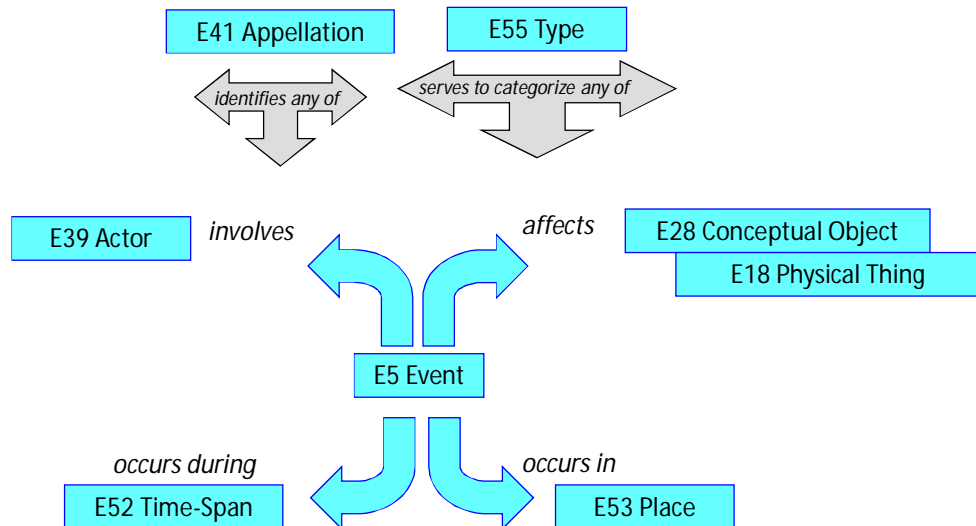
The second constraint was related to the uncertainties of the results the Working Group could achieve and thus to a concern about a possible waste of time. Consequently, the members of the Working Group decided to work in an intensive manner during a limited period of time with a deadline of approximately three months: if after this period no satisfactory results were achieved, the Working Group would then decide to disband and to end the project. The Working Group met on a weekly basis to model the ISSN data elements and relationships listed in the *ISSN Manual* between January and March 2013. Serials cataloguers from both the Bibliothèque nationale de France and the ISSN International Centre explained each of these ISSN data while BnF staff knowledgeable about FRBRoo formalized them. PRESSoo is thus the result of an intensely rich dialogue between serials cataloguers and experts in modelling.

The draft version of PRESSoo was finalized in March 2013, and submitted during the following months to the IFLA FRBR Review Group, the CIDOC-CRM Special Interest Group, and the International Working Group on FRBR and CIDOC-CRM Harmonization.

3. The PRESSoo Model: A Guided Tour

PRESSoo is an extension of an extension: it elaborates on the notions that are already modelled in FRBRoo, which in turn elaborates on the concepts formalized in the CIDOC CRM. As a consequence, it is necessary, in order to have a correct understanding of PRESSoo, to be familiar with at least the most salient characteristics of these two models.

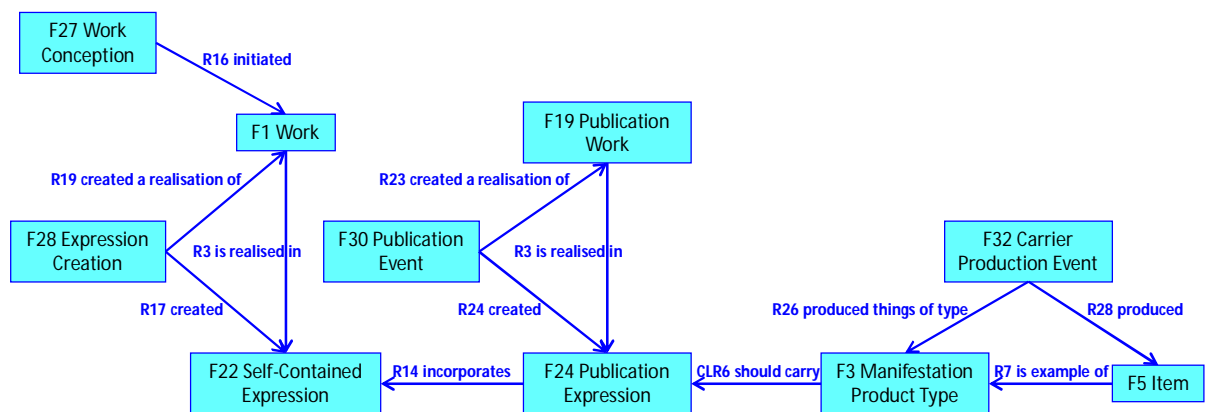
The CIDOC CRM is an object-oriented model that has been developed since 1996, first by the ICOM CIDOC (International Council of Museums, Comité international pour la documentation), and then by a special interest group (CIDOC CRM SIG) affiliated with it. In 2006, the definition of the CIDOC CRM was published as an ISO standard, ISO 21127. The CIDOC CRM is said to be “event-centred,” meaning that the description of any object focuses on the chain of events undergone by that object and resulting in the characteristics currently displayed by it.



I Core structure of the CIDOC CRM Model

Surely, such an approach is likely to be found more adequate when dealing with such unstable resources as continuing resources, which, by definition, are in constant evolution, than the monolithic structure of the entity-relationship FRBR model, which seems to ‘freeze’ bibliographic resources in a state that is not supposed to ever change.

The development of FRBRoo began in 2003, FRBRoo v.1 was published in 2010, and v.2 is due in 2014. FRBRoo is a reformulation of FRBR as an extension of the CIDOC CRM. This assertion means that any class in FRBRoo is declared as a subclass of at least one class from the CIDOC CRM, and any FRBRoo property is either a subproperty of a CIDOC CRM Property, or a shortcut for a chain of CIDOC CRM properties. FRBRoo associates specific types of events with each of the entities that make up the FRBR Group 1 of entities.



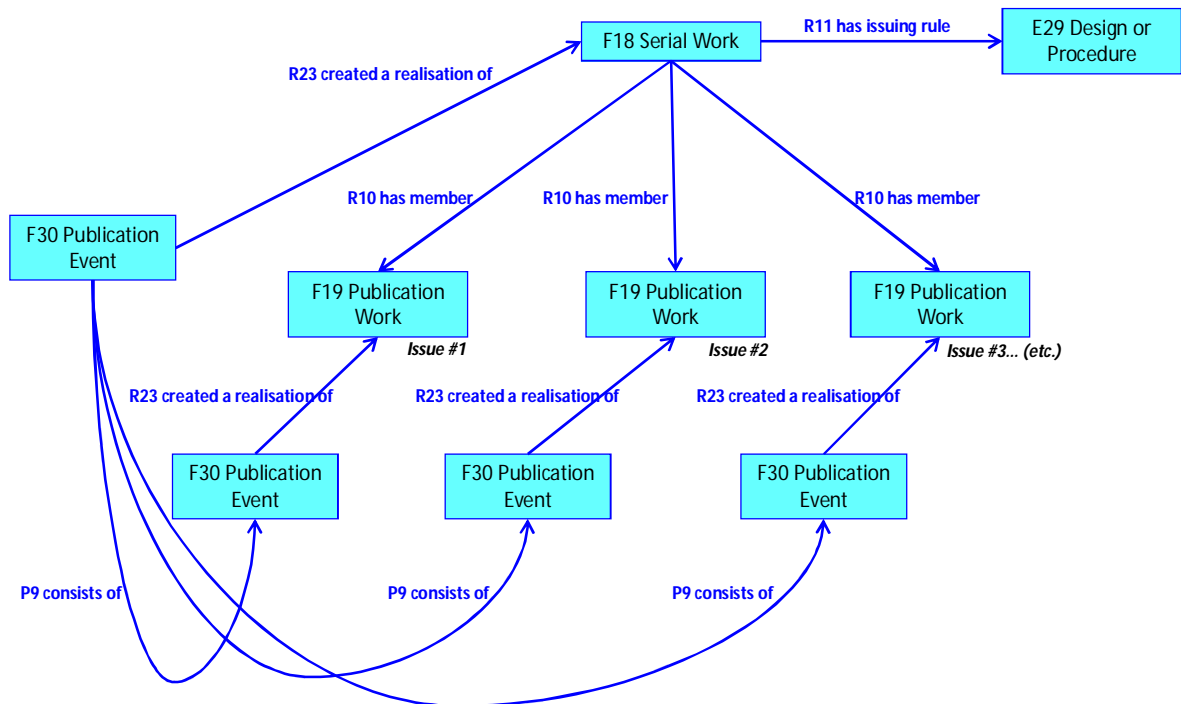
II FRBR Group 1 Entities and Associated Events

As any reader familiar with the original, entity-relationship formulation of the FRBR model will notice, FRBRoo introduced two notions that were absent from that original formulation: F19 Publication Work, and F24 Publication Expression. An instance of F24 Publication Expression is the complete set of signs available on a given publication, including all of the paratext, i.e.: (in the case of books) cover art, title page, foreword, choices in layout, etc.; (in the case of sound recordings) album cover, liner notes, etc.; (in the case of DVDs)

box cover, featurettes, etc. Such a set of signs does not result from chance, but is the product of some conscious activity on behalf of the publisher: it is therefore the realisation of a work, albeit a work of a different nature than the authorial work(s) embodied in the publication.

FRBRoo also declares a specific subclass of F19 Publication Work for continuing resources, namely: F18 Serial Work. An instance of F18 Serial Work is a work “planned to result in sequences of Expressions or Manifestations with common features”²¹. As long as issues of it are being published, there is no single Expression that can be said to realise it entirely, and therefore no single Manifestation. As a consequence, FRBRoo deals with continuing resources at the work level only, and virtually ignores their Expression and Manifestation. All descriptive elements are therefore attached to the F18 Serial Work class, along with the CIDOC CRM E29 Design or Procedure class. E29 Design or Procedure is used to model the issuing policy of the continuing resource: each individual issue is supposed to be published according to a predetermined plan, which is extrapolated by cataloguers on the basis of previously released issues. PRESSoo retains the same characteristic, which may seem very different from the way both the entity-relationship FRBR and RDA deal with continuing resources.

Each individual issue of a continuing resource is modelled as a complete publication, with an instance of F19 Publication Work, an instance of F24 Publication Expression, an instance of F3 Manifestation Product Type (except in the case of online electronic publications), and (usually) a number of instances of F5 Item, while the continuing resource itself is regarded as a mere set of concepts that define the common features which make it possible to recognize that a given individual issue belongs to the continuing resource. Describing a serial amounts to listing the features that are found on past issues and expected to be found again on future issues—i.e., it has to do with the formulation of the issuing rules of the serial, and consists of statements about the predictability of its behaviour.



III How FRBRoo Models the Publication of Continuing Resources

This is how FRBRoo models continuing resources. But FRBRoo remains a generic model, and does not aim at going into all the details of each and every specific type of resource. It was therefore deemed insufficient for the needs of the International ISSN Centre.

PRESSoo specializes the notion of E29 Design or Procedure, which in FRBRoo covers complete issuing policies of continuing resources in all their aspects, into a more restrained class, labelled Z12 Issuing Rule, which covers only one of all the aspects of the overall policy of a continuing resource. The sum of all the instances of Z12 Issuing Rule that are attached to a given continuing resource at a given point in time amounts to the overall instance of E29 Design or Procedure that represents the overall issuing policy of that continuing resource at that same point in time. For example, in FRBRoo, the fact that a given periodical is issued in printed format, every week, as leaflets, the height of which is 30 cm, is modelled as part of just one instance of E29 Design or Procedure; in PRESSoo, the same fact is modelled through three distinct instances of Z12 Issuing Rule: one to express the publication format, one to express the frequency, and one to express the dimension of individual issues. This makes it easier to account for the fact that not all those aspects of a serial may change at the same time: modelling the overall issuing policy as a block obliges one to repeat all the characteristics that remain unchanged every time a single characteristic (e.g., frequency) is modified. Class Z5 Issuing Rule Change makes it possible to specify the date when a given characteristic of the behaviour of a serial was modified by the publisher, whenever that information element is known and recorded.

The complex life of continuing resources is modelled through class Z1 Serial Transformation, which covers continuations, replacements, splits, and mergers, as all these are cases where some serials cease to be published as such and start a new life as new serials. Absorptions, separations, and temporary substitutions are modelled using specific classes (namely, Z2 Absorption, Z3 Separation, and Z4 Temporary Substitution), as these are events that do not consist of the simultaneous “death” of some serials, and “birth” of other ones.

PRESSoo also accounts for the fact that, in practice, individual issues of serials are, most often, not held separately on shelves, but bound together as volumes—a fact acknowledged, but not modelled in detail, in the original FRBR study: “For serials, reconfiguration happens when several unbound copies representing different issues are bound together to make a single new *item*”²². Class Z9 Storage Unit covers physical objects that consist of more than one item (in the FRBR sense of the term), and class Z14 Storage Unit Creation makes it possible to specify the circumstances under which those items were bound together, whenever such information is available and deemed relevant enough to be recorded.

It can prove interesting to compare one of the few examples for serials in the original FRBR study with the way PRESSoo deals with that same example. The original example reads in FRBR²³ as follows:

w1 *The Wall Street Journal*

e1 the Eastern edition

m1 the print format of the Eastern edition

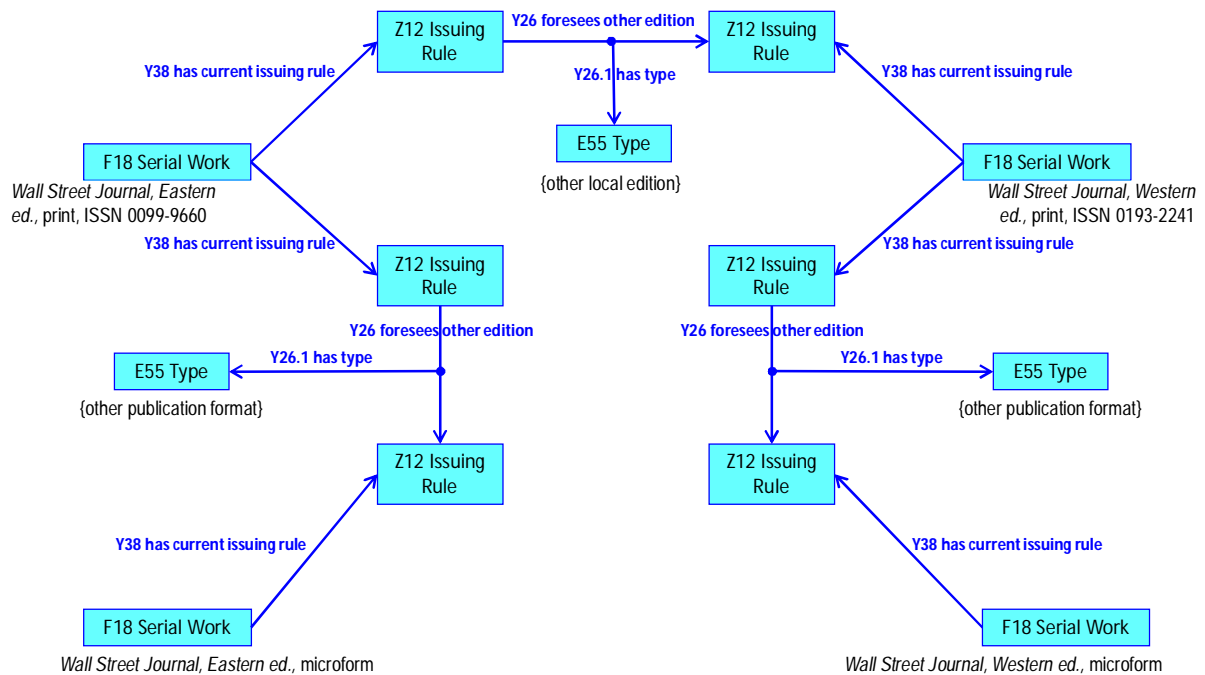
m2 the microfilm of the Eastern edition

e2 the Western edition

m1 the print format of the Western edition

m2 the microfilm of the Western edition

In PRESSoo, that same example can be represented as the following graph:



IV: How PRESSoo models the FRBR Wall Street Journal example

4. Further steps: endorsement by IFLA bodies and exposure of ISSN data in RDF using PRESSoo as a formalism

Version 1.0 of PRESSoo, released publicly in June 2014, was formally endorsed by the FRBR Review Group at the end of May 2014 “after a reviewing process within the FRBR Review Group, which resulted in a limited number of comments and no negative opinion.”²⁴ To date, and strictly speaking, “PRESSoo cannot be regarded as an IFLA standard, as it was developed outside IFLA and has not yet been through a validation process conducted by an IFLA Section. However, the endorsement by the FRBR Review Group, affiliated to the IFLA Cataloguing Section, provides it with a statute very similar to that of an IFLA standard”²⁵. As of 20th June 2014, we cannot know how PRESSoo, which will be put on the agenda of the meeting of the Standing Committee of the IFLA Cataloguing section, will be assessed, but it is interesting to note that the development of PRESSoo is in line with the Strategic Plan of this IFLA Section which, in section 2.3.5. “encourage[s] the development of extensions of FRBRoo for certain types of resources that are not modelled at a sufficient level of detail in FRBR [...and recommends the assessment] of the resulting extensions, and [their] endorse[ment] if they are deemed correct”. Updates should be provided at the time of the presentation in August 2014.

In parallel to the efforts for securing endorsement by IFLA bodies for PRESSoo, the ISSN International Centre decided to test the model in the framework of a project developed with the support of UNESCO in 2013-2014: ROAD, the Directory of Open Access Scholarly Resources. ROAD is a subset of the ISSN Register freely available from <http://road.issn.org>.

ROAD provides an overview of Open Access resources published worldwide and identified by an ISSN. Use of PRESSoo in the context of the ROAD project will provide a practical test of the PRESSoo model as soon as possible so as to assess its validity and to adapt it if necessary. PRESSoo is to be used for exposing ROAD data in RDF, with the corresponding outputs being freely downloadable on ROAD website.

However, the ISSN International Centre faces two difficulties in its goal of exposing ROAD data in RDF. As an extension of FRBRoo which is in turn an extension of CIDOC-CRM, PRESSoo uses classes and properties of both FRBRoo and CIDOC-CRM along with those specifically declared for PRESSoo. The URI for the classes and properties of CIDOC-CRM are already published but it is not yet the case for those of FRBRoo which is a relatively new model. Of course, the URI for the classes and properties of PRESSoo will have to be published as well, a task which is currently in progress. Contacts are to be established with the FRBR Review Group regarding the URI for FRBRoo classes and properties.

Another difficulty relates to the complexity of the model itself. Since PRESSoo has been elaborated for capturing all the information necessary for describing serials, it will require a significant effort by potential re-users of the ISSN data in RDF. During the preliminary work on the RDF outputs, the ISSN International Centre and its contractor wondered whether this complexity might be a barrier for these potential re-users, in particular if those wanting to reuse the data are not specialists in bibliographic metadata. A compromise solution has been found which will consist of providing two RDF outputs: the first output will accurately reflect the richness of the model, while an alternate output will provide a simplified approach.

Acknowledgments

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²⁵ Idem