



Linked Data in Alma : URIs and BIBFRAME Conversion of MARC Tag 880

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Outline

- URI and Alma Linked Data
 - What is URI? Why do we need URIs?
 - Types of URIs supplied by Alma and places they appear
 - Analysis of Alma URIs Exposed to Primo
- BIBFRAME Conversion of MARC Tag 880
 - What is 880 in LC MARC 21? Flipping 880
 - LC's marc2bibframe2 converter
 - Problems and proposals
 - Experimental conversion and learning platform

Part One
URI and Alma Linked Data
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What Is URI?

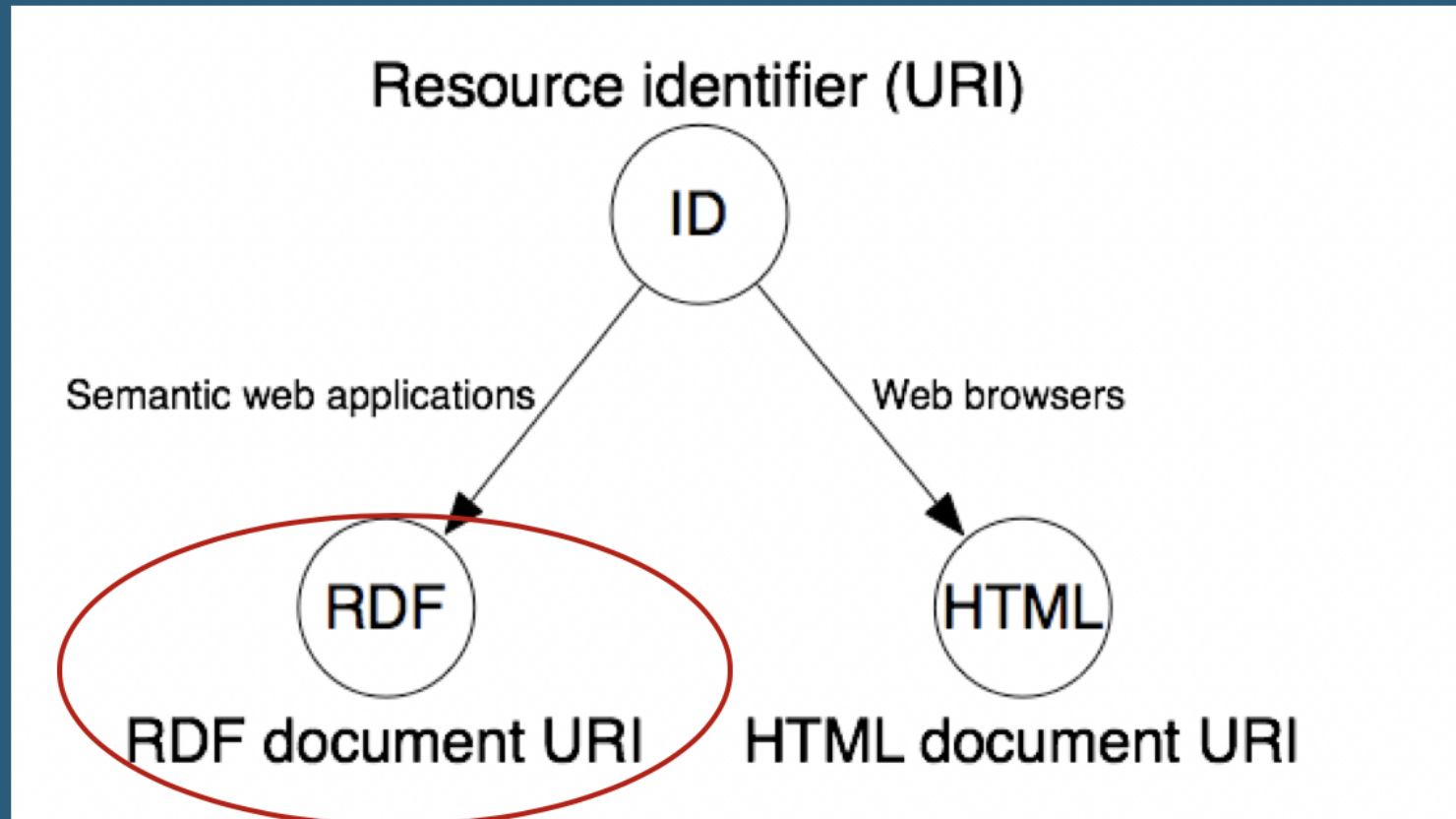
URI stands for Uniform Resource Identifier. It is “a string of characters that **unambiguously** identifies a particular resource.”

A URI constructed with the HTTP protocol is referred to as an HTTP URI.

-- *URI FAQs: PCC URI Task Group on URIs in MARC*

<https://www.loc.gov/aba/pcc/bibframe/TaskGroups/URI%20FAQs.pdf>

Machine-actionable URI vs. URL



3XX: Request will
complete after
further action

301 (Redirect)
303 (See other)

2XX: Request
successfully received,
understood and
accepted

<https://www.w3.org/TR/cooluris/>

Courtesy of Jackie Shieh, Smithsonian Libraries

id.loc.gov/authorities/names/n79059023.html

LIBRARY LIBRARY OF CONGRESS

Everything Search Loc.gov

The Library of Congress > Linked Data Service > LC Name Authority File (LCNAF)

Singapore

URI(s)

- <http://id.loc.gov/authorities/names/n79059023>

Instance Of

- MADS/RDF Geographic
- MADS/RDF Authority
- SKOS Concept

Scheme Membership(s)

- Library of Congress Name Authority File

**URI known as
URL**

Machine-actionable URI

Why Do We Need URIs?

Linked Data is a set of principles for publishing structured data on the web:

1. Use **URIs** as names for things
2. Use **HTTP URIs** so that people can look up those names
3. When someone looks up a **URI**, provide useful information, using the standards (RDF, SPARQL)
4. Include links to other **URIs** so that they can discover more things

Linked Data depends on URIs, especially machine-actionable URIs!

Types of URIs Supplied by Alma

Alma supplies the following URIs (when relevant) to bibliographic records:

- German National Library headings (GND)
- Library of Congress names
- Library of Congress subjects headings (LCSH)
- Local authority files, such as Hong Kong Chinese Authority (Name) (HKCAN)
- National Library of Medicine Medical subject headings (MeSH)
- Faceted Application of Subject Terminology (FAST)
- Faceted Application of Subject Terminology (FAST)
- Virtual International Authority File (VIAF)
- Wikidata

Special notes:

- The first 5 types of URIs above are added according to the Alma authorities control mechanism
- VIAF links are added only for LC and GND authorized fields

Where Do URIs Appear?

- In Alma
 - Repository Search Results
 - Record View
 - Metadata Editor
 - JSONLD and BIBFRAME Version of the Record (via Application Programming Interface (API))
 - Publishing bibliographic records (with linked data enrichment)
- In Primo
 - Source Record

1. URIs Available in *Repository Search Results*

Sort by : Rank Secondary Sort by : Rank Expand: Physical [Share] [Settings]

1

Mastering wine for the Asian palate / Jeannie Cho Lee.

Book {Book - Physical} text; unmediated; volume

By Lee, Jeannie Cho. ([Hong Kong] : Asset Publishing and Research ©2011.)

Subject: Wine and wine making. Asians--Alcohol use. Wine--Selecting and serving.

Language: English

ISBN: 9789881511218 and others

Record number: (OCoLC)774928942

Update Date: 07/03/2019

Orders: 1

Edit Record

Holdings

...

Physical (1)

Electronic

Digital

Other details

1 Holdings | 1 of 1 items are available

Library	Location	Call Number	Accession Number	Item Availability	Relat
SHLDS	BIOV	TP548.93 .L4185 2011	-	1 of 1 Available	-

Items

Order

Request

Document Delivery

Add to collection

Add Reminder

Add Representation

Linked Data

URIs Available in *Repository Search Results* (con't)

Linked Data

Context	https://open-na.hosted.exlibrisgroup.com/alma/contexts/bib	
bibo:oclcnum	http://www.worldcat.org/oclc/774928942	(OCoLC)774928942
bibo:isbn10	http://www.isbnsearch.org/isbn/9881511216	9881511216
bibo:isbn13	http://www.isbnsearch.org/isbn/9789881511218	9789881511218
dct:creator	http://id.loc.gov/authorities/names/no2019023051	Lee, Jeannie Cho.
dct:creator	http://viaf.org/viaf/sourceID/LC no2019023051	Lee, Jeannie Cho.
dct:subject	http://id.loc.gov/authorities/subjects/sh85008657	Asians Alcohol use.
dct:subject	null	Wine and wine making.
dct:subject	http://id.loc.gov/authorities/subjects/sh85146975	Wine and wine making.
dct:language	http://id.loc.gov/vocabulary/iso639-2/eng	---
JSONLD version	https://open-na.hosted.exlibrisgroup.com/alma/01UCD_INST/bibs/9981169053303126	---

2. URIs Available in *Record View*

[← Record View](#)

Mastering wine for the Asian palate / Jeannie Cho Lee.

MMS ID	9981169053303126	Suppress from publishing	No
Brief level	02	Record format	marc21
Originating system	OCLC	Originating system ID	ocn774928942

MARC

BIBFRAME

URIs Available in *Record View (con't)*

650 _0 |a Wine and wine making.





BIBFRAME

URI

```
<bf:subject>
  <bf:Topic rdf:about="http://id.loc.gov/authorities/subjects/sh85146975">
    <rdf:type rdf:resource="http://www.loc.gov/mads/rdf/v1#Topic"/>
    <rdfs:label>Wine and wine making.</rdfs:label>
    <madsrdf:authoritativeLabel>Wine and wine making.</madsrdf:authoritativeLabel>
    <madsrdf:isMemberofMADSScheme rdf:resource="http://id.loc.gov/authorities/subjects"/>
    <bf:source>
      <bf:Source>
        <bf:code>lcsh</bf:code>
      </bf:Source>
    </bf:source>
  </bf:Topic>
</bf:subject>
```

3. URIs Available in *Metadata Editor*

090	\$\$a TP548.93 \$\$b .L4185 2011		
 100 1	\$\$a Lee, Jeannie Cho.		
<div>Info Alerts Linked Data</div>			
Context	https://open-na.hosted.exlibrisgroup.com/alma/contexts/bib		
bibo:isbn10	http://www.isbnsearch.org/isbn/9881511216		9881511216
bibo:isbn13	http://www.isbnsearch.org/isbn/9789881511218		9789881511218
bibo:oclcnum	http://www.worldcat.org/oclc/774928942		(OCoLC)774928942
dct:creator	http://id.loc.gov/authorities/names/no2019023051		Lee, Jeannie Cho.
dct:creator	http://viaf.org/viaf/sourceID/LC no2019023051		Lee, Jeannie Cho.
dct:subject	http://id.loc.gov/authorities/subjects/sh85008657		Asians Alcohol use.
dct:subject	null		Wine and wine making.
dct:subject	http://id.loc.gov/authorities/subjects/sh85146975		Wine and wine making.
dct:language	http://id.loc.gov/vocabulary/iso639-2/eng		---
JSONLD version	https://open-na.hosted.exlibrisgroup.com/alma/01UCD_INST/bibs/9981169053303126		---

4. URIs Available in *JSONLD Version of the Record*

```
▼ {  
  "date": "@2011.",  
  "note": "Includes bibliographical references (pages 164-165).",  
  ▼ "identifier": [  
    ▼ {  
      "@id": "http://www.isbnsearch.org/isbn/9881511216",  
      "label": "9881511216",  
      "type": "bibo:isbn10"  
    },  
    ▼ {  
      "@id": "http://www.isbnsearch.org/isbn/9789881511218",  
      "label": "9789881511218",  
      "type": "bibo:isbn13"  
    },  
    ▼ {  
      "@id": "http://www.worldcat.org/oclc/774928942",  
      "label": "(OCoLC)774928942",  
      "type": "bibo:oclcnum"  
    }  
  ],  
  ▼ "creator": {  
    "@id": "http://id.loc.gov/authorities/names/no2019023051",  
    "label": "Lee, Jeannie Cho.",  
    "sameAs": "http://viaf.org/viaf/sourceID/LC|no2019023051"  
  },  
  "@type": "Book",  
}
```

URIs Available in *JSONLD Version of the Record* (con't)

```
▼ "subject": [  
  ▼ {  
    "label": "Wine Selecting and serving."  
  },  
  ▼ {  
    "@id": "http://id.loc.gov/authorities/subjects/sh85008657",  
    "label": "Asians Alcohol use."  
  },  
  ▼ {  
    "@id": "null",  
    "label": "Wine and wine making."  
  },  
  ▼ {  
    "@id": "http://id.loc.gov/authorities/subjects/sh85146975",  
    "label": "Wine and wine making."  
  }  
],  
"publisher": "Asset Publishing and Research",  
"place_of_publication": "[Hong Kong] :",  
"language": "http://id.loc.gov/vocabulary/iso639-2/eng",  
"@id": "https://open-na.hosted.exlibrisgroup.com/alma/01UCD_INST/bibs/9981169053303126",  
"title": "Mastering wine for the Asian palate /",  
"@context": "https://open-na.hosted.exlibrisgroup.com/alma/contexts/bib"
```


5. URIs in *Published Bibliographic Records* in MARCXML

- `<datafield tag="100" ind2=" " ind1="1">`
 `<subfield code="6">880-01</subfield>`
 `<subfield code="a">林語堂,</subfield>`
 `<subfield code="d">1895-1976.</subfield>`
 `<subfield code="0">(uri) http://hkcan.julac.org/authorities/names/9811105907603406</subfield>`
 `</datafield>`
- `<datafield tag="880" ind2=" " ind1="1">`
 `<subfield code="6">100-01</subfield>`
 `<subfield code="a">Lin, Yutang,</subfield>`
 `<subfield code="d">1895-1976</subfield>`
 `<subfield code="0">(uri) http://hkcan.julac.org/authorities/names/9811105907603406</subfield>`
 `</datafield>`

6. URIs Available in *Source Record in Primo (\$0)*

```
Leader 01147cam a2200337Ia 4500
001 9981169053303126
005 20190703131802.0
008 120202s2011 cc ab b 000 0 eng d
010 ##$a 2016461765
020 ##$a9789881511218$0(uri) http://www.isbnsearch.org/isbn/9789881511218
020 ##$a9881511216$0(uri) http://www.isbnsearch.org/isbn/9881511216
029 1#$aAU@$b000049656393
035 ##$a(OCOLC)774928942$0(uri) http://www.worldcat.org/oclc/774928942
040 ##$aCVU$beng$cCVU$dOCLCO$dOCLCF$dOCLCQ$dDLC$dCUV
049 ##$aCUVA
082 00$a641.2/2$223
090 ##$aTP548.93$b.L4185 2011
100 1#$aLee, Jeannie Cho.$0(uri) http://id.loc.gov/authorities/names/no2019023051$0(uri)
245 10$aMastering wine for the Asian palate /$cJeannie Cho Lee.
260 ##$a[Hong Kong] :$bAsset Publishing and Research,$c©2011.
300 ##$a166 pages :$billustrations (chiefly color), maps ;$c29 cm
336 ##$atext$btxt$2rdacontent
337 ##$aunmediated$bn$2rdamedia
338 ##$avolume$bnc$2rdacarrier
504 ##$aIncludes bibliographical references (pages 164-165).
650 #0$aWine and wine making.$0(uri) http://id.loc.gov/authorities/subjects/sh85146975
650 #7$aWine and wine making.$2fast$0(OCOLC)fst01175907$0(uri) http://id.loc.gov/authorit
650 #0$aAsians$xAlcohol use.$0(uri) http://id.loc.gov/authorities/subjects/sh85008657
650 #7$aWine$xSelecting and serving.$2local
```

URIs Available in *Source Record in Primo (\$0)* (*con't*)

\$0 (subfield zero)	<p>Contains the Alma authority record ID. If the field in the MARC 21/UNIMARC record is authorized using authority records in Alma (either local or Community Zone authority records), \$0 is added. Other \$0 considerations include:</p> <ul style="list-style-type: none">• If the original field already has a value in \$0 (from another system), it is replaced with Alma's authority record ID.>• If Alma does not have an authority record for a heading, no \$0 is added to the field.• If the field has a value in \$0, but the field is not authorized in Alma, \$0 is deleted.
---------------------	---

[https://knowledge.exlibrisgroup.com/Alma/Product_Documentation/010Alma_Online_Help_\(English\)/090Integrations_with_External_Systems/030Resource_Management/100Publishing_to_Primo_and_Primo_Central](https://knowledge.exlibrisgroup.com/Alma/Product_Documentation/010Alma_Online_Help_(English)/090Integrations_with_External_Systems/030Resource_Management/100Publishing_to_Primo_and_Primo_Central)

Analysis of Alma URIs Exposed to Primo

How?

- Reviewed source records in Primo. Source records are in MARC format. MARC fields reviewed are: 020 (ISBN), 022 (ISSN), 035 (OCLC number), 100 (personal author), 650 (subject heads)
- Reviewed the best practices recommended by *PCC Task Group on URIs in MARC* (<https://www.loc.gov/aba/pcc/bibframe/TaskGroups/URI-TaskGroup.html>)
 - URI FAQs
 - Formulating and Obtaining URIs
 - Reports

Analysis of Alma URIs Exposed to Primo (con't)

Identified 7 issues:

- URIs appear in MARC fields that are not permitted to store such information
- Parenthesis “(uri)” is inserted into MARC fields
- LCSH URIs for subjects do not always represent an entire subject string
- Wrong URIs are used for MeSH and FAST
- GND URIs are formulated incorrectly
- VIAF URIs are used for topic subject terms
- VIAF URIs are captured in a wrong subfield

Case #1: URIs in fields 020, 022, and 035

020 ##\$a9881511216\$0(uri) http://www.isbnsearch.org/isbn/9881511216

022 ##\$a0022-2429\$I0022-2429\$21\$0(uri) http://worldcat.org/issn/0022-2429

035 ##\$a(OCOLC)774928942\$0(uri) http://www.worldcat.org/oclc/774928942

Issue

- \$0 is NOT permissible for the above MARC fields

How to fix

- Remove URIs from all three fields
- Record Work ID of the OCLC record in MARC 758 \$1 with \$4

Revised Fields

020 ## \$a 9881511216

022 ## \$a 0022-2429 \$I 0022-2429

035 ## \$a (OCOLC) 774928942

758 ## \$i has identifier for work \$1 <http://worldcat.org/entity/work/id/2048151577>

Case #2: Use of (uri) and VIAF Name URIs

```
100 1# $a Beecher, Henry Ward,$d1813-1887  
    $0 (uri) http://id.loc.gov/authorities/names/n50007898  
    $0 (uri) http://viaf.org/viaf/sourceID/LC|n50007898
```

Issues

- Wrong format: parenthesis (uri) should not be used after \$0
- \$1 should be used for the VIAF URI; the VIAF URI wasn't formulated according to PCC's best practice

How to fix

- Remove (uri) from both \$0 fields
- Reformulate the VIAF URI

Revised Field

```
100 1# $a Beecher, Henry Ward,$d1813-1887  
    $0 http://id.loc.gov/authorities/names/n50007898  
    $1 http://viaf.org/viaf/12628790
```

Case #3: LCSH URIs

650 #0 \$a Military parks \$z United States \$v Periodicals
\$0 (uri) <http://id.loc.gov/authorities/subjects/sh85085254>

Issue

- The URI represents the term in \$a only

How to Fix

- When there is no exact match for a complete subject string, do not use the URI that is for one component (e.g, one subfield) only. One possible solution is to convert LCSH to FAST subject headings using FAST Converter (<https://fast.oclc.org/lcsh2fast/>)

Revised fields

650 #0 \$a Military parks \$z United States \$v Periodicals

650 #7 \$a Military parks. \$2 fast \$0 (OCoLC)fst01021359 \$0 <http://id.worldcat.org/fast/1021359>

651 #7 \$a United States. \$2 fast \$0 (OCoLC)fst01204155 \$0 <http://id.worldcat.org/fast/1204155>

655 #7 \$a Periodicals. \$2 fast \$0 (OCoLC)fst01411641 \$0 <http://id.worldcat.org/fast/1411641>



Case #4: MeSH URIs

650 12 \$a Diabetes Mellitus \$x therapy \$2 MeSH
\$0 (uri) <http://www.ncbi.nlm.nih.gov/mesh/?term=D003920Q000628>

Issue

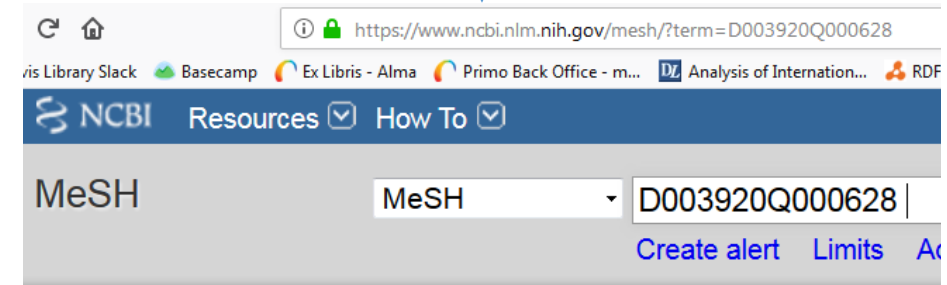
- The MeSH URI is wrong

How to Fix

- To formulate a MeSH URI: append MeSH ID(s) to <http://id.nlm.nih.gov/mesh>

Revised field

650 12 \$a Diabetes Mellitus \$x therapy \$2 MeSH
\$0 <http://id.nlm.nih.gov/mesh/D003920Q000628>



⚠ The following term was not found in MeSH: D003920Q000628.
ℹ No items found.

Case #5: FAST URIs

650 #7 \$a Wine and wine making.\$2 fast \$0 (OCoLC)fst01175907

\$0 (uri) http://id.loc.gov/authorities/subjects/sh85146975

650 #0 \$a Wine and wine making. \$0 (uri) http://id.loc.gov/authorities/subjects/sh85146975

Issue

- The FAST URI is wrong (it's identical to LC URI)

How to Fix

- To Formulate a FAST URI: take the fast ID, remove the prefix “fst” and any leading zeros, and append the number to <http://id.worldcat.org/fast/>

Revised field

650 #7 \$a Wine and wine making. \$2 fast \$0 (OCoLC)fst01175907

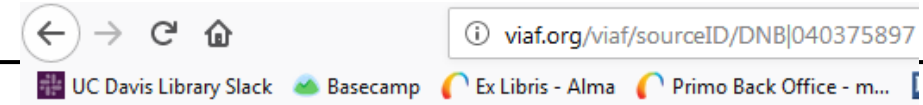
\$0 <http://id.worldcat.org/fast/1175907>

Case #6: GND URIs and VIAF URIs in MARC 650 field

650 #7 \$a Marketing \$2 gnd

\$0 (uri) <https://portal.dnb.de/opac.htm?method=simpleSearch&cqlMode=true&query=idn=040375897>

\$0 (uri) <http://viaf.org/viaf/sourceID/DNB|040375897>



404: Document not found

OCLC SRW/SRU Server

Issues

- The GND link is not a machine-actionable URI but an openURL
- The VIAF link is invalid since there are no topic subject headings in VIAF

How to Fix

- To Formulate a GND URI: append the external GND number to <http://d-nb.info/gnd>
- Delete the VIAF URI

Revised field

650 #7 \$a Marketing \$2 gnd

\$0 <http://d-nb.info/gnd/40375897-4>

Summary

- It's great that Alma adds URIs into bibliographic records
- To make URIs more useful in the Linked Data environment, machine-actionable URIs should be utilized
- Recording URIs in MARC records should follow MARC format standards (\$0 vs. \$1)
- The practice of adding URIs for partially matched headings (resulting from the Alma authorities control mechanism) needs to be re-examined
- The library community needs to be very specific when asking vendors to provide URIs (machine-actionable URI vs. URL)

Future Plan

Will compare Alma URIs exported in the following formats:

- BIBFRAME
- JSON-LD
- MARCXML
- RDA/RDF

Part Two

Converting MARC Tag 880 to BIBFRAME

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Linked data support in Alma

Metadata Editor

- View bibliographic record in BIBFRAME
- Display authority URIs in Linked Data tab

Publishing bibliographic records

- Enrich MARC records with authority URIs (put in subfield 0 of access point fields)
- Publish bibliographic records in BIBFRAME and RDF/RDA

APIs to retrieve bibliographic records

- BIBFRAME API
- JSON-LD API
- RDF/RDA API

Alma uses Library of Congress's **marc2bibframe2 converter** to transform MARC to BIBFRAME

```
graph TD; A[Alma uses Library of Congress's marc2bibframe2 converter to transform MARC to BIBFRAME] --> B[APIs to retrieve bibliographic records]; A --> C[Publishing bibliographic records]; A --> D[Metadata Editor]
```

Linked data support in Alma [cont.]

Roadmap

<https://docs.google.com/document/d/e/2PACX-1vSYIQckfBM-6jqAYUruFRVwk672OBeKG0c7CpwmIBtyw0QTpyJKiL4ORY3dtie9XpW1DB-lcnjLzOc1/pub>

Dashboard - Linked Data Development in Ex Libris Products

Brought to you by

IGELU-ELUNA Linked Open Data Working Group

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Last updated: July 9, 2019

Feature list

Product	Feature	Status	Release and/or update date	Documentation	Description/Issues	Last updated by WG
Alma	Cataloging and Technical Services: Ex Libris General Roadmap				<p>Linked Data Roadmap--Cataloging and Technical Services (Linked Data Vision, March 2019, by Itai Veltzman, Product Manager)</p> <ul style="list-style-type: none">• Roadmap 2020 H1: Support search indexing of prime linked data records• Roadmap 2020 H2: Supporting prime cataloging of new resources as Linked Data• The future:<ol style="list-style-type: none">1) BIBFRAME / RDA-RDF, JSONLD, ontology and formats2) Identifying based on URIs3) Loading of prime Linked Data4) (Graph structure) bibliographic records from other systems5) Enriched data displayed in routine workflows6) Local Authorities as URI7) URI Management in Alma as a source for URI and Reconciliation8) Ability to control how URI are being searched across different sources9) OpenURL Resolving10) Resource Sharing / ILL	May 7, 2019

What is 880 in LC MARC 21?

LC MARC 21 requires catalogers to transliterate the transcribed data to **Latin** (e.g. Pinyin) and place it in the **regular field**, while the transcribed data in **original script** (e.g. CJK) is placed in a parallel **880 field**. The two fields in the **880 pair** are linked by the codes in their **subfield 6**, which have the same **occurrence number**.

Example of an 880 pair

The diagram illustrates an 880 pair in LC MARC 21. It shows two fields: a Regular field (100 1) and an 880 field (880 1). Both fields contain subfield 6, which is highlighted in green. The Regular field's subfield 6 is '6880-01' and the 880 field's subfield 6 is '6100-01'. Both subfields 6 have the same occurrence number '01'. The Regular field's data is 'aLin, Yutang, |d1895-1976' (Latin) and the 880 field's data is 'a林語堂, |d1895-1976.' (Original script). Red arrows point from the labels to the corresponding parts of the fields.

Regular field → 100 1 | 6880-01 | aLin, Yutang, |d1895-1976

880 field → 880 1 | 6100-01 / \$1 | a林語堂, |d1895-1976.

Subfield 6 → 6880-01 / 6100-01

Occurrence number → 01 / 01

Latin → aLin, Yutang, |d1895-1976

Original script → a林語堂, |d1895-1976.

What is 880 in LC MARC 21? [cont.]

The requirement of using parallel 880 fields to hold the original script has been **very problematic** in regions that have major collections in both Chinese/Japanese/Korean (CJK) and English languages.

The **emphasis here is the transcribed data in original script, but they are all encoded in MARC tag 880 with no differentiation.**

ILS (integrated library system) and discovery platform need to put a lot of effort in order to fully support the parallel relationship of 880 pairs.

As a result, problems usually occur in their **display, indexing, matching, searching, linking** and **data analysis**.

Flipping 880 in JULAC Shared ILS on Alma

- When migrating to Alma, JULAC decided to implement the 880-flipping policy, i.e. **flip the two fields of the 880 pair**, so that the original script is in regular field and the Latin transliteration in the 880 field
- Ex Libris then helped in enhancing Alma so that it has better support of 880 pairs and multi-lingual authority control
- This decision has proved to be very effective in radically reducing the problem space caused by the parallel structure of 880

Refer to the following presentation for details of the implementation:

The birth of the JULAC Shared Integrated Library System : process and prospect.

K.T. Lam. December 2017.

<http://repository.ust.hk/ir/Record/1783.1-87976>

Flipping 880 in JULAC Shared ILS on Alma [cont.]



100 1 |6880-01|aLin, Yutang, |d1895-1976.
880 1 |6100-01/\$1|a林語堂, |d1895-1976.
245 10 |6880-02|aBa shi zi xu / |cLin Yutang zhu ; [Song Biyun yi]
880 10 |6245-02/\$1|a八十自敘 / |c林語堂著 ; [宋碧雲譯]
250 |6880-07|aZai ban.
880 |6250-07/\$1|a再版
260 |6880-03|aTaibei shi : |bYuan jing chu ban shi ye gong si, |cMinguo 74 [1985]
880 |6260-03/\$1|a台北市 : |b遠景出版事業公司, |c民國74 [1985]

Original script **Latin**

Flipping 880 in Alma

<http://lbdiscoversust.hk/marc/991009180719703412>

100 1 |6880-01/\$1|a林語堂, |d1895-1976.
880 1 |6100-01|aLin, Yutang, |d1895-1976.
245 10 |6880-02/\$1|a八十自敘 / |c林語堂著 ; [宋碧雲譯]
880 10 |6245-02|aBa shi zi xu / |cLin Yutang zhu ; [Song Biyun yi]
250 |6880-07/\$1|a再版
880 |6250-07|aZai ban.
260 |6880-03/\$1|a台北市 : |b遠景出版事業公司, |c民國74 [1985]
880 |6260-03|aTaibei shi : |bYuan jing chu ban shi ye gong si, |cMinguo 74 [1985]

Latin **Original script**

**Converting 880 pairs to BIBFRAME, again, is
very problematic!**

Problems of LC's marc2bibframe2 converter

880 pair

- Convert the two fields in an 880 pair as if they are two separate and unrelated fields, causing duplication of BIBFRAME entities
- URI in subfield 0 of 880 field is not processed into the entity's rdf:about attribute. Instead, a dummy URI is generated for it
- Some 880 fields are not handled in the same way as their equivalent regular field, e.g. 830; title statement of 245

URI

- Subfield 0 can only contain URI for the whole name-title access point. There is no way to add a second URI, to specify the name portion only.
- Does not convert subfield 0 of uniform title in 130, 240. The URI cannot be put in the root bf:Work as its rdf:about is reserved for the machine-generated URI.

Converting 880 Pair to BIBFRAME Work

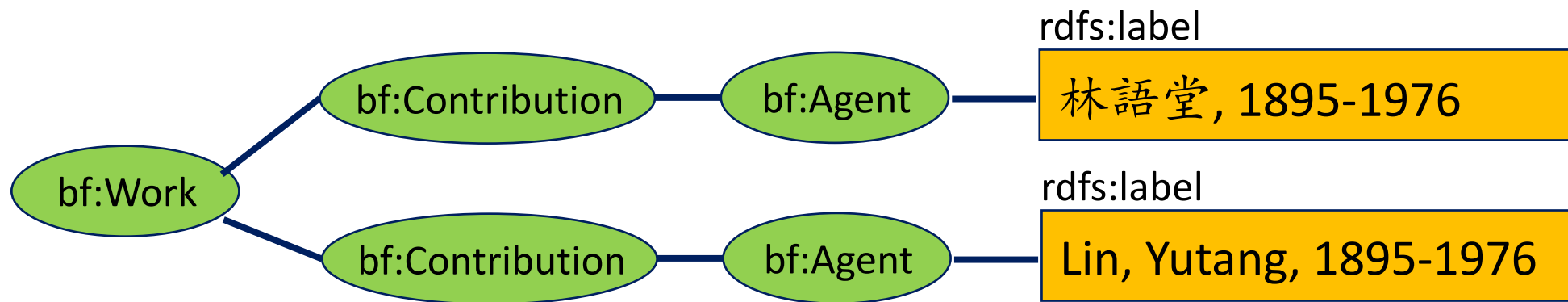
Given an 880 pair containing access point of an **author**

100 1 \$\$6 880-01 \$\$a Lin, Yutang, \$\$d 1895-1976.

880 1 \$\$6 100-01/\$1 \$\$a 林語堂, \$\$d 1895-1976.

Problem

- The conversion results in **two different and unrelated entities** bf:Contribution
- They are in fact referring to the **same person**, although their rdfs:label contain different scripts of the same name



Converting 880 Pair to BIBFRAME Work [cont.]

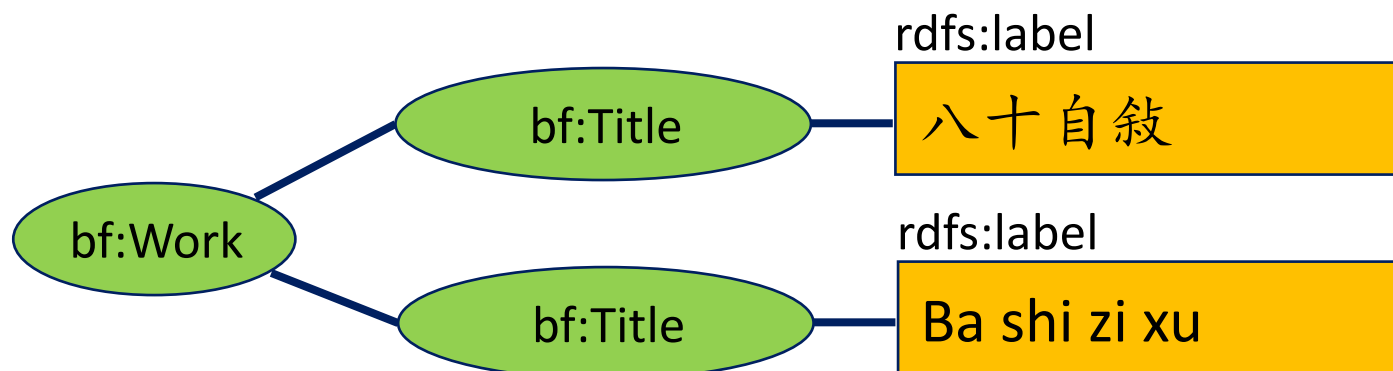
Similarly, for the 880 pair referring to the **title**

245 10 \$\$\$ 880-02 \$\$a Ba shi zi xu / \$\$c Lin Yutang zhu ; [Song Biyun yi]

880 10 \$\$\$ 245-02/\$1 \$\$a 八十自叙 / \$\$c 林語堂著 ; [宋碧雲譯]

Problem

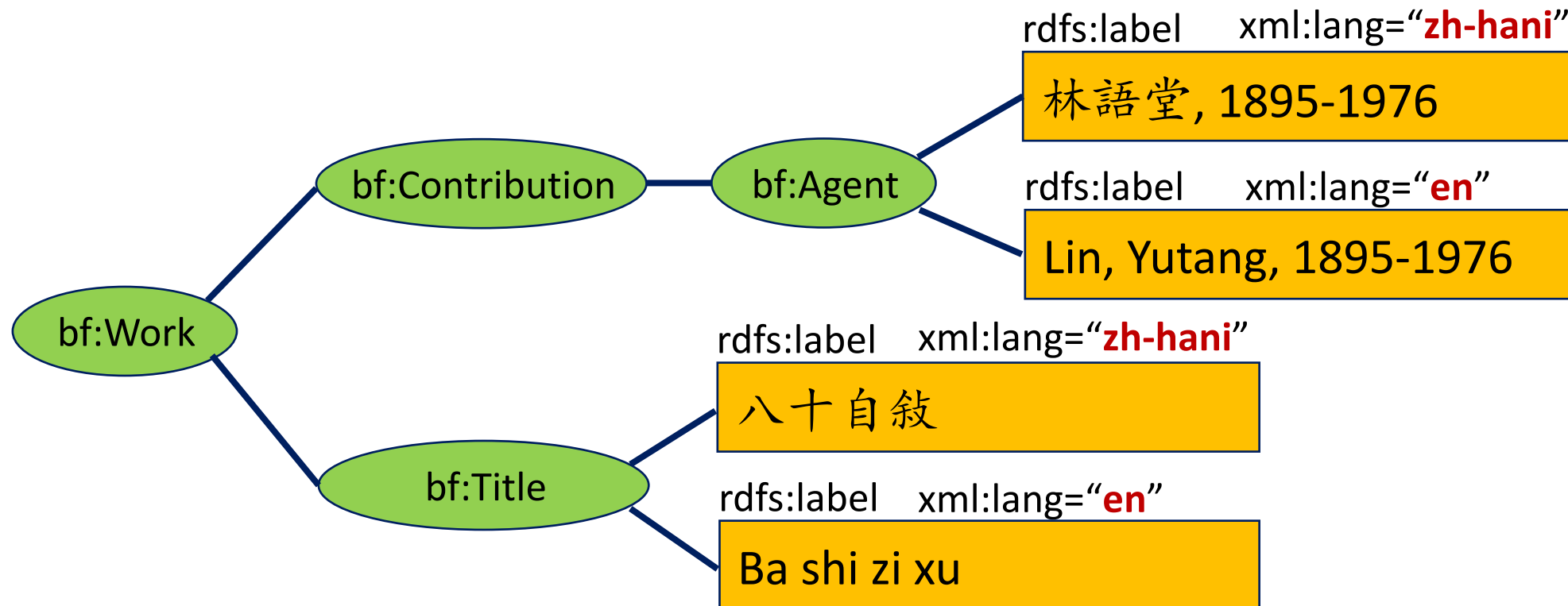
- The conversion results in **two different and unrelated entities bf>Title**
- They are in fact referring to the **same work**, although their rdfs:label contain different scripts of the same title



Converting 880 Pair to BIBFRAME Work [cont.]

Proposal 1

- **Merge** duplicate entities into one
- Allow **multiple rdfs:label** within one entity – differentiate them by **xml:lang** attribute, which contains ISO language code (e.g. **zh-hani**, **en**)



Converting 880 Pair to BIBFRAME Work [cont.]

Proposal 2

- When merging duplicate entities, also **merge their URIs**. Use **bf:Identifier** to hold the second URI.

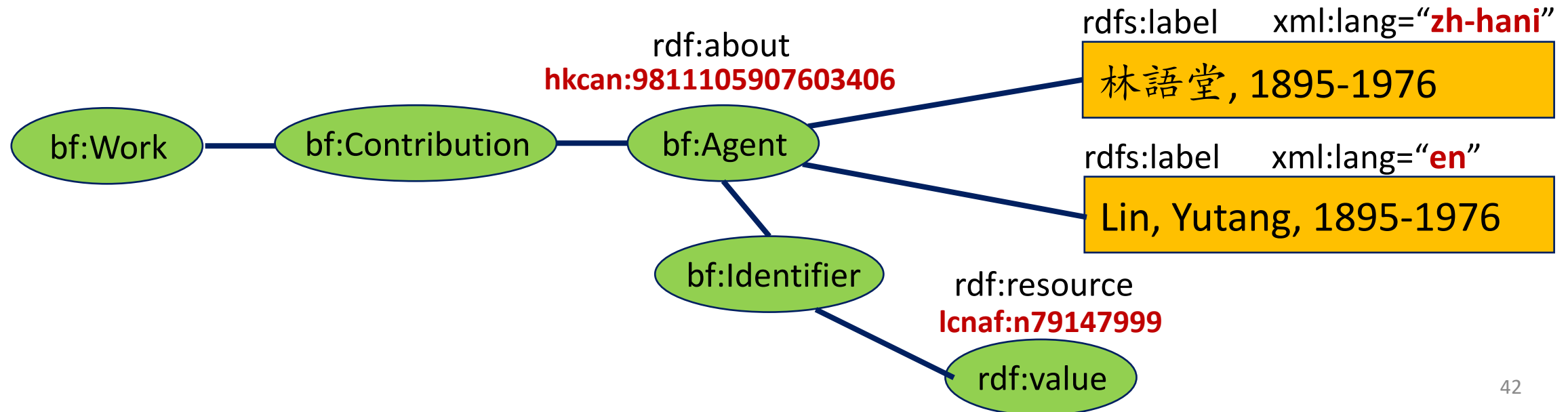
Subfield 0 contains URI

100 1 \$\$6 880-01 \$\$a Lin, Yutang, \$\$d 1895-1976. \$\$0

<http://id.loc.gov/authorities/names/n79147999>

880 1 \$\$6 100-01/\$1 \$\$a 林語堂, \$\$d 1895-1976. \$\$0

<http://hkcan.julac.org/authorities/names/9811105907603406>



Converting 880 pair to BIBFRAME Instance

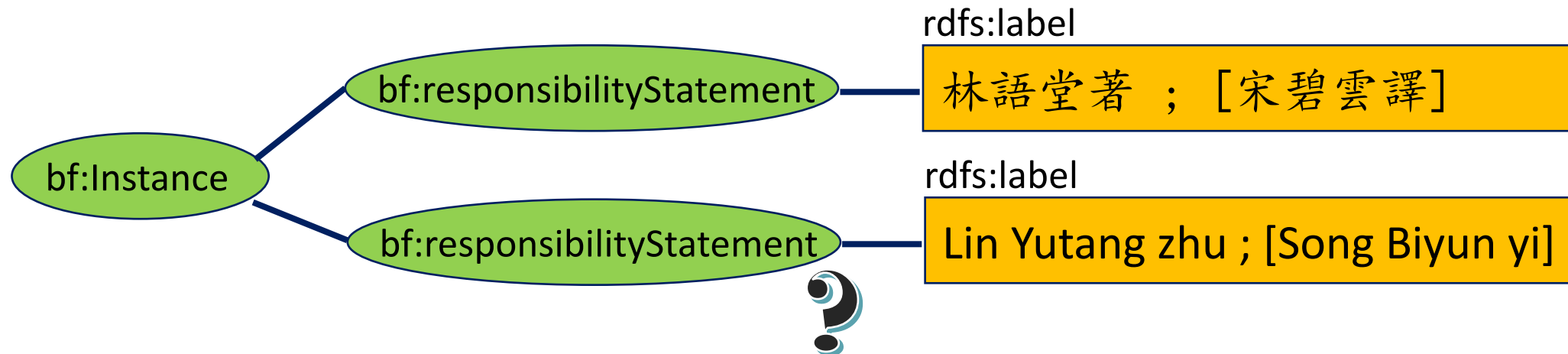
Statement of responsibility in 880 pair

245 10 \$\$6 880-02 \$\$a Ba shi zi xu / \$\$c Lin Yutang zhu ; [Song Biyun yi]

880 10 \$\$6 245-02/\$1 \$\$a 八十自叙 / \$\$c 林語堂著 ; [宋碧雲譯]

Question

- Can we **remove** the duplicate entity that contains **transliteration** in **bf:Instance**?



Converting 880 pair to BIBFRAME Instance [cont.]

Sally McCallum. *MARC to/from BIBFRAME*. March 27, 2019

http://downloads.alcts.ala.org/ce/BIBFRAME_Progress_Slides.pdf

Non-Latin in BIBFRAME

BIBFRAME descriptions

- Transcribed data (Instance/manifestation data) is primarily only in the script on the resource
 - Title statement and statement of responsibility, edition statement, publication statement, etc. all in original script
- Instance/manifestation description is linked to the Work and to Names where the transliterated data is found for the title, contributors, etc.

Impact on MARC bibliographic records

- Use of 880 fields for transliterated transcribed data minimized or eliminated

LC's discussion on transcribing data for BIBFRAME descriptions

It seems to mean:

When transcribing data for **description related entities** in bf:Instance, original script (e.g. CJK) should be used; and their corresponding transliteration (e.g. Pinyin) is unnecessary.



Converting 880 pair to BIBFRAME Instance [cont.]

Proposal 3

- Do not keep transliteration (e.g. Pinyin) of the transcribed data (e.g. CJK) in description related entities in bf:Instance

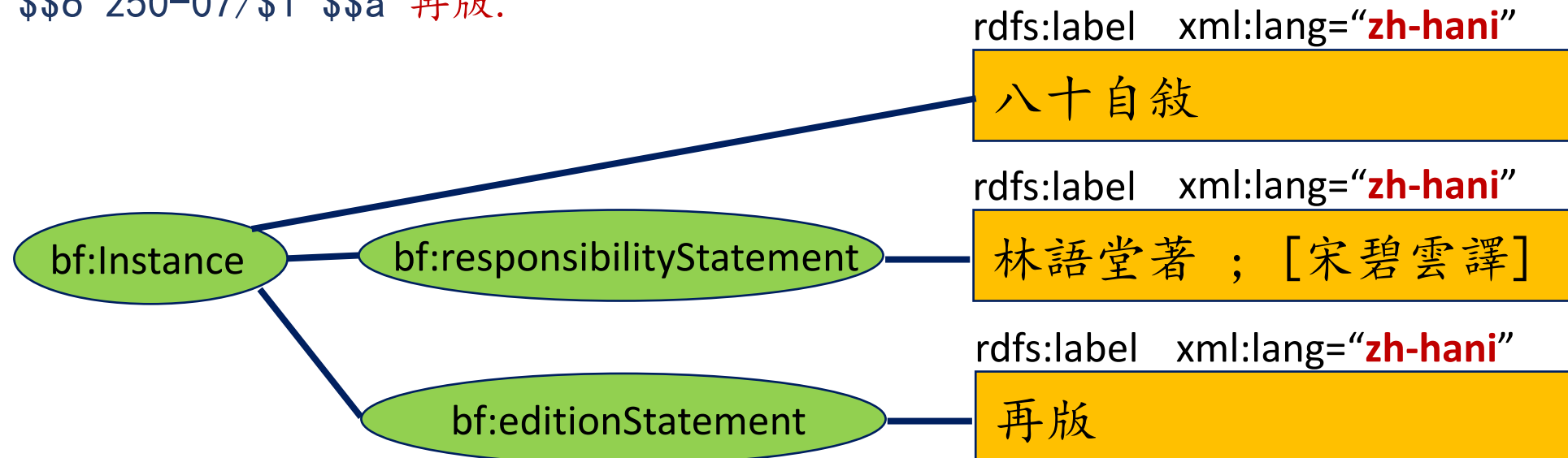
Given two 880 pairs containing title, responsibility and edition statements

245 10 \$\$6 880-02 \$\$a Ba shi zi xu / \$\$c Lin Yutang zhu ; [Song Biyun yi]

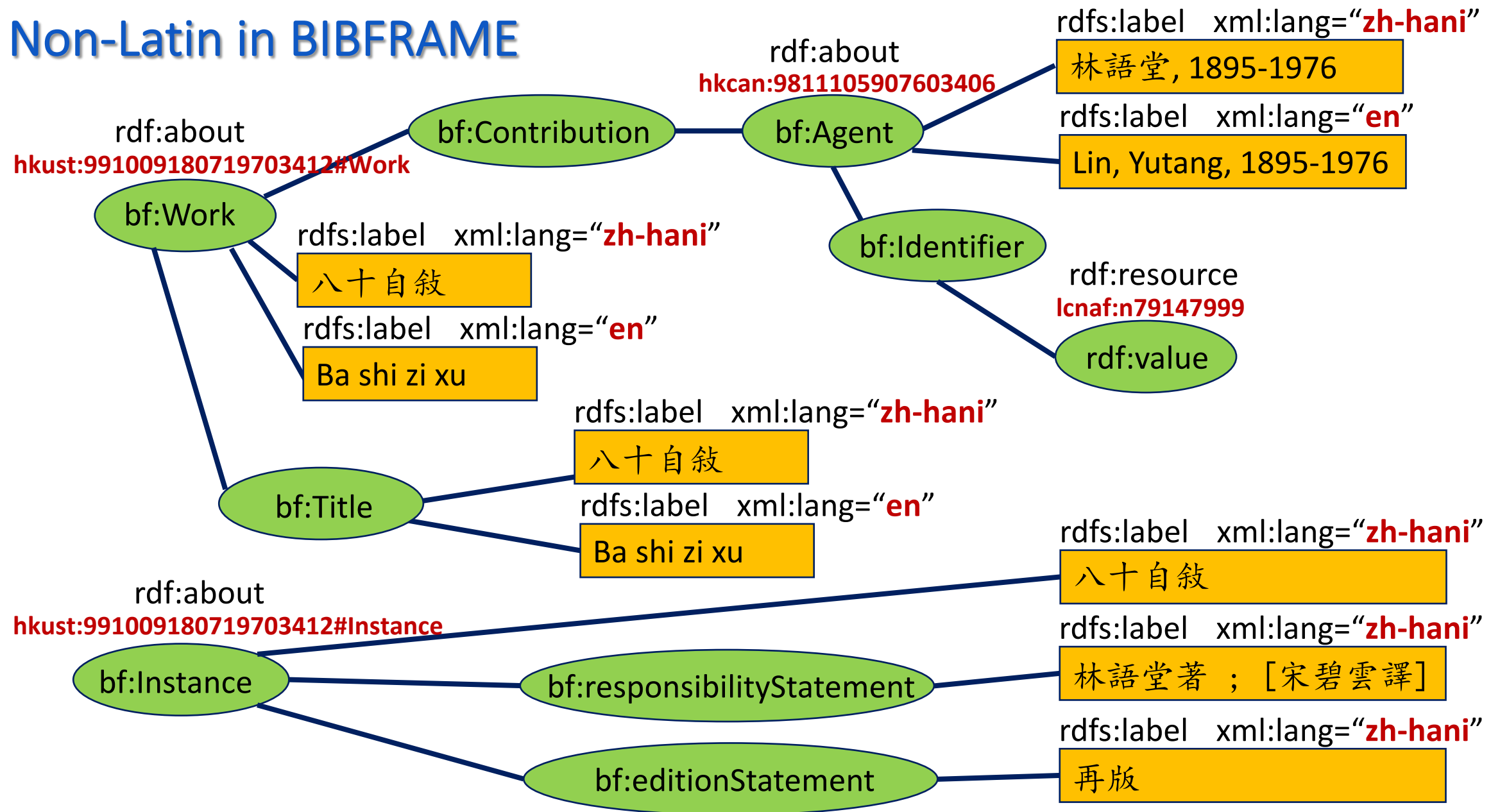
880 10 \$\$6 245-02/\$1 \$\$a 八十自敘 / \$\$c 林語堂著 ; [宋碧雲譯]

250 \$\$6 880-07 \$\$a Zai ban.

880 \$\$6 250-07/\$1 \$\$a 再版.



Non-Latin in BIBFRAME



You can view this experimental conversion in HKUST's Bibliographic Linked Data Learning Platform

Before cleaning: <http://catalog.ust.hk/bf/991009180719703412>

After cleaning: <http://catalog.ust.hk/bf/cjkbfb/991009180719703412>

Bibliographic Linked Data Learning Platform



Bibliographic Linked Data Learning Platform

[\[About\]](#)

Search in HKUST Library Catalog

Search

Use this tool to learn and evaluate various bibliographic linked data vocabularies supported by Alma, such as BIBFRAME 2.0, RDA/RDF and JSON-LD.

You first search bibliographic records in HKUST Library Catalog (Primo) and then explore from the search results how these MARC records look if they are transformed into these vocabularies.

You may directly launch [SPARQL query](#) to the BIBFRAME triplestore endpoint, which contains samples of HKUST bib records from Alma.

You can also explore how bibliographic linked data enables information discovery through the [Discovery with Knowledge Cards](#) website. It queries Wikidata to display knowledge cards of names and subjects mentioned in the titles, using LCNAF and LCSH URIs in the BIBFRAME graph. From a knowledge card, you can read related Wikipedia articles, launch a search back to the Library Catalog, explore titles associated to the names/subjects in the triplestore, or retrieve more related knowledge cards.

Have fun!

- For library colleagues to **learn about bibliographic linked data** (from Alma)
 - BIBFRAME 2.0
 - RDA/RDF
 - JSON-LD
- Experimental Catalog Triplestore for staff to learn SPARQL and **understand triples**
- **Tools** for linked data experiments, e.g. [Discovery with Knowledge Cards](#)

<http://catalog.ust.hk/bf>

Bibliographic Linked Data Learning Platform [cont.]

Display **Alma BIBFRAME linked data** of this work in human readable form, RDF/XML and triples. Machines can also download the data in RDF/XML format

(<http://catalog.ust.hk/bf/991009180719703412>)

Display **Knowledge Cards** of this work

(<http://catalog.ust.hk/kc/?recnum=991009180719703412>)

Display record in **HKUST Library Catalog** (PowerSearch, on Primo)

(<http://lbdiscover.ust.hk/bib/991009180719703412>)

Search results on "無窮智慧"

1. 宇宙簡史：无限宇宙中的无穷智慧 = A brief history of universe. 2009. [book]

[bibframe](#)  | [rda](#) | [json-ld](#) | [marcxml](#) |  | 

SPARQL Query Form

(<https://catalog.ust.hk/lod/>)

Display **Alma RDA/RDF linked data** of this work

Display **Alma JSON-LD linked data** of this work

Display **MARCXML** of this work, for comparison purpose

Use Case of URIs in BIBFRAME

Information discovery use case

I find a book in the Library Catalog. It is about something (topic, person, book, etc.) and is written by someone (creator, contributor). I am interested in knowing / reading more information about them.

Can Library Catalog help?



Refer to this presentation for details:

Implementing Knowledge Card to enhance information discovery through bibliographic linked data.

Presentation by K.T. Lam. March 2019.

<http://repository.ust.hk/ir/Record/1783.1-95441>

■ Technical pre-requisites

- Alma supports publishing of bibliographic records in **linked data** – BIBFRAME
- Primo supports **customization package**

■ Concepts

- Bibliographic data that libraries created contains “access points” that are already **linked to authority records** (thanks to catalogers!)
- These **authority identifiers (URIs)** are available in Linked Open Data, e.g. Wikidata
- Knowledge cards are generated by the **co-occurrence of these identifiers** in these data sources

■ Results

- **Discovery with Knowledge Cards**
<http://catalog.ust.hk/kc>

Discovery with Knowledge Cards

<http://catalog.ust.hk/kc>

Primo Record

BOOK
宇宙简史：无限宇宙中的无穷智慧 =
A brief history of universe
哥白尼, 爱因斯坦, 霍金等著; 吕陈君主编
北京市: 中国言实出版社. 2009

Available at Book Collection (QB985 .Y829 2008) >

Get it in library

For Request Sign in

Search this item in HKALL

Problems? Call 2358-6760 | WhatsApp 9701-1055 | Email LBREF@ust.hk

Book Collection QB985 .Y829 2008 LOCATE

TOP
GET IT IN LIBRARY
DETAILS
VIRTUAL BROWSE
SEND TO
LINKS
KNOWLEDGE CARD

<https://lbdiscover.ust.hk/bib/991011895759703412>

URIs in BIBFRAME

```
<bf:Agent rdf:about="http://id.loc.gov/authorities/names/n79022889"/>
<bf:Agent rdf:about="http://id.loc.gov/authorities/names/n79039943"/>
<bf:Agent rdf:about="http://id.loc.gov/authorities/names/n81020731"/>
<bf:Topic rdf:rabout="http://id.loc.gov/authorities/subjects/sh2008101109"/>
```



Query Wikidata



Generate
knowledge
cards

Provide URIs

Knowledge Cards

Albert Einstein W
阿尔伯特·爱因斯坦 W
German-born physicist and founder of the theory of relativity
[lcnaf:n79022889](#); [viaf:75121530](#); [wd:Q937](#)

cards titles

Nicolaus Copernicus W
尼古拉·哥白尼 W
Renaissance mathematician, Polish astronomer, physician
[lcnaf:n79039943](#); [viaf:71389288](#); [wd:Q619](#)

cards titles

Stephen Hawking W
史蒂芬·霍金 W
British theoretical physicist, cosmologist, and author
[lcnaf:n81020731](#); [viaf:102304634](#); [wd:Q17714](#)

cards titles

Cosmology W
宇宙学 W
Academic study of the Universe
[lcsh:sh85033169](#); [wd:Q338](#)

cards titles

Summary

- MARC Tag 880 as a “parallel” data container for bibliographic description in original scripts is very problematic to ILS and information discovery platform
- It is not surprising that it is also problematic in transforming them to BIBFRAME or other linked data schema
- This presentation discusses some of these issues and proposes solutions for consideration by LC, developers of marc2bibframe converter, PCC and Ex Libris.
- Proposal
 - Merge duplicate entities of access points into one
 - Allow multiple labels within one entity
 - Differentiate labels within same entity by xml:lang attribute, which contains ISO language code (e.g. zh-hani, en)
 - Merge duplicate entities’ URIs. Use bf:Identifier to hold the second URI for now, until a better solution is found (perhaps, already good enough)
 - It is not necessary to keep the transliterated Latin label in the description related entities (e.g. Pinyin of bf:statementResponsibility) if the original script label already exists in the entity

Summary [cont.]

- Experimental results of the above proposal can be reviewed via the HKUST's Bibliographic Linked Data Learning Platform (<http://catalog.ust.hk/bf>). Comments are welcomed
- With the Learning tools, HKUST explored use cases of Alma BIBFRAME Linked Data and launched “Discovery with Knowledge Cards” (<http://catalog.ust.hk/kc>), which show cases the possibility of making use of URIs in Alma and identifiers in Wikidata to enrich information discovery in Primo (i.e. library catalog).

Thank you!