**INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS
AND INSTITUTIONS**

WORLD LIBRARY AND INFORMATION CONGRESS

**76th IFLA GENERAL CONFERENCE, GOTHENBURG, SWEDEN – 10-15 AUGUST 2010
CATALOGUING SECTION**
IFLA Cataloguing Section's ISBD Review Group
ISBD/XML Study Group
http://www.ifla.org/en/events/isbdxml-study-group

2nd meeting,
Wednesday 11 August – 8.00-10.00 – Room 34
Thursday 12 August - 16.00-18.00 – Room G1
Ad hoc meetings: Wednesday 11 August – 14.00-16.00 & Friday 13 August – 13.30-16.30

Draft Minutes

1.   Opening of the meeting, apologies and adoption of the agenda

Present: Gordon Dunsire (consultant), Elena Escolano Rodríguez (member & ISBD RG chair), Lynne Howarth, Françoise Leresche, Dorothy McGarry, Mirna Willer (Chair)

Absent: Boris Bosančić (XML expert)

Corresponding members: John Hostage, Judith A. Kuhagen (absent), Barbara B. Tillett

Observers: Massimo Gentili-Tedeschi, Françoise Bourdon, Daniel van Spanje, Marg Stewart, Emmanuelle Bermès, Vincent Boulet, Agnese Galeffi, Sandy Roe, Mauro Guerrini, Annene Hayes, Cristina Magliano, Partizia Martini, Christel Hengel, Marja-Liisa Seppālā.

Agenda was adopted. Two ad hoc meetings were scheduled to further discuss the modelling principles, and edit and approve the list of the preliminary representation of ISBD elements in RDF.

2.   Approval of the minutes of the 1st meeting

Minutes of the 1st meeting, August 2009, and the ad hoc meeting, 25 November 2009 were approved. M. Willer informed the meeting that the project plan for the 2nd year and the budget proposal for 2010 were accepted by the PC. The budget proposal envisaged travel expenses and recuperation of costs for the development of an application profile for ISBD, and the design of the XSLT for punctuation.

3.   <u>Matters arising from the minutes</u>:
   a. Decisions and actions: updated Action list from the Milan 2009 Minutes: review as of 05-07-2010
   b. Updated Project Development of ISBD/XML Schema: review of the project as of 05-07-2010

Matters arising from the minutes regarding decisions and actions were reviewed, updated, and approved, with the following decisions and actions in **bold**. Note that these minutes do not necessarily reflect the chronological order in which each topic was discussed.

<u>Decisions and actions</u>:

(1) Support the motion to form task force/alliance working group across Sections in Division III and beyond to position IFLA standards and models in the semantic web environment as authoritative documents for semantic web services and tools. **Done**

(2) Approve SG's involvement in VMF: Vocabulary Mapping Framework project,[1] and G. Dunsire as liaison for the Group. **G. Dunsire's report accepted: VMF matrix is publicly available for testing; funding is being sought for Phase 2 of the project**

Action 1: Monitor further development of IFLA Namespaces Technical Group and IFLA Core Activity; and monitor further development of the VMF mapping framework regarding possible inclusion of the ISBD (G. Dunsire)

(3) Analyse technical issues about ISBD and RDF/XML (Action: G. Dunsire & B. Bosančić, September-December 2009). **Report of the ad hoc meeting, 25 November 2009 accepted. The project's goals and objectives were updated based on the decision made at IFLA 2009 to re-direct the project to go directly to RDF/XML environment, as well as on the analysis discussed during ad hoc meeting. These provided the bases for the proposal made to the PC for the extension of the project to the second year (M. Willer) – project and financial requirements were accepted by the PC.**

Redefined Project's main objectives are:

(1) to build a consensus on the *raison d'être* of moving the ISBD into the web environment, and define possible uses of such a product; (2) to develop an ISBD RDF/XML schema; (3) to ensure the interoperability of the product with similar ones such as MARC/DCXML schemas, at least at the conceptual level, within the current semantic web technologies and services; (4) to liaise with relevant constituencies in the field; and (5) to propose further development of software tools and services.

The meeting discussed in detail the representation of ISBD elements in RDF (Resource Description Framework)[2] and usage constraints, such as mandatory/optional, order and repeatability of elements, and accepted that these will be dealt with within the development of the application profile – Dublin Core Application Profile (DCAP[3]) was proposed as in common

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[1] VMF: Vocabulary Mapping Framework project. Available at: http://cdlr.strath.ac.uk/VMF/index.htm

[2] Resource Description Framework: RDF. Available at: http://www.w3.org/RDF/

[3] For Guideline see http://dublincore.org/documents/profile-guidelines/

use, while the issues of punctuation will be dealt with within the design of the output format in XSLT.

Decisions to be approved by the ISBD Review Group: (1) express ISBD elements as RDF properties and vocabularies; (2) express the metadata record structure as a Dublin Core Application Profile (DCAP); and (3) express metadata output format, including punctuation, as an XSLT. Action: E. Escolano → Done, approved by the ISBD RG[4]

(4) Analyse modelling issues of ISBD in RDF/XML environment (Action: F. Leresche, M. Willer & interested members, November-December 2009). **Some of these issues were discussed in Dunsire-Willer paper for IFLA 2010.[5]**

The meeting discussed in great detail the modelling issues, and approved of the following: (1) the controlled vocabularies of the Area 0 to be represented in RDF using SKOS: Simple Knowledge Organization System; other ISBD terminologies will only be represented in SKOS if the need arises; (2) ISBD element set: metadata structure elements are represented in RDF as an element set of classes (entities that are described by the metadata) and properties (attributes and relationships between classes). There is only one class relevant to ISBD, the class resource, while all other ISBD elements are properties based on attributes (of the class). The domain of every ISBD property is the class Resource, while the range has not been registered to allow the value of the property to be literal or the URI of another RDF class or SKOS concept.[6] (3) the issue of aggregate elements, and super-elements (RDF: super-properties) should be further discussed as these are useful in opening ISBD to other communities, such as, e.g., RDA; (4) the use of opaque URIs (number not word which is semantically overloaded) in the registry was accepted as preferred, (5) the issues of translations of ISBD elements and the dangers of possible semantic drifts were preliminarily discussed within two scenarios: all translations of the element held within the same URI vs. each language its URI.

Action 2.1: Investigate registering super-properties (e.g., "has title", "has owner") as links to other domains or external namespaces: G. Dunsire to monitor such decisions/discussions within the IFLA Namespaces Technical Group.

Action 2.2: Recommend to the ISBD Review Group to accept the concept of super-properties as links to other domains or external namespaces as far as it will not influence the original ISBD document (E. Escolano) → Done, approved by the ISBD RG

Action 3: Argue the preference for opaque URIs within the IFLA Namespaces Technical Group (G. Dunsire)

Action 4.1: For purposes of language interoperability and modelling issues, and as part of the current scope of the project, test the controlled vocabularies of Area 0 that have been translated by the end of October, 2010, into Chinese, Spanish, Russian, Croatian, Italian, and French (G. Dunsire)

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[4] The ISBD Review Group adopted recommendations and/or decisions during its meetings held on 12 and 13 August 2010.

[5] Dunsire, Gordon; Mirna Willer. Initiatives to make standard library metadata models and structures available to the Semantic Web. // World Library and Information Congress: 76th IFLA General Conference and Assembly. Meeting 149. Information Technology, Cataloguing, Classification and Indexing with Knowledge Management "Libraries and the Semantic Web", 15 August 2010, Gothenburg, Sweden. Available at: http://www.ifla.org/files/hq/papers/ifla76/149-dunsire-en.pdf

[6] For further detail see the introduction to Report on the preliminary representation of ISBD elements in Resource Description Framework (RDF) for the IFLA ISBD/XML Study Group

Action 4.2: Define the task related to translation issues for the third year of the project (M. Willer)

Action 4.3: Liaise with, monitor and report on development and implementation of MulDiCat (Multilingual Dictionary of Cataloguing[7]) in SKOS/RDF on IFLA namespace (G. Dunsire and B. Tillett)

(5) Define uses and functions of ISBD in RDF/XML syntax within semantic web environment (Action: all, until July 2009) **Some of the issues discussed in Dunsire-Willer paper for IFLA 2010**

(6) Develop draft ISBD RDF/XML schema (Action: G. Dunsire & B. Bosančić, January-June 2010); **Preliminary representation of ISBD elements in RDF in the Open Metadata Registry[8] – finished: report from G. Dunsire**; review and comments prior to the IFLA meeting (Action: all, July-August 2010).

    Report accepted; see agenda item no. 4 below for discussion and recommendations.

(7) Analyse and define the functionalities of ISBD elements in relation to FRBR, new cataloguing rules such as RDA, REICAT and Finnish cataloguing rules (Action: all, until July 2010). **ISBD/Area 0 – ROF Interoperability by G. Dunsire (Appendix 1)** – to be discussed prior to IFLA meeting; reports of other research into interoperability to be added

    The meeting discussed the need for harmonization of ISBD/RDA; Marg Stewart, the JSC for Development of RDA representative to the ISBD Review Group informed the meeting that such a harmonization is on the agenda for future development of RDA, and also referred to RDA editor T. Delsey's document *RDA Element analysis*[9] for comparison and discussions on the representation of ISBD elements in RDF.

Action 5: Recommend to the ISBD Review Group to liaise with JSC concerning Area 0, particularly as it relates to RDA and the RDA/ONIX Framework (E. Escolano) → Done, will be on the agenda of the JSC and ISBD representatives meeting in Glasgow in late June 2011

(8) Analyse and support the concept of linked data, and promote its relevance to vendors in support of development of new generation library information systems (Action: all).**G. Dunsire is a member of the W3C Library Linked Data Incubator Group[10]; that is part of his being a liaison to the Semantic Web community (according to Decisions and actions 1); presentation(s): Dunsire-Willer paper for IFLA 2010; reports of other presentations to be added[11]**
The meeting discussed G. Dunsire's request to be given the permission to publicize and share the documentation and freely speak in other lists and with the W3C media, sharing the information with other groups.

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[7] Multilingual Dictionary of Cataloguing Terms and Concepts (MulDiCat) by MulDiCat Working Group, Cataloguing Section; edited by Barbara Tillett, Classification and Indexing Section. Available at: http://www.ifla.org/en/publications/multilingual-dictionary-of-cataloguing-terms-and-concepts-muldicat

[8] Open Metadata Registry. Available at: http://metadataregistry.org/

[9] RDA Element analysis. 5JSC/RDA/Element analysis/Rev/3, 1 July 2009. Available at: http://rda-jsc.org/docs/5rda-elementanalysisrev3.pdf

[10] W3C Library Linked Data Incubator Group. Available at: http://www.w3.org/2005/Incubator/lld/

[11] See other papers presented at the Meeting 149. Information Technology, Cataloguing, Classification and Indexing with Knowledge Management "Libraries and the Semantic Web", 15 August 2010, Gothenburg, Sweden. Available also at the blog of the IFLA New Professionals Special Interest Group: http://npsig.wordpress.com/2010/08/17/libraries-and-the-semantic-web/

Recommendation to the ISBD Review Group: In order to promote the ISBD better in the semantic web approve that Gordon Dunsire could publicize and share the documentation and freely speak in other lists and with the W3C media, sharing the information with other groups. → Approved by the ISBD Review Group, with decision to be kept informed by G. Dunsire of all these activities

Action 6: Liaise with W3C, specifically W3C Library Linked Data Incubator Group, in order to inform the group of the discussions and decisions taken in regard to modelling ISBD, as well as to report back on discussions within and recommendations by the IG (G. Dunsire, E. Bermès)

4.   ISBD/RDF Representation Report: RDF registration of ISBD elements in Open Metadata Registry

The meeting discussed and analyzed in great detail G. Dunsire's *Report on the preliminary representation of ISBD elements in Resource Description Framework (RDF) for the IFLA ISBD/XML Study Group*, and compared it to the A.3.1 Outline of the ISBD and specification of elements as published in the world-wide review version of the ISBD, taking into consideration modelling issues. The list of registry entries of ISBD elements was updated according to the results of the comparison, while the following (hierarchical) structure of elements was defined and accepted: aggregate statement (e.g., Area 1), super-element (e.g., ISBD super-element „title", i.e., RDF super-property „has title"), element (e.g., title proper), sub-element (e.g., common title, dependent title designation, dependent title – sub-elements to element „title"), and sub-type to element or sub-element (e.g., „statement of equinox" is sub-type to element „longitude and latitude").

Action 7.1: Update the list following the above decisions by 1 September (M. Willer), review the updated list by 30 September (All) to be ready for the adoption at the ad hoc meeting beginning of October (G. Dunsire, B. Bosančić, M. Willer), and the final version to be sent to the ISBD Review Group by 15 October 2010 (M. Willer)

Action 7.2: Recommend to the ISBD Review Group to update/revise naming and/or definition of elements as found appropriate by the process of representation of ISBD in RDF, as part of its terms of reference (E. Escolano) → Done, approved by the ISBD RG

Action 7.3: Recommend to the ISBD Review Group to include the list of elements as represented in RDF in the consolidated edition (E. Escolano) → Done, approved by the ISBD RG

Action 7.4: Add class Resource as a domain to all the elements (properties) in the registry (G. Dunsire)

Action 7.5: Following adoption of the final version of the ISBD by the Cataloguing Section Standing Committee, revise the list with the preliminary representation of ISBD elements (all, report to M. Willer and G. Dunisre), and update the elements registered in Open Metadata Registry (G. Dunsire). Define this task for the third year of the project (M. Willer)

Recommendation to the ISBD Review Group: Publish independently the list after approval of the ISBD by the Cataloguing Section in order not to delay the work of the ISBD-XML Study Group (Escolano). → Approved by the ISBD Review Group

Action 7.6: Following adoption of the final version of the ISBD by the Cataloguing Section Standing Committee, update as appropriate the application profile and XSLT display format (B. Bosančić) by August 2011. Define this task for the third year of the project (M. Willer)

5.   ISBD Consolidated Edition, draft of 2010-05-10: Comments arising from the preliminary registration of the ISBD elements in RDF; ISBD Area 0: Interoperability to RDA/ONIX Framework **ISBD/Area 0 – ROF Interoperability by G. Dunsire (Appendix 1); comments on ISBD world-wide review by G. Dunsire (Appendix 2) and M. Willer (Appendix 3)** – to be discussed prior to IFLA meeting; reports of other research into interoperability to be added

The meeting discussed Area 0 primarily from the modelling aspect; specific comments on the world-wide review were discussed also as part of discussions concerning representation of ISBD elements in RDF.

Recommendation to the ISBD Review Group: not to use defaults in controlled vocabulary of Area 0 (E. Escolano) → Done, approved by the ISBD RG

Action 8: Review the modelling approach of Area 0 in light of VMF and RDA/ONIX Framework, and collaborate on these issues with W3C LLD Incubator Group (G. Dunsire, E. Bermès)

6.   Punctuation: ISBD Review Group Meeting's Report, Frankfurt, February 2010; discussion on ISBD from the perspective of content standard

The meeting did not discuss specifically the report; however, the issue of punctuation was dealt in conjunction with the design of the XSLT display format (see above).

7.   Proposed work schedule for ISBD/XML Study Group (August 2010 – January 2011)

The meeting reviewed the work schedule from August 2010 to January 2011 proposed by G. Dunsire (Appendix 4). The schedule involves two face-to-face meetings of the consultant, XML expert and the chair (Dunsire, Bosančić and Willer) at the beginning of October, and middle of November, as well as G. Dunsire's attendance at the W3C LLD Incubator Group meeting in Pittsburgh in October. Travel expenses for the three meetings will be covered by the ST's budget. **The schedule was approved.**

The meeting also agreed that the work of the SG should be extended to the third year in order to finalize the representation of ISBD consolidated edition (to be published in 2011) in RDF, subsequently update the application format and the XSLT for punctuation for display format. The issue of implementation of IFLA registry, as part of the task by Namespaces Technical Group or some other IFLA body was discussed, and agreed that time should also be scheduled for the move from the Open Metadata Registry to the IFLA's one.

Recommendation to the ISBD Review Group: accept the extension of the ISBD/XML Study Group work for another year to include the realization of the technical part of the project (E. Escolano) → Done, general approval for the extension, i.e., third year of the project, given by the ISBD RG

8.   Other business

The meeting discussed the possible involvement of the ISBD/XML SG in the work on the representation of UNIMARC bibliographic format content designation in RDF, as part of its charge under (3) to ensure the interoperability of the product with similar ones such as MARC/DCXML schema of the Project's

main objectives. M. Willer reported that Permanent UNIMARC Committee (PUC) put the issue on its agenda for the meeting on 13 August 2010.[12]

Action 9: Monitor development of representing UNIMARC in RDF, with possible involvement due to gained experience and decisions taken for ISBD, and the requirements for interoperability between the two (G. Dunsire, F. Leresche – liaison of the ISBD RG to the PUC, M. Willer)

Proposal to include additional corresponding members was approved; these are E. Bermès (BnF), C. Hengel (DNB) and P. Martini (ICCU).

Respectfully submitted by Mirna Willer, University of Zadar, Croatia
ISBD/XML Study Group, Chair

30 September 2010

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[12] G. Dunsire reported briefly to the PUC on the need to represent IFLA standards in RDF, and the meeting accepted his proposal to start a test trial with new UNIMARC fields for Area 0 after they are accepted at the PUC meeting in March 2011.

Appendix 1

Analysis of content and carrier designators in the ISBD consolidated edition with respect to the RDA/ONIX Framework

Background

This analysis was carried out as part of the work of the ISBD/XML Study Group. The content and carrier designators defined in Area 0 of the 10 May 2010 draft of the consolidated edition of International Standard Bibliographic Description (ISBD) released for world-wide review (http://www.ifla.org/files/cataloguing/isbd/isbd_wwr_20100510.pdf) have been given an RDF/XML representation using the NSLD Metadata Registry. The representations can be found at:

- http://metadataregistry.org/vocabulary/show/id/113.html (ISBD Content Form)
- http://metadataregistry.org/vocabulary/show/id/117.html (ISBD Content Qualification of Dimensionality)
- http://metadataregistry.org/vocabulary/show/id/116.html (ISBD Content Qualification of Motion)
- http://metadataregistry.org/vocabulary/show/id/118.html (ISBD Content Qualification of Sensory Specification)
- http://metadataregistry.org/vocabulary/show/id/115.html (ISBD Content Qualification of Type)
- http://metadataregistry.org/vocabulary/show/id/114.html (ISBD Media Type)

This analysis identifies interoperability issues that arise when linking the ISBD designators to RDA/ONIX Framework for Resource Categorization, version 1.0 (ROF) (http://www.loc.gov/marbi/2007/5chair10.pdf) in a Semantic Web environment, through the Vocabulary Mapping Framework (VMF) matrix (http://cdlr.strath.ac.uk/VMF/documents.htm) or other mechanism, and to other content and carrier vocabularies based on ROF. The principal examples of such other vocabularies come from RDA: resource description and access.

Methodology

ROF attributes were recorded in an MS Access database. ROF provides a set of sample content and carrier terms mapped to attributes, and these were also included in the database to act as a guide and check.

RDA does not provide explicit mappings to the ROF attributes so these were derived by analysing the definitions of RDA content and carrier terms. The RDA terms, definitions and mappings were added to the database.

The same procedure was carried out with the ISBD vocabularies.

Mappings between ISBD and RDA terms were then derived from their mappings to ROF attributes.

The mappings between ISBD and RDA and ROF were then used to determine the extent of interoperability between terms in ISBD and RDA vocabularies, and between those terms and ROF.

This report makes a number of recommendations to improve the interoperability of ISBD content and carrier designators, and to improve their utility within ISBD.

Content designators

Full base content categories
The following ISBD designators can be mapped to a **base content category** in ROF. A base content category contains values for the attributes *Character*, *SensoryMode*, *ImageDimensionality*, and *ImageMovement*. The sets of values for all four attributes are "covering" sets; all possibilities are covered.

The RDA label for the same base content category is given where available.

ISBD designator	RDA label
program; dataset *	computer program; computer dataset; cartographic dataset
sounds	sounds
spoken word	spoken word

* Two ISBD and three RDA categories map to the same ROF base content category.

Partial base content categories
The following ISBD designators can be mapped to one or more, but not all, ROF base content category attributes.

There are no equivalences with RDA because every RDA label can be mapped to all attributes in a specific ROF base content category.

The number of ROF base content category attributes mapped is given.

ISBD designator	No. of ROF attributes
2-dimensional	2
3-dimensional	2
aural	1
gustatory	1
image	2
movement	1
moving	2
music	1
object	1
olfactory	1
still	2
tactile	1
text	3
visual	1

The following designators do not map to any attribute in a ROF base content category.

ISBD designator

cartographic	
multiple content forms	
notated	
other content form	
performed	

Aggregate ISBD designators
The following RDA content types map to an aggregate ISBD designator.

RDA label	ISBD designator (aggregated)
cartographic image	image (cartographic ; still ; 2-dimensional)
cartographic moving image	image (cartographic ; moving ; 2-dimensional)
cartographic tactile image	image (cartographic ; still ; 2-dimensional ; tactile)
cartographic tactile three-dimensional form	object (cartographic ; tactile)
cartographic three-dimensional form	object (cartographic ; still ; 3-dimensional)
notated movement	movement (notated)
notated music	music (notated)
performed music	music (performed)
still image	image (still ; 2-dimensional)
tactile image	image (still ; 2-dimensional ; tactile)
tactile notated movement	movement (notated ; tactile)
tactile notated music	music (notated ; tactile)
tactile text	text (tactile)
tactile three-dimensional form	object (tactile)
text	text (visual)
three-dimensional form	object (still ; 3-dimensional)
three-dimensional moving image	image (moving ; 3-dimensional)
two-dimensional moving image	image (moving ; 2-dimensional)

Complete RDA-ISBD mapping of content designators
Mapping of all RDA content types to ISBD:

RDA label	ISBD designator
cartographic dataset	dataset (cartographic)
cartographic image	image (cartographic ; still ; 2-dimensional)
cartographic moving image	image (cartographic ; moving ; 2-dimensional)
cartographic tactile image	image (cartographic ; still ; 2-dimensional ; tactile)
cartographic tactile three-dimensional form	object (cartographic ; tactile)
cartographic three-dimensional form	object (cartographic ; still ; 3-dimensional)
computer dataset	dataset
computer program	program
notated movement	movement (notated)
notated music	music (notated)
other	other content form

performed music	music (performed)
sounds	sounds
spoken word	spoken word
still image	image (still ; 2-dimensional)
tactile image	image (still ; 2-dimensional ; tactile)
tactile notated movement	movement (notated ; tactile)
tactile notated music	music (notated ; tactile)
tactile text	text (tactile)
tactile three-dimensional form	object (tactile)
text	text (visual)
three-dimensional form	object (still ; 3-dimensional)
three-dimensional moving image	image (moving ; 3-dimensional)
two-dimensional moving image	image (moving ; 2-dimensional)

Interoperability of content designators
The main issue affecting interoperability between ISBD and RDA content designators is likely to be the ambiguity of the instruction for qualifying ISBD content designators (ISBD 0.2): "[Use] ... as many terms as are appropriate to expand on or further clarify the corresponding content form category ."

This may result, for example, in the ISBD aggregate designator "image (still)" which would appear on the surface to have the same meaning as the RDA designator "still image". But the RDA definition specifically mentions two-dimensionality, and the equivalent RDA designator for three dimensions is "three-dimensional form". So ISBD "image (still)" could refer to either of RDA "still image" or "three-dimensional form".

Recommendation: Include a mapping from RDA to ISBD content designators in ISBD, or refer from ISBD to separately published mapping.

Recommendation: Expand the ISBD 0.2 instruction to alert users to potential ambiguity if qualifiers are not added because they are assumed to be implicit in the content form term.
Note that this example exposes another area of ambiguity within ISBD. RDA "three-dimensional form" is mapped to ISBD "object (still ; 3-dimensional)", but could equally well map to "image (still ; 3-dimensional)" because ISBD's definitions of "image" and "object" overlap: both refer to visual resources in three-dimensions.

Recommendation: Redraft the definitions of "image" and "object" to ensure that there is no overlap. These issues also affect the interoperability of ISBD and the VMF matrix, which includes the ROF attributes.

Utility of content designators
All RDA content designators map to a ROF base content category, and therefore all ISBD designators mapped to RDA also map to a base content category. A base content category allows the retrieval of metadata for all resources with a specific valuefor one or more of the four attributes *Character*, *SensoryMode*, *ImageDimensionality*, and *ImageMovement*. For example:

- Resources which require hearing (SensoryMode equals "hearing")
- Resources which do not require a visual sense (SensoryMode not-equal-to "sight")

- Resources which are two-dimensional images (Character equals "image" and ImageDimensionality equals "two-dimensional")

ISBD designators which do not, or only partially, map to a base content category (either directly or via RDA) lose some or all of this utility. For example, ISBD "text" does not map to a single specific value for SensoryMode ("sight" or "touch" are possibilities), whereas "text (visual)" and "text (tactile)" do. Therefore "text" as an ISBD designator cannot support the second example given above. But "text" is given in the examples following ISBD 0.3. This could be taken to imply that "text" defaults to "text (visual)", but does not prevent the loss of retrieval utility. Since the cataloguer has the "book" (the example of a "text" given in ISBD) in hand, and must know that it is either "text (tactile)" (e.g. a Braille book) or "text (visual)" (e.g. a printed or handwritten "book"), or even "text (olfactory)" (a smelly book), there is no need for ISBD to use the less useful designator "book".

The utility of ISBD area 0 "to assist catalogue users in identifying and selecting resources appropriate to their needs" would be better served by an indication of how the content (and carrier) designators would work in practice (and especially in relation to online retrieval), and the use of examples that clearly support such processes.

Recommendation: Add an explanation to ISBD area 0 to show how content and carrier designators can be used in practice in an online environment to meet the needs of users.

Recommendation: Use examples in ISBD area 0 that are not ambiguous and clearly support the utility of area 0, or which illustrate problems when implicit assumptions are made.

Carrier designators
The ISBD media type is equivalent to the RDA media type. Neither can be mapped to a **base carrier category** in ROF, which contains values for the attributes *StorageMediumFormat*, *HousingFormat*, and *IntermediationTool*. Instead, ISBD and RDA media types map to the single attribute IntermediationTool.

ISBD label	RDA label	ROF label
audio	Audio	audio player
electronic	Computer	computer
microform	Microform	microform reader
microscopic	Microscopic	microscope
multiple media		
other media		
projected	Projected	projector
stereographic	Stereoscopic	stereoscope
video	Video	audiovisual player
[blank]	Unmediated	not required

ISBD does not provide a controlled vocabulary equivalent to RDA's carrier type, or other ROF carrier attributes.

Interoperability of carrier designators
The only issue affecting interoperability of ISBD media types with RDA and ROF (and therefore the VMF matrix) is the value "other media". This term is not in conflict with ROF because the attribute

IntermediationTool does not have a "covering" set of values that exhausts all possibilities. There is therefore a possibility that new values will be added to ROF in the future.

Recommendation: The ISBD Review Group monitors use of the media type "other media" to inform the addition of new values to the ROF IntermediationTool attribute and ISBD media types.

Multiple content and carrier designators
Although ROF does not require all applicable content and carrier categories to be recorded for a resource, it does provide a set of five values to indicate the extent of applicability of a category to a resource (full, predominate, substantial, some, none).

ISBD does not provide explicit indicators. ISBD provides the value "multiple content forms" as an alternative to recording three or more categories of equal predominance. This value contains no information about any specific type of content, and is therefore not interoperable with other content designators within ISBD or external to ISBD.

ISBD does not adequately address the issue of predominant categories applicable to the main resource. There is an instruction covering the situation for accompanying material: "For works of mixed content where one part of the resource is predominant and other content is considered accompanying material (*see* 5.4), the term corresponding to the predominant part of the resource is recorded." (ISBD 0.1) but this does not cover the case where other (non-predominant) content is NOT considered accompanying material. It is not clear, for example, how to record content designators for a printed book containing more than a few illustrations (but not enough to be considered predominant). As it stands, the likely interpretation of this instruction is to NOT record the designator "image (still ; 2-dimensional)" in addition to "text (visual)". The information about illustrations can be recorded in ISBD area 5 (Physical description), but the absence of a controlled vocabulary for this area means that any such information will not be easily interoperable between ISBD records, and between ISBD records and other metadata formats.

Absence of controlled designators for non-predominate aspects of a resource is also detrimental to the utility of ROF in meeting user needs for specific types of content and carrier. A restrictive approach based on predominance forces libraries to ignore the needs of user communities.

Recommendation: Redraft the instruction concerning mixed content at ISBD 0.1 to clarify the treatment of mixed content and media resources.

Recommendation: Allow the recording of any applicable content and media designators, rather than just predominate ones.

Gordon Dunsire
23 June 2010

Appendix 2

Comments on the International Standard Bibliographic Description (ISBD) Consolidated Edition, draft of 2010-05-10, arising from the preliminary registration of ISBD elements in RDF

These comments arise from work to identify and register ISBD classes and properties in Resource Description Framework on behalf of the ISBD/XML Study Group. The preliminary registration in the NSDL Metadata Registry is available at http://metadataregistry.org/schema/show/id/25.html

Identification of ISBD elements

The identification of ISBD elements is difficult, despite the claim that "The ISBD is the standard that determines the data elements to be recorded ..." (7). There is a reference to a mapping of elements to FRBR (74), but this is acknowledged in the footnote to be out-of-date. The table of contents gives "Specification of elements" which have notations to one decimal place. The main text appears to specify elements with notations greater than one decimal place. For example **4.2.10 Parallel statements of publisher, producer and/or distributor** seems to indicate an element because 4.2.10.2 states "Parallel statements may be given". However, the notation of the main text does not exclusively indicate an element. The only part of ISBD that gives a list of elements (assuming the table of contents is based more on a limit to the notation hierarchy (i.e. two levels) is the Outline of the ISBD (551). Some elements listed have notations with more than one decimal place, which indicates that any assumption that elements are indicated by notations with one decimal place is false. (Note, however, that the FRBR mapping only includes ISBD elements with notations with one decimal place.) Unfortunately, the Outline does not include all the elements which appear in the main text, such as the example of 4.2.10 given above.

The word "subelement" is mentioned only once (875). There is no indication of how a subelement is defined. Using the example of 4.2.10, it is not clear whether "parallel statement of publisher, producer and/or distributor" is an element in its own right, a subelement of **4.2 Name of publisher, producer, distributor** as the notation suggests, or a subelement of some implicit "parallel statement" element suggested by the occurrence of several other instances of similar subelements in ISBD.

Recommendation: ISBD should contain a clear, formalised list of its elements and subelements.

Corrections
Footnote reference 8 (ISBD-FRBR mapping) on page vii has an out-of-date URL. The correct URL is http://www.ifla.org/files/cataloguing/isbd/isbd-frbr-mapping.pdf

Inconsistencies
A.3.1 has "1.1.5.2 Subsequent title by same author, etc."; 1.1.5.2 has "Resources without a collective title" (1528).
A.3.1 has "1.4 Statements of responsibility"; 1.4 has "Statement of responsibility" (2071).
A.3.1 has "1.4.5.11.2 Subsequent title by different author, etc."; 1.4.5.11.2 has no caption (2637).
A.3.1 has "2.5 Statements of responsibility following an additional edition statement"; 2.5 has "Statement of responsibility following an additional edition statement" (3078).
A.3.1 has [3.3] "Chronological designation" with its own punctuation; 3.3 does not distinguish "Chronological designation" as an attribute in its own right.

A.3.1 has "3.3.5-3.3.6 Subsequent or parallel system of numbering" and "3.3.8 Subsequent system of numbering". A.3.1 should read "3.3.5-3.3.6 Parallel system of numbering".

A.3.1 has [5.3] "Format for older monographic resources". 5.3.2 has " 5.3.2 Bibliographic format and dimensions for older monographic resources" (5260). A.3.1 should read "5.3.2 Bibliographic format and dimensions for older monographic resources".

A.3.1 has "5.4 Accompanying material designation"; 5.4 has "Accompanying material statement" (5315).

A.3.1 has "6.4 Statements of responsibility relating to series or multipart monographic resource"; 6.4 has "Statement of responsibility relating to series or multipart monographic resource" (5518).

A.3.1 has "6.5 International Standard Serial Number of series or subseries"; 6.5 has "International standard number of series or subseries" (5542).

A.3.1 has [8.1] "Fingerprint (for older monographic resources)"; 8.1.5 has "Fingerprint" (6929). A.3.1 should read "8.1.3 Fingerprint (for older monographic resources)".

(827) A.6.1 should read "for older monographic resources:" (with colon) for consistency.

(5260) **5.3.2 Bibliographic format and dimensions for older monographic resources** should read "Bibliographic format and dimensions (Older monographic resources) for consistency. Cf **3.2 Music format statement (Notated music)**, **3.3 Numbering (Serials)**.

(5278) **7.0.2 Bibliographic reference note for older monographic resources** should read "Bibliographic reference note (Older monographic resources)" for consistency, as above.

 (5038) **5.2.5 Reduction ratio (microforms)** should read "Reduction ratio (Microforms)" to have consistent capitalization.

5.3.1.1 does not mention use of the abbreviation "diam."; other sections of 5.3 do.

(5944) lacks end-of-item semicolon.

7.2.4.7.1 Continuation omits "(or the equivalent in another language)" after prescribed vocabulary (6183, 6188).

7.2.4.7.3 Split or separation omits "(or the equivalent in another language)" after prescribed vocabulary (6226, 6234, 6245).

7.2.4.7.4 Absorption omits "(or the equivalent in another language)" after prescribed vocabulary (6253, 6260).

(6568) **7.6.3** references **6.1.3** which does not exist.

(6929) **8.1.5 Fingerprint** should read "Fingerprint (Older monographic resources)" for consistency, as above.

Gordon Dunsire
4 July 2010

Appendix 3

Comments on **International Standard Bibliographic Description (ISBD). Consolidated edition. Draft as of 2010-05-10** (WWR)

Introduction
p. x, l. 193: „it has been clarified that qualifiers are different from elements" – this is not clear, what does it refer to?

A General Chapter
p. 1., A.1.2 Purpose: suggestion - add a new bullet to ISBD aims that would refer to its positioning in the semantic web environment, or broaden in that respect the present statements that refer to the uses of ISBD records only/primarily in bibliographic/library sense. For example, the one similar to UNIMARC: Enhance the portability of UNIMARC [ISBD] data to the [semantic] Web environment and the interoperability of UNIMARC [ISBD]with other data standards
p. 10, A.3.1 Outline of ISBD:
(1) „Mandatory": elements are marked as Mandatory according to the FRBR (according to the text on p. vii) and they refer to data as such; however, they do not refer to the ISBD record – there is no mention of what mandatory elements make a <u>valid</u> ISBD record.

If decided to define what elements constitute a mandatory record, either of the two options can be followed: (1) Attributes and Relationships of Manifestations, as an ISBD record is based on the manifestation (high value in the table 6.3), take into account: <u>Find</u>: Title of the manifestation (title proper), and Manifestation identifier; & <u>Identify</u>: Title of the manifestation, Statement of responsibility, Edition/Issue designation, Publisher/Distributor, Date of publication, Series statement (!), Form of carrier and Manifestation identifier, as well as Folliatin and Collation (hand-printed book!) and Numbering (Serial!) [If there is a condition that an element is mandatory for a particular type of resource, the record should state what type of resource it stands for! Area 0 does not supply that information in a unique way.]; OR (2) Basic Level of Functionality (7.1): <u>Find</u> a particular *manifestation*: when the name(s) of the *person(s)* and/or *corporate body(ies)* responsible for the *work(s)* embodied in the *manifestation* is (are) known (Statement of responsibility!), when the title of the *manifestation* is known (Title proper), when the *manifestation* identifier is known; and <u>Identify</u> a *manifestation*.

[The question is do we need such a restriction for an ISBD/XML record? The issue will be further discussed within the ISBD/XML Study Group; comments from the ISBD RG would be appreciated.]

(2) Repeatability of elements/areas:

- it would be useful to have a short explanation of the concept of repeatability in the ISBD record;
- Area 4 (field 210) is repeatable in UNIMARC on the specific requirement of serials librarians (ISSN) for "recording sequence of publication data". I do not recall that ISSN representatives have brought that up, as it is necessary to have controlled info on that type of data, in contrast to notes area.

(3) Punctuation of elements missing from the table on p.11-12:

- Area 0: . Subsequent content form (R); + for different media types
- Area 4: ; Subsequent place of printing or manufacture

- Parallel elements: parallel data/punctuation is specifically mentioned with certain elements, but not with all the possible ones. Not to make the table "over informative" with details, perhaps a note on this specificity could be added in the introduction so that those who would read this section as basic information and guideline would have it all in one place.

(3) Order of areas & elements: order of ISBD elements is taken for granted by librarians/cataloguers, and is implicit in the whole document. However, an explicit sentence on general rules would be useful for its understanding specifically to the "technical" communities which ISBD also aims at.

p. 12., [as in captions of specific elements]
5.4 Accompanying material <u>designation</u>, should read: ... statement
6. Series: „a" series is missing from all captions; Title proper of series, should read: Title proper of <u>a</u> series
0 Content form and media type area
p. 0-1, E, 2nd line: subsequent content form, add (content qualification)
p. 0.3-1: Mediy type (Mandatory) & the last sentence: Where no media type is recorded – rewording is suggested from the point of view of the element and its „nature" , such as: When a resource is assumed to be „unmediated".... or perceive the resource, the recording of media type is not mandatory.
p. 0.3-3, Examples: two additional examples proposed
Text + Movement (notated)
	Editorial comment: a book comprised equally of the text and dance notation

Spoken word : audio
	Editorial comment: a talking book on 3 audio CDs

1 Title and statement of responsibility area
p. 1-1, l. 1130, E. Titles of..., add: anonymous works
p.1-2-11, 1.1.5.2, 1st para: the last sentence in brackets is in contradiction with the three last examples, which, in fact, are used to explain the provision for the edition statement that relates to the resource without a collective title. A proposal: move this sentence before the one starting with „Edition statement..."
2.2 Parallel edition statement
p. 2.2-1, l. 2995: 2. preradeno, should read: 2. Prerađeno

7 Note area
p.7-1, l. 5640: „... making links to monographic resources, the monographic resource <u>should be cited by title proper</u> and statement of responsibility, if any."
The provision does not correspond to the ones in 7.2.4.1 Translations & 7.2.4.2 Reproductions, where original title is recorded (authorized/uniform title); while in other 7.2.4 (title proper which is basically also the original title) provisions, and in 7.7 Notes relating to the contents title proper is recorded.

Mirna Willer, 29 June 2010

Appendix 4

Proposed work schedule for ISBD/XML Study Group (August 2010 – January 2011)

Background

The proposal made to ISBD Review Group meeting in Frankfurt on 4-6 February 2010 involves three major components:

1. Express metadata structure and vocabulary elements of ISBD as RDF elements sets and vocabularies.

2. Express the metadata record structure, including mandatory and repeatable structure elements, sequence of elements, etc., as a Dublin Core Application Profile (DCAP). To avoid any misunderstanding, note that a DCAP does not have to involve any Dublin Core elements. It is a generic method for representing metadata record structures and is recommended by the Semantic Web community.

3. Express metadata output formats, including punctuation, as an XSLT.
No feedback was received from the Frankfurt meeting, so it is proposed to proceed with this approach.

Note: the only alternative to using a Dublin Core Application Profile that I am aware of is Web Ontology Language (OWL) and specifically the latest version, OWL 2. But this is very new and lacks general support, does not provide the same ease-of-use and flexibility, and tools to automatically convert between DCAP and OWL are likely to be developed in due course.

The first component is nearly complete [Gordon]. A preliminary representation of the ISBD element set and vocabularies has been registered in the NSDL Metadata Registry. Further development of this component is dependent on feedback from the ISBD/XML Study Group and the world-wide review of ISBD, and issues arising from work on the other two components.

Dublin Core Application Profile for ISBD

The next component to work on is a Dublin Core Application Profile for ISBD conforming to Guidelines for Dublin Core application profiles[13].

Note: This is significantly more technical than the earlier versions of DC application profiles, such as the Library application profile[14]. The only application profile that conforms to the current version is, I believe, to be the Scholarly Works Application Profile[15], although there has been discussion about developing the Dublin Core Collections Application Profile[16] to conform to the current version. Following the Guidelines, this stage of the work will focus on the upper tier of the Singapore Framework.

Note: The middle tier contains community domain models and metadata vocabularies. Middle tier components relevant to ISBD are FRBRer, RDA, and the RDA/ONIX Framework (ROF) (they must have

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[13] Guidelines for Dublin Core application profiles. Available at: http://dublincore.org/documents/profile-guidelines/

[14] Library application profile. Available at: http://dublincore.org/documents/library-application-profile/

[15] SWAP. Available at: http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Application_Profile

[16] Dublin Core collections application profile. Available at: http://dublincore.org/groups/collections/collection-application-profile

RDF representations). But only some FRBRer and VMF (ROF) classes seem useful, and then only indirectly. Conclusion: Middle tier components do not require in-depth analysis at this stage. From the upper tier sequence:

Functional requirements

These can be taken from ISBD/XML SG goals, ISBD itself, etc. [To do: Mirna with assistance from Boris and Gordon]

Domain model

There is only one "thing" in ISBD: Resource.

Define metadata terms

That is, properties of the entities in the domain model. For ISBD, these are the attributes. There are no entity-relationship properties in ISBD. All attribute properties have URIs from the Registry.
For each registered property, we need to provide answers to the set of questions in the Guidelines. Except for Area 0, there are no controlled values for the attributes, so most property values will be free text.We need to check whether any properties need complex values with multiple components (e.g. higher-level "statements"). [To do: Boris, Gordon, Mirna]

The answers should be entered on a technical analysis table, as shown in the Guidelines. [To do: Boris with assistance from Gordon]

Description sets

Description sets are detailed using Description Set Profiles[17] (DSP) markup.

Note: XML[18] and RDF/XML[19] can be used. We need to check if there is a converter tool available somewhere, to convert XML to RDF/XML [to do: Boris]

We need to create a Description template for the class Resource (the "thing" in the domain model), and a Statement template for every property. These templates contain the constraint rules such as value type, repeatability/mandatoriness, etc. [to do: Boris with assistance from Gordon]

Usage guidelines

Usage guidelines include rules for assigning values (i.e. metadata content) taken from ISBD itself, one or more minimum record specifications, punctuation specifications (as text and/or XSLT).
We need to develop and assign usage guidelines to the application profile at general and property-specific levels [to do: Boris, Gordon, Mirna]

XSLT for punctuation

This last component will be informed by work on the application profile. It should not take very long to develop once the application profile is expressed in XML.

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[17] Description Set Profiles: a constraint language for Dublin Core application profiles. Available at: http://dublincore.org/documents/2008/03/31/dc-dsp/

[18] Expressing Dublin Core description sets using XML (DC-DS-XML). Available at: http://dublinecore.org/documents/dc-ds-xml

[19] Expressing Dublin Core metadata using the Resource Description Framework (RDF). Available at: http://dublincore.org/documents/dc-rdf/

Schedule

Develop functional requirements	Jul-Oct 2010	Mirna
Complete technical analysis table for properties	Jul-Oct 2010	All
Develop Description and Statement templates	Jul-Dec 2010	Boris + Gordon
Develop and incorporate usage guidelines	Oct-Dec 2010	All
Complete application profile	Nov-Dec 2010	All
Develop XSLT for punctuation	Nov 2010-Jan 2011	Boris + Gordon

Note: Although meeting the original completion date of Jan 2011 is doable, we may need a couple of extra months, say to Mar 2011.

Note: Several days of face-to-face meetings during Oct-Dec 2010 will be useful. These could be split into two sessions held in Croatia, one in early Oct, and another perhaps around AKM in Nov.

Further reading

The following references *may* supply useful additional information.

Note: I suspect that much of this has been absorbed into the Guidelines and Singapore Framework.

- Combining RDF and XML schemas to enhance interoperability between metadata application profiles (2001: Hunter, Lagoze)[20]

- XML schema datatypes in RDF and OWL (2006)[21]

- XML2OWL demonstration platform[22]

- Mapping XML schema to OWL (Anicic and others)[23]

Gordon Dunsire, 5 July 2010

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[20] Available at: http://www10.org/cdrom/papers/572/index.html

[21] Available at: http://www.w3.org/TR/swbp-xsch-datatypes/

[22] Available at: http://xml2owl.sourceforge.net/index.php?input=help

[23] Available at: http://www.springerlink.com/content/185x3550q5085r81/fulltext.pdf