The mapping and the conversion workflow from MARC to BIBFRAME

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Introduction and overall projects goals
Our BIBFRAME projects overall goals

The main areas of our projects:

• **Enrichment** of MARC record with URIs

• **Conversion from MARC to RDF** using the BIBFRAME vocabulary (and other additional ontologies as needed)

• **Data publication** according to the BIBFRAME data model

• Batch/automated **data updating** procedures

• Batch/automated **data dissemination** to libraries
The projects heart:

Entity identification, Reconciliation, Data enrichment and BIBFRAME Conversion
The new revolution: from record to entity

Shakespeare, William, 1564-1616

As you like it

Cambridge University Press

Cambridge Press

Cambridge Univ. Press

Shakespeare, William, 1564-1616

Saixpēr, Gouilliam, 1564-1616

As you like it [print]

As you like it [on-line]

Cambridge University Press

Cambridge Press

Cambridge Univ. Press

As you like it

Comme il vous plaira

Fathers and daughters

Padri e figlie

Pères et filles

Subject

Work

Agent

Instance
How reconciliation is obtained

Scope of these processes is to bring together and to make data available from different sources in a way that could be defined as *democratic* to better identify the entity in question.

Data reconciliation and enrichment is obtained by:
- *automated processes*
- *manual processes*

It is important to underline how the *relationship between the reconciliation and validation of the results* can differ greatly between the automated and manual processes:
- automated processes: a high level of reconciliation and clustering; a low level of result validation;
- manual processes: a low level of reconciliation and clustering; a high level of result validation.
Entities in *cluster*: an example of collaboration and sharing

The result of a reconciliation of the entity *Antonio Vivaldi* in the Share VDE project, with data from different sources and projects:

- the authorized form from a local authority file
- the variant forms originating from the references on the local authority records
- the variant forms originating from the VIAF
- the forms of the name used in the bibliographic records.

The cluster is completed and enriched with identifiers for the same entity, Antonio Vivaldi, from sources such as:

- Wikidata
- Library of Congress Name Authority File
- Data.bnf.fr
- VIAF
Grouping under a single work title of the many publication titles in the catalogue for *Cimento dell’armonia e dell’inventione*

**Single work title**

Brings together different publications/resources present in different catalogues.

http://share-vde.org/sharevde/searchTitles?t_cluster_id=11287
BIBFRAME projects
Process overview
The SHARE-VDE processes

OliSuite: manual process

Marc enriched/URIs

Database of relationships

Knowledge base of clusters

RDF/Bibframe dataset

SHARE-VDE Portal

Similarity’s score

Entity detection

Enrichment

Reconciliation/Cluster

Authify

Dump db

APIs

External sources

Marc

XML

Bibliographic

Authority

Schema 1

Schema 2

SHARE-VDE Portal

Database of relationships

Lodify

N1

N2

N3

Marc enriched/URIs

External sources

Dump db

APIs

Similarity’s score

Authify

Entity detection

Enrichment

Reconciliation/Cluster

Knowledge base of clusters

RDF/Bibframe dataset

SHARE-VDE Portal
Focus on processes 1/2

Authority records
- BIB1
- BIB2
- BIB ...

Bibliographic records
- BIB1
- BIB2
- BIB ...

- Similarity's score
- Authify

Marc enriched (.pxml)

CLUSTERS KNOWLEDGE BASE

BIB1
BIB2
BIB...
Focus on processes 2/2

Clusters Knowledge base

Marc enriched (.pxml)

BIB1
BIB2
BIB...

Marc enriched (Binary) (one for LIB)

Lodify

Stardog

RDF

Clustering Knowledge base

SHARE-VDE URIs
External (VIAF) URIs
The transformation process step-by-step
The clusterization process – Brief overview

The entity clusterization is pre-med to Marc-to-BF conversion process. It’s realized through 3 main processes plus a data enrichment final step:

1. **Agent Authority data analysis and handling**, for a first pre-clusterization process.

2. **Bibliographic records handling**, with creation/feeding of Agent cluster and creation of Work title cluster (if a uniform title or preferred access point it exists).


4. **Marc 21 enrichment** (with URIs assigned in the previous three processes).
1. Agent Authority data analysis and handling

We try to design the process step-by-step using a specific example (that will became the cluster ID 2660985). We have two Authority records coming from the same Institution (Harvard) and related to the same entity: Chen, Hu, 1875-1922

Authority record #1
=100 1\$aChen, Hu,$d1875-1922
=400 1\$aChen, Cangyu,$d1875-1922
=400 1\$aChen, Zhenshan,$d1875-1922
=400 1\$a陳瑚,$d1875-1922
=667 1\$aMachine-derived non-Latin script reference project.
=667 1\$aNon-Latin script reference not evaluated.
=670 1\$aZhenshan shi chao, 1992:$bt.p. (Chen Hu) biog. data (Chen Hu (1875-1922), t. Cangyu, h. Zhenshan, Miaoli Yuanli ren)

Authority record #2
=100 1\$aChen, Hu
=400 1\$a陳湖
=400 1\$a陳虎
=400 1\$a陳湖
=400 1\$a
1. Agent Authority data analysis and handling

After the data analysis (applying the specific identification and clusterization logics [1]) the data are saved in a PostgreSQL database.

In this example, data are saved in two different tables:

- a. the **preferred forms** coming from Authority tag 1xx (saved in the `aut_nme` table);
- b. the **variant forms** coming from Authority tag 4xx (saved in the `aut_xref` table).

[1] the logic to search, analyse, identify and create a cluster starting from Marc data is not described here. We assume to apply a certain number of logics and (related) machine processes to feed the PostgreSQL database that is part of the Clusterization architecture.
1. Agent Authority data analysis and handling

- a. the **preferred forms** in the `aut_nme` table:

```sql
SELECT * FROM aut_nme WHERE clstr_id = 2660985;
```

<table>
<thead>
<tr>
<th>aut_nme</th>
<th>nme_str_txt</th>
<th>norm_str_txt</th>
<th>typ</th>
<th>viaf_chked</th>
<th>in...</th>
<th>src_shrt_frm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3093904</td>
<td>$aChen, Hu, $d1875-1922</td>
<td>Chen, Hu, 1875-1922</td>
<td>1 Y</td>
<td></td>
<td>2...</td>
<td>HARVARD</td>
</tr>
<tr>
<td>2867092</td>
<td>$aChen, Hu</td>
<td>Chen, Hu</td>
<td>1 Y</td>
<td></td>
<td>2...</td>
<td>HARVARD</td>
</tr>
</tbody>
</table>
1. Agent Authority data analysis and handling

- b. the **variant forms** in the `aut_xref` table:

```sql
select * from aut_xref where aut_nme_id in (3093904, 2867092);
```

<table>
<thead>
<tr>
<th>xref_id</th>
<th>aut_nme_id</th>
<th>xref_str_txt</th>
<th>norm_str_txt</th>
<th>xref_lang_text</th>
<th>xref_src_frm_text</th>
</tr>
</thead>
<tbody>
<tr>
<td>3801935</td>
<td>2867092</td>
<td>$陳虎</td>
<td>陳虎</td>
<td>[null]</td>
<td>陳虎</td>
</tr>
<tr>
<td>3801934</td>
<td>2867092</td>
<td>$陳湖</td>
<td>陳湖</td>
<td>[null]</td>
<td>陳湖</td>
</tr>
<tr>
<td>3801933</td>
<td>2867092</td>
<td>$陳炎</td>
<td>陳炎</td>
<td>[null]</td>
<td>陳炎</td>
</tr>
<tr>
<td>3801932</td>
<td>2867092</td>
<td>$陳湖</td>
<td>陳湖</td>
<td>[null]</td>
<td>陳湖</td>
</tr>
<tr>
<td>4129477</td>
<td>3093904</td>
<td>$陳華, $d1875-1922</td>
<td>陳華, 1875-1922</td>
<td>[null]</td>
<td>陳華 1875 1922</td>
</tr>
<tr>
<td>4129476</td>
<td>3093904</td>
<td>$陳 enumeration, $d1875-1922</td>
<td>Chen, Zhenshan, 1875-1922</td>
<td>[null]</td>
<td>CHEN ZHENSHAN 1875 1922</td>
</tr>
<tr>
<td>4129475</td>
<td>3093904</td>
<td>$陳 enumeration, $d1875-1922</td>
<td>Chen, Cangyu, 1875-1922</td>
<td>[null]</td>
<td>CHEN CANGYU 1875 1922</td>
</tr>
</tbody>
</table>

At the end of this process the cluster for **Chen, Hu, 1875-1922** is created (cluster ID **2660985**). It’s not used on the end users portal, until a Bibliographic data is not associated to it.
The Cluster Knowledge Base
An example of clusterization algorithms

Clusterization of "forename" heading type

Example:

"$a$Bridget,$c$of Sweden, Saint,$d$approximately 1303-1373"

1) selections of interesting subfield

2) normalization of string text without diacritics, accents: Bridget of Sweden Saint approximately 1303-1373.

3) translate all in uppercase and search string into db variant forms and cross references: BRIDGET OF SWEDEN SAINT APPROXIMATELY 1303-1373

4) if no cluster found, subfields will be analized
   4.1 comparing $a$ with other existing forms

   4.2 comparing only the numeric part of $d$ (having same $a$): $d$approximately 1303-1373 => $d$1303-1373

   4.3 comparing $c$ for "saint" or "santa" or other forms (having same $a$)
2. Bibliographic records handling

This pre-clusterization process ends with the enrichment of URIs coming from external sources (such as VIAF, LCNAF, ISNI etc.), through Authify [2].

Now, the process 2. Bibliographic records handling can start.

The Bibliographic process is similar (in term of logic) to the previous one, and it feeds the same PostgreSQL database.

[2] The logics applied in Authify to enrich headings are not described in this document.
2. Bibliographic records handling

The final cluster ID 2660985, with all preferred and variant forms, coming both from Authority and from Bibliographic records:

```
SELECT * FROM clstr_nme_grp WHERE clstr_id = '2660985' ORDER BY hdg_id;
```

<table>
<thead>
<tr>
<th>clstr_id</th>
<th>hdg_id</th>
<th>name</th>
<th>pref_frm_boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2660985</td>
<td>AN2867092</td>
<td>Chen, Hu</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AN3093904</td>
<td>Chen, Hu, 1875-1922</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX3801932</td>
<td>喜湖</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX3801933</td>
<td>陳鶴</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX3801934</td>
<td>陳湖</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX3801935</td>
<td>陳虎</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX4129475</td>
<td>Chen, Cangyu, 1875-1922</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX4129476</td>
<td>Chen, Zhenshan, 1875-1922</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>AX4129477</td>
<td>喜湖, 1875-1922</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>BN804564</td>
<td>Chen, Hu</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td>BX50767</td>
<td>陈虎</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td><a href="http://viaf.org/viaf/206837881/">http://viaf.org/viaf/206837881/</a></td>
<td>Chen, Hu</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td><a href="http://viaf.org/viaf/206837881/">http://viaf.org/viaf/206837881/</a></td>
<td>喜湖, (中國文學), 1875-1922</td>
<td>false</td>
</tr>
<tr>
<td>2660985</td>
<td><a href="http://viaf.org/viaf/206837881/">http://viaf.org/viaf/206837881/</a></td>
<td>Chen, Hu, 1875-1922</td>
<td>true</td>
</tr>
</tbody>
</table>
In this case the underlined/red tag is used to retrieve a variant form of the name used as preferred.
2. Bibliographic records handling

The same process active for Agent cluster is executed for the pre-clusterization of Work title, using preferred access points such as tag 130, 240, 730 and so on. [3]

A new Work cluster (if it doesn’t exist) is created, and it’s ready to be fed with data coming from tag 245 (title of Instance).

[3] As in the previous clusterization process, the logic to select, analyse and create a cluster for a Work is out of scope of this document.
3. Creation/feeding of the Work title cluster

In our example, we’ll use the title recorded as Instance or Manifestation record in tag 245: Si xing an jian zheng ming biao zhun yan jiu. It will produce the Work cluster ID 1196479

The title coming from tag 245 and recorded in PostgreSQL database
3. Creation/feeding of the Work title cluster

The cluster of Work with ID 1196479 in PostgreSQL
4. Marc 21 enrichment

At the end of the clusterization processes, the files containing bibliographic records must be enriched: it will be used to search for the entities on the end-users Portal (in the Instances layer) and to simplify the conversion into RDF through Lodify.

All records are enriched with the URIs obtained from the previous steps.

URIs are added to the specific tags identifying the entities (of type Agent, Work and the others we have not mentioned in this document)
4. Marc 21 enrichment

The MARC 21 record enriched with URIs: the Marc record is ready now to be converted in BIBFRAME
The final result on the end users Portal

The Agent cluster with ID 2660985

http://share-vde.org/sharevde/searchNames?n_cluster_id=2660985
The final result on the end users Portal

The Work cluster with ID 1196479

http://share-vde.org/sharevde/searchTitles?t_cluster_id=1196479
From Marc 21 to BIBFRAME: the conversion process
The starting point: the LOC Marc-to-BF mapping

The conversion from Marc 21 to BIBFRAME starts from the Library of Congress mapping rules. This official source is enlarged/modified to manage some special requirements of different projects.

Here, as example, the MARC tag 300 – Physical description – processing:

<table>
<thead>
<tr>
<th>Fields 3XX - Physical Description, etc. - R1, 06/07/2017</th>
<th>Conversion 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 - PHYSICAL DESCRIPTION (R)</td>
<td></td>
</tr>
<tr>
<td>Indicators</td>
<td></td>
</tr>
<tr>
<td>Subfield Codes</td>
<td></td>
</tr>
<tr>
<td>$a - Extent (R)</td>
<td>I - extent - Extent - Make a string of all a, f, g and including all repeats of subfields. Keep in order as in field, insert blank for each subfield code then put this string in rdfs:label</td>
</tr>
<tr>
<td>$b - Other physical details (NR)</td>
<td>I - note - Note - noteType &quot;Physical details&quot; ; rdfs:label &quot;$b content&quot;</td>
</tr>
<tr>
<td>$c - Dimensions (R)</td>
<td>I - dimensions - literal</td>
</tr>
<tr>
<td>$e - Accompanying material (NR)</td>
<td>I - note - Note - noteType &quot;Accompanying material&quot; ; rdfs:label &quot;$e content&quot;</td>
</tr>
<tr>
<td>$f - Type of unit (R)</td>
<td>See $a</td>
</tr>
<tr>
<td>$g - Size of unit (R)</td>
<td>See $a</td>
</tr>
<tr>
<td>$3 - Materials specified (NR)</td>
<td>See Subfield $3 spec</td>
</tr>
<tr>
<td>$6 - Linkage (NR)</td>
<td>See Subfield $6 spec</td>
</tr>
<tr>
<td>306 - PLAYING TIME (NR)</td>
<td>I - duration</td>
</tr>
<tr>
<td>Indicators</td>
<td></td>
</tr>
<tr>
<td>Subfield Codes</td>
<td></td>
</tr>
<tr>
<td>$a - Playing time (R)</td>
<td>## - literal</td>
</tr>
<tr>
<td>$6 - Linkage (NR)</td>
<td>See Subfield $6 spec</td>
</tr>
</tbody>
</table>
The starting point: the LOC Marc-to-BF mapping

And here, as example, the MARC tag 100 – Main Entry-Personal Name – processing:

0.3) Basic RDF Patterns for Names, Titles, and Relationships

0.3.1) RDF for names

```xml
<resource>
  bf:contribution [ a bf:Contribution;
    bf:agent [ a bf:Person, Organization, etc.]
    rdfs:label "label from Process 1.3";
    identifiedBy [ a Identifier ...... ]; see Subfield $0 spec
  bflc:nameXXMatchKey "string from Process 1.1";
  bflc:nameXXMarcKey "string from Process 1.2"
  ];
  bf:role [ a bf:Role
    [rdfs:label "..." ]; see Process 1.4
    bf:code "..." ]; see Process 1.4
  ];
If URI from ID for role, then instead:
  bf:role URI for role

If name is from 1XX:
Use bflc:PrimaryContribution instead of bf:Contribution
Also add (needed?)
<resource> bflc:primaryContributorNameXXMatchKey "string from Process 1.1"
```
**Lodify - Conversion templates**

*Lodify* converts each incoming record by means of Conversion templates. Each template associates:

- a MARC record belonging to the incoming data-stream
- with a set of (conversion) rules associated with BIBFRAME vocabulary
  (here, two rules for tag 300a and tag 300c)

![Diagram showing the conversion process]

```xml
<http://share-vde.org/sharevde/rdfBibframe/Instance/27293> <bf:dimensions> "15 cm."

<http://share-vde.org/sharevde/rdfBibframe/Instance/27293> <bf:extent>
<http://share-vde.org/sharevde/rdfBibframe2/Extent/02e3f96a>

<http://share-vde.org/sharevde/rdfBibframe2/Extent/02e3f96a> <rdfs:label> "108 p.";
```

(here, the rule for tag 100a subfields 0/1)

R100a01

Lodify - Conversion templates


<http://share-vde.org/sharevde/rdfBibframe/Agent/1801277> <rdfs:label> "Castro, Juan Antonio.".

<http://share-vde.org/sharevde/rdfBibframe/Agent/1801277> <bflc:name00MatchKey> "Castro, Juan Antonio.".


<http://share-vde.org/sharevde/rdfBibframe/Agent/1801277> <bflc:primaryContributorName00MatchKey> "Castro, Juan Antonio.".

Lodify – Marc-to-BF logic

Here we show (with two examples) how SHARE-VDE converts MARC21 bibliographic tags into set of BIBFRAME triples.

The first section of each tag shows pseudo-triples (to be more readable as possible for human eye). The second section shows concrete examples.

For the SHARE-VDE project, all the mapping and conversion topics are analyzed and discussed in one of the SHARE-VDE Working Group, the Transformation Council.
Lodify – Marc-to-BF logic

How the tag 500 – General note, is mapped and managed

a. Tag 500 (General Note)

Connected to instance record:

```
$a

<Instance>  bf:note   <_node>
<_node>      rdf:type   bf:Note
<_node>      rdfs:label  "$a"
```

```
500 $a Közrem. Simon Zoltán, Fülöp András

<http://share-vde.org/sharevde/rdfBibframe2/Instance/YALE56456>  bf:note


```
Lodify – Marc-to-BF logic

How the tag 020 – ISBN, is mapped and managed


Connected to instance record:

$a

```xml
<Instance>   bf:identifiedBy   <_node>
<_node>   rdf:type   bf:isbn
<_node>   rdf:value   "$a"
</Instance>
```

$c

```xml
<Instance>   bf:acquisitionTerms   "$c"
</Instance>
```

020...$a978-963-88816-2-8 $c3000,- Ft

<http://share-vde.org/sharevde/rdfBibframe2/Instance/YALE43570>   bf:identifiedBy
<http://share-vde.org/sharevde/rdfBibframe2/Isbn/d859f1c4-e626-3a42-bd2d-8c78a84a50bb>.

<http://share-vde.org/sharevde/rdfBibframe2/Isbn/d859f1c4-e626-3a42-bd2d-8c78a84a50bb>   rdf:type   bf:isbn.

<http://share-vde.org/sharevde/rdfBibframe2/Isbn/d859f1c4-e626-3a42-bd2d-8c78a84a50bb>   rdf:value   "978-963-88816-2-8".

<http://share-vde.org/sharevde/rdfBibframe2/Instance/YALE43570>   bf:acquisitionTerms   "3000,- Ft".
MARC-to-BF conversion process
Troubleshooting
Marc-to-BF troubleshooting

Transliterations: how to manage them (1/6)

Record example: http://id.loc.gov/tools/bibframe/compare-id/full-ttl?find=12069992

http://bibframe.example.org/12069992#Agent100-14> a bf:Agent,
  bf:Person;
  rdfs:label "Fraiman, Hayim."
;
bfcl:name00MarcKey "1001 $6880-01$afraiman, Hayim."
;
bfcl:name00MatchKey "Fraiman, Hayim."
;
bfcl:primaryContributorName00MatchKey "Fraiman, Hayim."
.

<http://id.loc.gov/authorities/names/n86237600> a bf:Agent,
  bf:Person;
  rdfs:label "פרים, חיסן בן ישראל מאיר."
;
bfcl:name00MarcKey "8801 $6160-01/2$r$sfrimes, Chisn ben Israel Meir."
;
bfcl:name00MatchKey "פרים, חיסן בן ישראל מאיר."
;
bfcl:primaryContributorName00MatchKey "פרים, חיסן בן ישראל מאיר."
.
Marc-to-BF troubleshooting

Transliterations: how to manage them (2/6)

Record example: http://id.loc.gov/tools/bibframe/compare-id/full-ttl?find=12069992

The record has a tag 100 and its transliteration in the 880. The LoC conversion tool translates the two tags separately. A NAF URI is attributed to the 880 section of code; a specifically created URI is attributed to the 100 section.

The two entities are not reconciled but they are the same Person.
Marc-to-BF troubleshooting

Transliterations: how to manage them (3/6)

Record example: http://id.loc.gov/tools/bibframe/compare-id/full-ttl?find=12069992

```xml
<http://id.loc.gov/authorities/names/n88237680> a bf:Agent, 
   bf:Person ; 
   rdfs:label "חִיוֹם בֶּן יִשְׂרָאֵל מַאיֵיר 'פּרִיימֶן'" ; 
   bflc:name00MarcKey "8801 $6100-01/(2/r$aחִיוֹם בֶּן יִשְׂרָאֵל מַאיֵיר 'פּרִיימֶן'" ; 
   bflc:name00MatchKey "חִיוֹם בֶּן יִשְׂרָאֵל מַאיֵיר 'פּרִיימֶן'" ; 
   bflc:primaryContributorName00MatchKey "חִיוֹם בֶּן יִשְׂרָאֵל מַאיֵיר 'פּרִיימֶן'" .
```

```xml
<http://bibframe.example.org/12069992#Agent100-14> a bf:Agent, 
   bf:Person ; 
   rdfs:label "Framan, Ḥayim." ; 
   bflc:name00MarcKey "1001 $6880-01$aFraman, Ḥayim." ; 
   bflc:name00MatchKey "Framan, Ḥayim." ; 
   bflc:primaryContributorName00MatchKey "Framan, Ḥayim." .
```
Marc-to-BF troubleshooting

Transliterations: how to manage them (4/6)

Record example: http://id.loc.gov/tools/bibframe/compare-id/full-ttl?find=12069992

Hypothesis 1: to reconcile the two sections using the same NAF URI. In this way it is not possible to link the two labels that have been generated to their original MARC tag. In a conversion process from BF to MARC21 it will not be possible to distinguish which tag generated which label.
Marc-to-BF troubleshooting

Transliterations: how to manage them (5/6)

Hypothesis 2: each section has a specifically created URI. The two URIs will be linked to the NAF URI with a &lt;same as&gt;
Hypothesis 3: to use a set of classes and properties specific to this situation (not in the vocabulary at the present)
Marc-to-BF troubleshooting

Relationships of Person with Work or with Instance (tag 700/710/711) (1/2)

Record example: http://id.loc.gov/tools/bibframe/compare-lccn/full-ttl?find=2011029677

Marc-

<table>
<thead>
<tr>
<th>MARC</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>020</td>
<td>$a9783110188172 (hardcover : alk. paper)</td>
</tr>
<tr>
<td>020</td>
<td>$z9783110215397 (e-ISBNS: PDF)</td>
</tr>
<tr>
<td>020</td>
<td>$z9783110368321 (e-ISBN: EPUB)</td>
</tr>
<tr>
<td>040</td>
<td>$aDLC$eDLC$erda$DLC</td>
</tr>
<tr>
<td>041</td>
<td>1 $a<a href="http://bibframe.example.org/16901812#Work">http://bibframe.example.org/16901812#Work</a> a bf:Text,</td>
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<td></td>
</tr>
<tr>
<td>240</td>
<td>10 $aHippolytus</td>
</tr>
<tr>
<td>245</td>
<td>10 $aHippolytos /$eEuripides ; herausgegeben, übersetzt und kom</td>
</tr>
<tr>
<td>264</td>
<td>1 $aBerlin ; $aBoston : $bDe Gruyter, $c[2015]</td>
</tr>
<tr>
<td>366</td>
<td>0 $a392 pages ; $c24 cm.</td>
</tr>
<tr>
<td>336</td>
<td>$aatext$2rdacontent</td>
</tr>
<tr>
<td>337</td>
<td>$asubmediated$2rdomedia</td>
</tr>
<tr>
<td>336</td>
<td>$avolume$2rdacarrier</td>
</tr>
<tr>
<td>490</td>
<td>0 $aGriechische Dramen</td>
</tr>
<tr>
<td>564</td>
<td>$aIncludes bibliographical references (pages 387-392), appe</td>
</tr>
<tr>
<td>000</td>
<td>00 $aEuripides$svTranslations into German.</td>
</tr>
<tr>
<td>000</td>
<td>00 $aHippolytus$sc(Mythological character)$vDrama</td>
</tr>
<tr>
<td>700</td>
<td>1 $aRoth, Peter, $d1957-$ceditor, $ctranslator,</td>
</tr>
<tr>
<td>700</td>
<td>0 $aEuripides.$tHippolytus.$lGerman.</td>
</tr>
<tr>
<td>906</td>
<td>$a719c8c5b1c4f0e5f20$00-00cencat1c</td>
</tr>
</tbody>
</table>

Example BibFrame:

```html
<http://bibframe.example.org/16901812#Work> a bf:Text, 
    bf:Work ;
    rdfs:label "Hippolytus" ;
    bf:contribution
        [ a bf:Contribution ;
          bf:agent
            <http://id.loc.gov/authorities/names/nr90011474> ;
            bf:role <http://id.loc.gov/vocabulary/relators/edt>,
            <http://id.loc.gov/vocabulary/relators/trl> ] ;
```

Example Bibframe (1/2)
Marc-to-BF troubleshooting

Relationships of Person with Work or with Instance (tag 700/710/711) (2/2)

Record example: http://id.loc.gov/tools/bibframe/compare-lccn/full-ttl?find=2011029677

```xml
<http://bibframe.example.org/16901812#Instance>
  bf:Instance ;

  bf:contribution
    [ a bf:Contribution ;
      bf:agent <http://id.loc.gov/authorities/names/nr90011474> ;
      bf:role <http://id.loc.gov/vocabulary/relators/edt>,
      <http://id.loc.gov/vocabulary/relators/trl> ] ;
```

The translator should indicate a contribution to the Instance and not the Work, but it appears that is attributed to the Work by default. We would expect something like this:
Marc-to-BF troubleshooting

Source for tags 336/337/338

Record example: http://id.loc.gov/tools/bibframe/compare-id/full-ttl?find=18345151

**LC BIBFRAME TOOL:**

```xml
<http://id.loc.gov/vocabulary/carriers/nc> a bf:Carrier ;
    rdfs:label "volume" ;
    bf:source [ a bf:Source ;
        rdfs:label "rdacarrier" ] .
```

**LODIFY:**

```xml
<http://rdaregistry.info/termList/RDACarrierType/1049> a bf:Carrier ;
    rdfs:label "volume" .

<http://id.loc.gov/vocabulary/carriers/nc> a bf:Carrier ;
    rdfs:label "volume" .
```
Marc-to-BF troubleshooting

How to enrich a N/T heading (tag 100 $a $t)

Record example: http://share-vde.org/sharevde/resource?uri=NL0589892&&dcnr=9&v=m21

How can a tag 100 containing a $t be enriched unequivocally?
This tag may generate two URIs: one for the name and one for the name/title.
How can each be distinguished from the other?
The same problem is encountered when creating RDF from an enriched MARC21
SHARE-VDE: Phase 2 deliverables overview

**Deliverable 1:** The datasets in BIBFRAME 2.0 of the entire catalogue of each institution with the "tuples" derived directly from the MARC records, delivered both as triples and as quadruples with the addition of the provenance and with Share-VDE URIs.

**Deliverable 2:** The knowledge base of clusters accessible in RDF.

**Deliverable 3:** The datasets in BIBFRAME 2.0 for each institution with the triples that include the URIs from the external sources.

**Deliverable 4:** The MARC21 records for each institution enriched with URIs.

**Clusters Knowledge base**
And now ...... questions!!!

Tiziana Possemato

Casalini Libri - @Cult