

# ISBD unconstrained elements and other extensions

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*Gordon Dunsire, 28 July 2013*

## Unconstrained elements

### ISBD and RDA

The discussion paper submitted by the ISBD Review Group to the Joint Steering Committee for Development of RDA *Alignment of the ISBD element set with RDA element set – RDA Appendix D.1* (6JSC/ISBD/Discussion/1)<sup>1</sup> notes:

"The alignment will form the basis of the development of mappings between ISBD and RDA elements in Resource Description Framework, using the ISBD and RDA namespaces ...

- There are elements lacking in one or the other content standard.
- The definitions of elements with the same label can be broader or the same irrespective of the standard.

These have implications for the methodology given in 6JSC/Chair/4 Mapping ISBD and RDA element set, and specifically in the context of unconstrained elements. For example, it will be necessary to develop unconstrained ISBD elements and map RDA elements to them."

The methodology in *Mapping ISBD and RDA element sets* (6JSC/Chair/4)<sup>2</sup> is based on "RDA and ISBD properties are sub-properties of properties which have neither RDA nor ISBD classes as domains or ranges. A set of such properties, the so-called unbounded RDA properties, has been created as part of the RDA namespace in the OMR. Each RDA bounded property is a sub-property of an unbounded version of the same property".

This assumes that the granularity of the RDA properties completely overlaps the granularity of the ISBD properties, ignoring the properties for ISBD aggregated statements. This also implies that the table of alignments from ISBD to RDA should not require a broader (>) alignment. However, there are over 40 cases in the table where the ISBD element is broader than the RDA element:

**Table 1: ISBD element broader than RDA element alignments**

ISBD element	Number
Other title information	1.3
Numeric designation	3.3.2
Chronological designation	3.3.3
Place of publication, production and/or distribution	4.1
Additions to place of publication	4.1.9

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<sup>1</sup> <http://www.rda-jsc.org/docs/6JSC-ISBD-Discussion-1.pdf>

<sup>2</sup> <http://www.rda-jsc.org/docs/6JSC-Chair-4.pdf>

Parallel place of publication, production and/or distribution	4.1.11
Additions to parallel place of publication	
Name of publisher, producer and/or distributor	4.2
Parallel name of publisher, producer and/or distributor	4.2.10
Date of publication, production and/or distribution	4.3
Composition of material	5.2.2
Playing speed	5.2.7.3
Track configuration	5.2.7.8
Title proper of series or multipart monographic resource	6.1
Parallel title of series or multipart monographic resource	6.2
Other title information of series or multipart monographic resource	6.3
Parallel other title information of series or multipart monographic resource	6.3.1
Statement of responsibility of series or multipart monographic resource	6.4
Parallel statement of responsibility of series or multipart monographic resource	6.4.1
International standard number of series or multipart monographic resource	6.5
Numbering within series or multipart monographic resource	6.6
Note on content form and media type	7.0.1
Note on mode of access	7.0.5
Note on nature, scope, form, purpose or language	7.1.2
Note on edition and bibliographic history	7.2
Note on bibliographic history	7.2.3
Note on relationship to other resources	7.2.4
Note on other relationships	7.2.4.6
Note on material type or resource specific type	7.3
Note on publication, production, distribution, etc.	7.4
Note on material description	7.5
Note on series and multipart monographic resources	7.6
Note on contents	7.7
Note on resource identifier and terms of availability	7.8
Note on use/audience	7.10.3
Note on numbers	7.10.4
Resource identifier	8.1
Standard identifier	8.1.2
Label name and catalogue number	8.1.4
Qualification to identifier	8.1.3

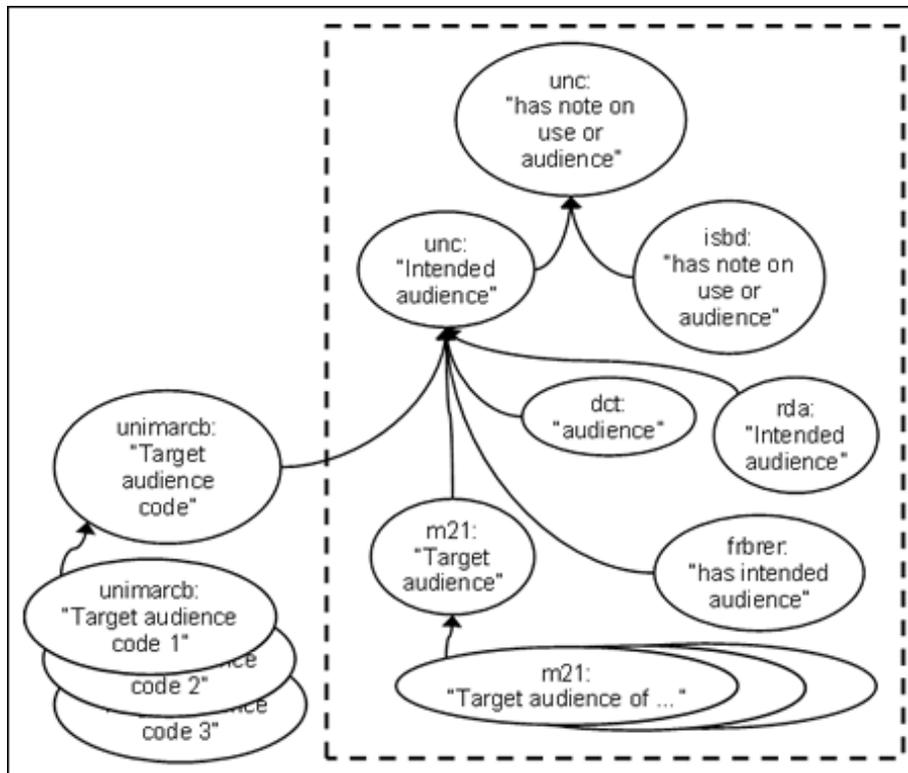
The need for this alignment has several causes:

- The granularity of FRBR Group 1 classes (WEMI) is finer than ISBD Resource.
- There are differences in the granularity of notes.
- ISBD series elements subsume RDA sub-series elements.
- ISBD publication statement elements subsume separate RDA publication, production, and distribution elements.

The alignment is used in approximately 40 out of a total of 130 ISBD elements, or 30 percent.

## ISBD and other schema

RDF maps focussing on a specific bibliographic element from multiple schemas, rather than all the elements from two schemas, also require unconstrained properties. An example for an unconstrained ISBD property is given in *Representation of the UNIMARC bibliographic data format in Resource Description Framework*, a paper to be presented at the 2013 Dublin Core conference.<sup>3</sup>



This is an RDF map of properties for the bibliographic concept of the intended audience of a resource. The properties are taken from element sets, some under construction, for UNIMARC Bibliographic, MARC 21, FRBR entity-relationship, Dublin Core terms, and ISBD schemas.

The property at the top of this visual representation has the label "has note on use or audience" and belongs to an unconstrained, un-named, element set. It is based on the ISBD property P1091 and has the coarsest semantics of the map, with a possible definition "Relates something to a note providing non-evaluative information as to the potential or recommended use of the thing and/or the intended audience". It has no domain of Resource, and the definition ensures that it has broader scope than the context of the bibliographic environment.

This unconstrained ISBD property can be related to coarse-grained properties from other element sets designed for general contexts, for example the "Audience" property of schema.org.<sup>4</sup> It can act as a surrogate for the whole map when it is linked to non-bibliographic ontologies: data triples using any of the finer-grained properties within the bibliographic environment can be inferred to be using the unconstrained ISBD property and processed accordingly before being passed to the external environment.

<sup>3</sup> <http://dcevents.dublincore.org/IntConf/index/pages/view/2013-peerAbstracts#Dunsire>

<sup>4</sup> <http://schema.org/Audience>

As the map shows, a similar argument can be applied to the second coarsest property which is the unconstrained version of the RDA property labelled "intended audience". It is the nearest connection property for the UNIMARC Bibliographic "target audience" code, which has narrower semantics than the ISBD note. This property can act as a surrogate for a sub-map confined to audience and excluding information about use (and thus excluding ISBD data triples).

## Linked data applications

Unconstrained versions of properties were included in the RDA namespace during its initial development: "These general properties are fully compatible with the Semantic Web and not specific to library applications".<sup>5</sup> The development of the RDA element sets was a precursor to the decision to develop the ISBD element set. The inclusion of the unconstrained properties anticipated recommendation 4.2.2 of the final report of the W3C Library Linked Data Incubator Group: Develop library data standards that are compatible with Linked Data.<sup>6</sup>

## Recommendations for development

As an experiment, unconstrained versions of two ISBD properties were developed in 2012. One is "has note on material description"; the other is "has note on use or audience" which is discussed above.

The definition of each property is derived from the official ISBD definition with "resource" replaced by "something" or "thing" as appropriate. This is an operation that can be easily automated.

The namespace used for the properties is <http://www.openvoc.info/isbd>.<sup>7</sup> The domain is part of the OMR used to manage the IFLA RDF vocabularies. The status of both properties is "new-proposed". The domain was set up by Metadata Management Associates, who maintain the OMR, to allow such experiments to be carried out.

The advantages of using a namespace distinct from the "official" base domain include:

- Development of a "commons" domain for unconstrained, general usage element sets, with independent processes for maintenance.
- Less confusion between official and unconstrained elements.
- Local URI part of the official element can be the same for the unconstrained element.
- Little or no responsibility needs to be accepted by official vocabulary maintenance organizations.
- Accommodation for additional elements not derived from the constrained element sets.
- Separate branding and promotion.

Disadvantages include:

- Separation of constrained and unconstrained elements, although both sets derive from the same source.

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<sup>5</sup> RDA Vocabularies: Process, Outcome, Use. Available at:

<http://dlib.org/dlib/january10/hillmann/01hillmann.html>

<sup>6</sup> [http://www.w3.org/2005/Incubator/lld/XGR-lld-](http://www.w3.org/2005/Incubator/lld/XGR-lld-20111025/#Develop_library_data_standards_that_are_compatible_with_Linked_Data)

[20111025/#Develop\\_library\\_data\\_standards\\_that\\_are\\_compatible\\_with\\_Linked\\_Data](http://www.w3.org/2005/Incubator/lld/XGR-lld-20111025/#Develop_library_data_standards_that_are_compatible_with_Linked_Data)

<sup>7</sup> <http://metadataregistry.org/schema/show/id/62.html>

- Separate de-referencing service.
- Dilution of branding and promotion.

Use of the same base domain, but a separate sub-domain, can alleviate some of the disadvantages at the expense of some advantages.

There is now a clear requirement for developing a significant number of the unconstrained ISBD properties to complete the map between ISBD and RDA. These are all basic ISBD elements and do not include elements used for aggregated statements.

***Recommendations:***

- Develop versions of all of the basic ISBD properties with generalized definitions and add to the OMR.
- Use simple automated processes for deriving generalized definitions by replacing references to "resource" with references to "something" or "thing".
- Decide on the namespace domain for unconstrained ISBD elements: a separate base domain, a separate sub-domain, or the same base domain as the official element set.
- Relate official ISBD properties to unconstrained ISBD properties using the *rdfs:subPropertyOf* relationship.

## Extensions

### Internal

The ISBD element set has already been extended beyond the basic ISBD elements listed in A.3.1 of the consolidated edition through the addition of properties and classes for aggregated statements. An example is the property *isbd:P1159* with the label "has title and statement of responsibility area"; this property aggregates all the elements in ISBD area 1 and is primarily intended for use in application profiles. The general need to further extend the basic ISBD elements with coarser-grained elements is unlikely because in many cases extension through mapping to other schema element sets is a more efficient and flexible approach.

Extension in the other direction of finer-grained elements may become a requirement, for example in the note area as outlined in the ISBD/XML Study Group's initial analysis of the ISBD elements. This would involve sub-dividing the coverage of a note into more specific topics and creating corresponding sub-properties in the element set. However, such extensions and other additions and amendments to the ISBD element set are part of the ISBD review process, and internal changes to the element set in the namespace should follow formal approval by the ISBD Review Group.

It is likely that changes to the namespace can be carried out, after approval, far more quickly than changes to the text of ISBD.

***Recommendations:***

- Incorporate internal extensions and amendments to the ISBD namespaces into the workflow and processes for reviewing ISBD.

**External**

Other groups and individuals may wish to extend the ISBD element set and value vocabularies for area 0 for local applications. The Open World Assumption (OWA), that the description of a particular subject is always incomplete, and the axiom that Anybody can say Anything about Any thing (AAA) are fundamental to the Semantic Web and linked open data environment and encourage additions and refinements to element sets, value vocabularies, ontology maps, and sets of data triples.

***Recommendations:***

- Develop guidelines for external users and applications on using and extending the ISBD element sets and value vocabularies, based on generic guidelines for IFLA namespaces.
- Monitor external extensions to ISBD and determine if any should be included in the workflow and processes for reviewing ISBD.