Preparing the Way : Creating Future Compatible Cataloguing Data in a Transitional Environment

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Memorial University of Newfoundland

Faster, Smarter, Richer Conference
Rome, Italy
February 27th, 2014

Aspects of our Linked Data Future

Decentralization

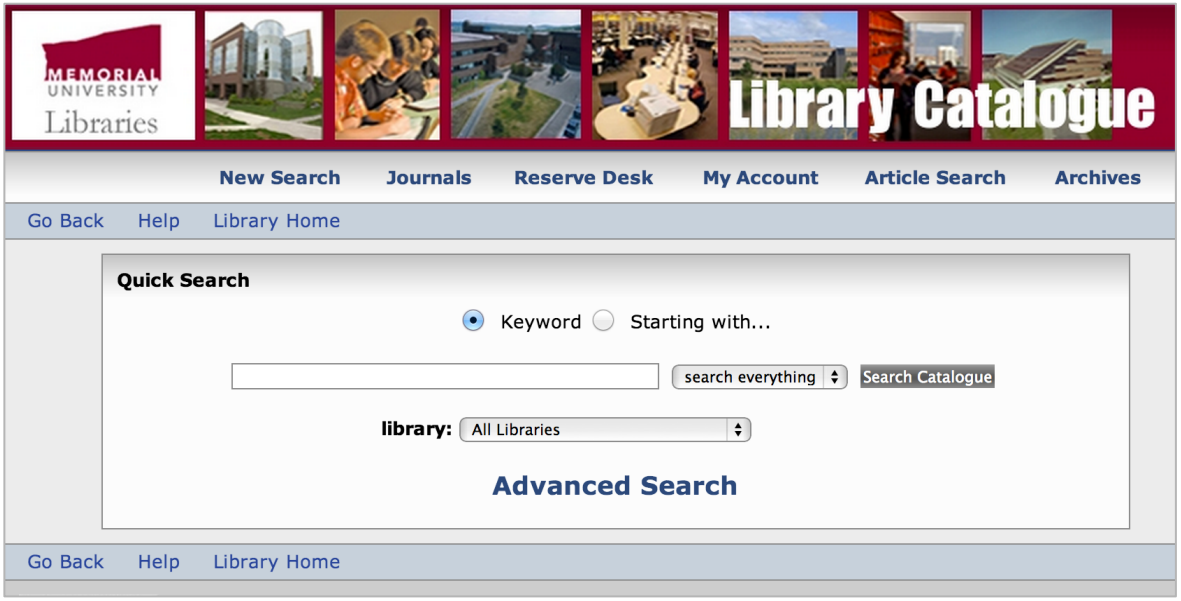
Collaboration

Localization

Richness

Structure

1. Decentralization



Indexes

eJournals

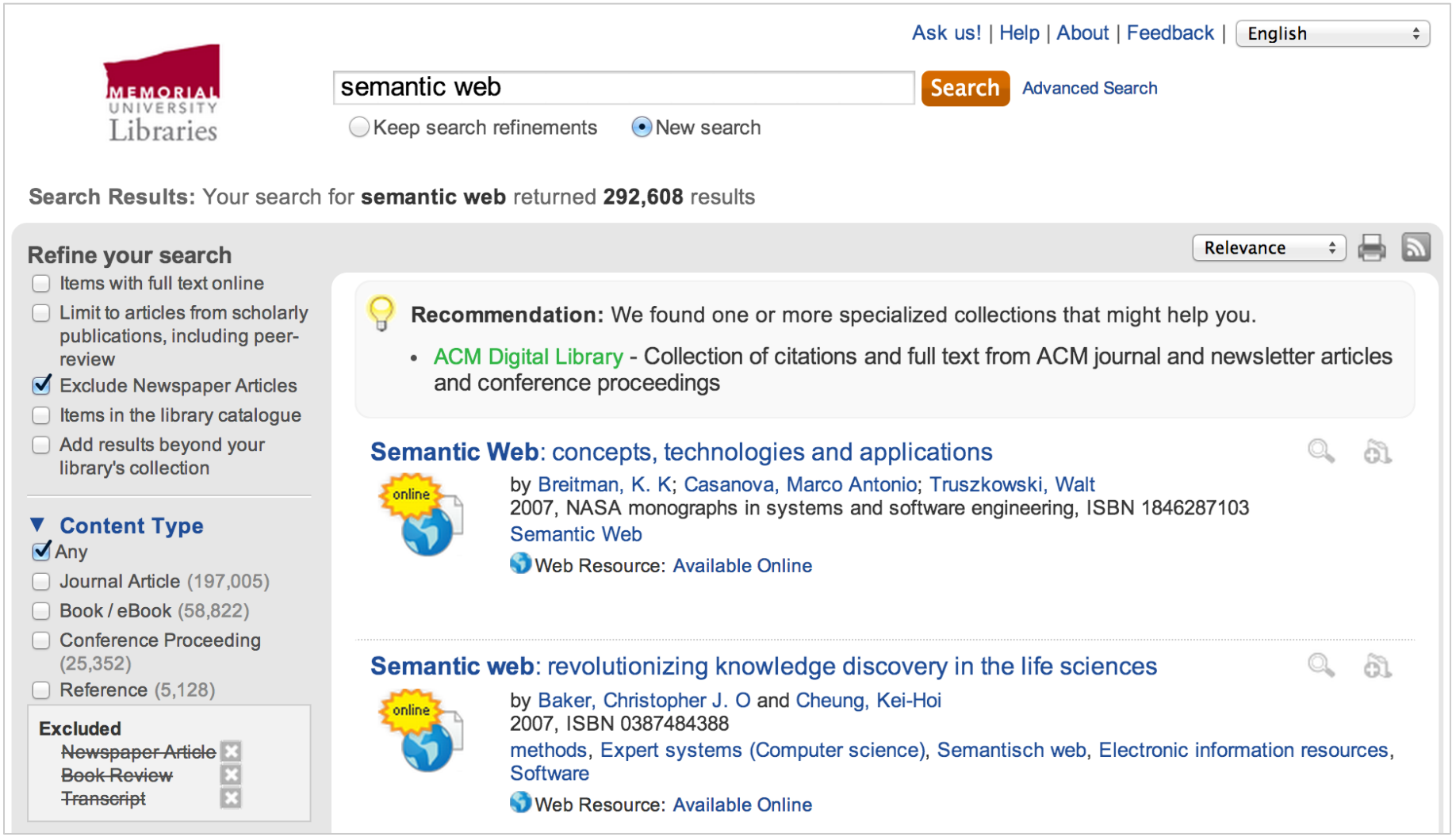
Research Repositories

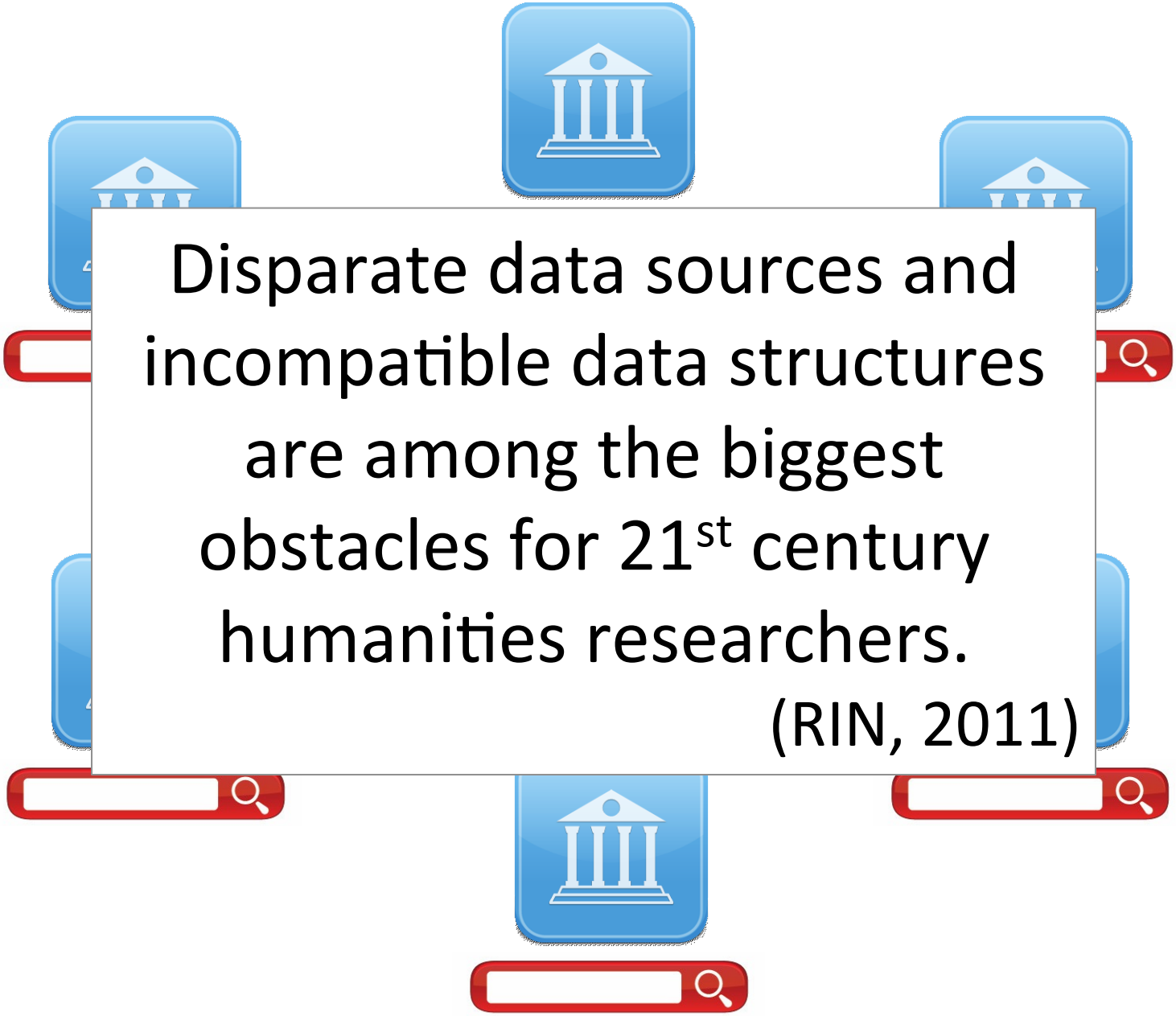
Digital Archives

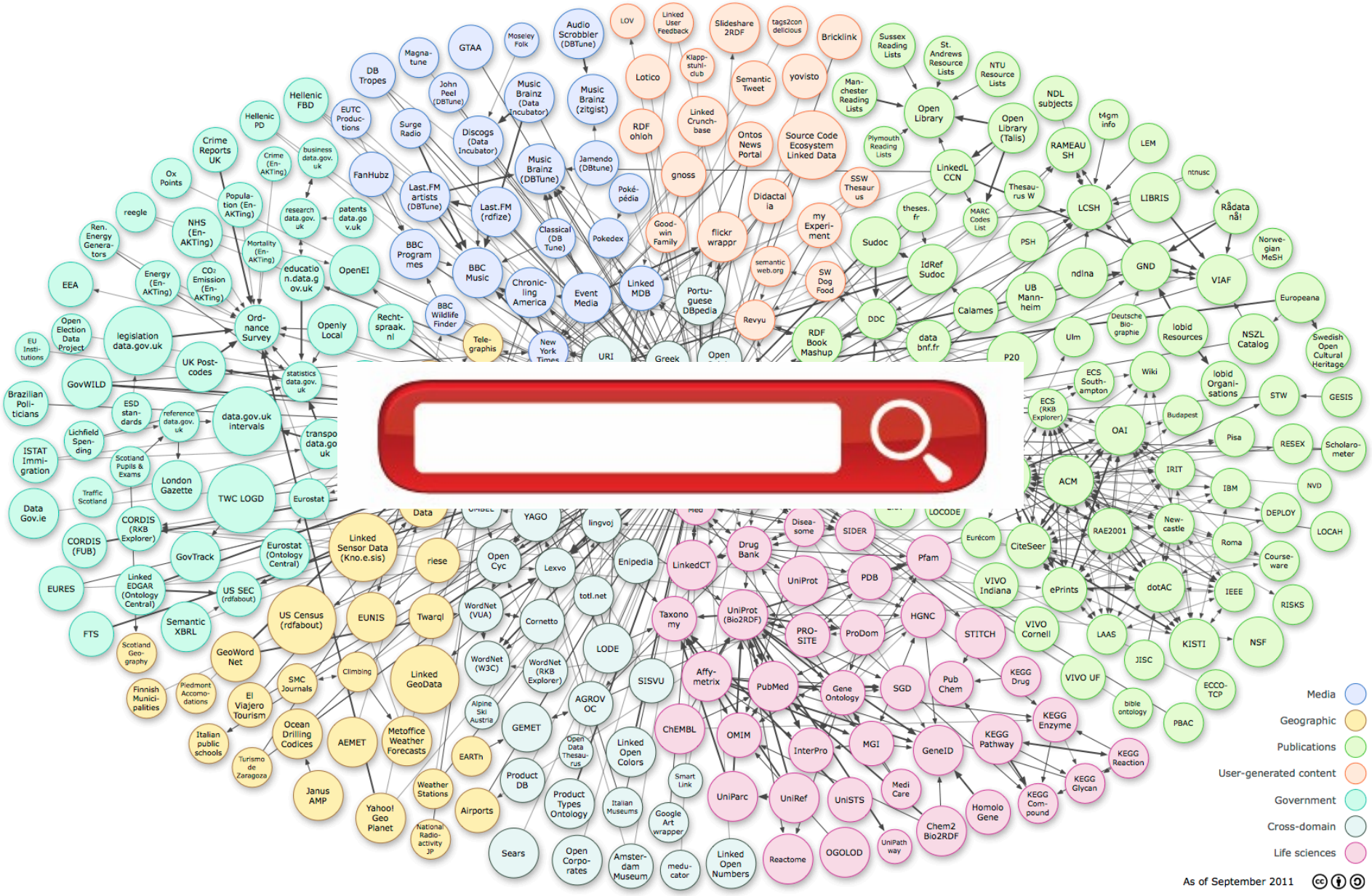
Data Sets

eBooks

Extract, Transform, Load

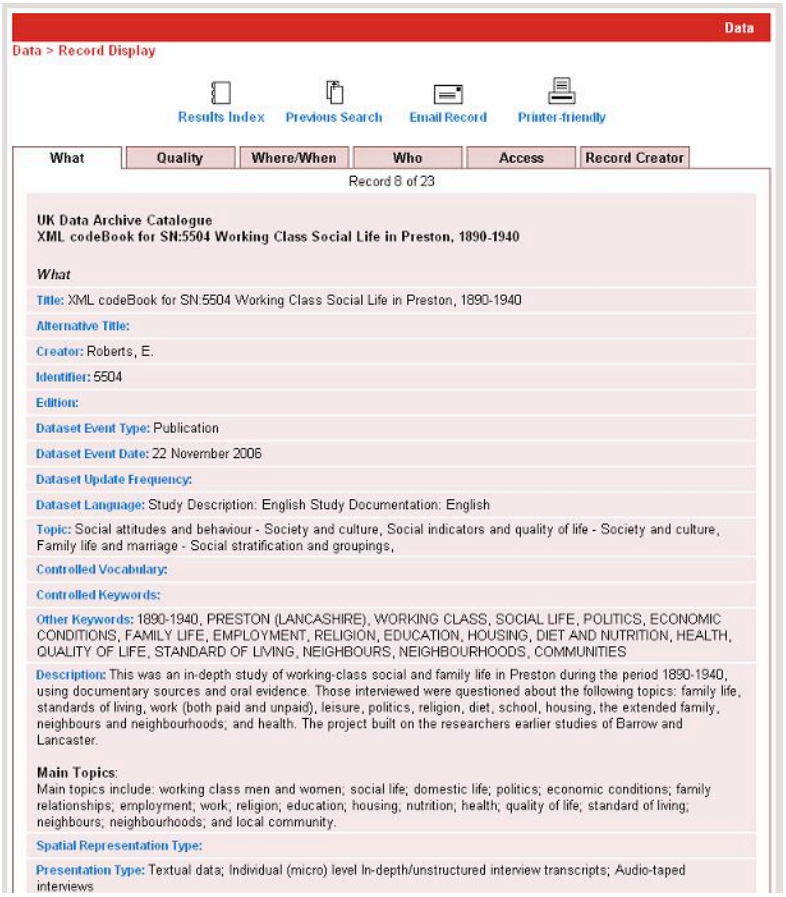



Disparate data sources and incompatible data structures are among the biggest obstacles for 21st century humanities researchers.
(RIN, 2011)


LOV
Linked User Feedback
Slideshare 2RDF
tags2con delicious
Bricklink
Audio Scrobbler (DBTune)
Moseley Folk
GTAA
Magna-tune
DB Tropes
John Peel (DBTune)
Music Brainz (Data Incubator)
Music Brainz (zitgist)
Lotico
Klapp-stuhl-club
Semantic Tweet
yovisto
Sussex Reading Lists
St. Andrews Resource Lists
NTU Resource Lists
Man-chester Reading Lists
Open Library
Open Library (Talis)
NDL subjects
t4gm info
RAMEAU SH
LEM
Hellenic FBD
Hellenic PD
EUTC Produc-tions
Surge Radio
Discogs (Data Incubator)
RDF ohloh
Linked Crunch-base
Ontos News Portal
Source Code Ecosystem Linked Data
Plymouth Reading Lists
Crime Reports UK
Crime (En-AKTing)
business data.gov.uk
FanHubz
Music Brainz (DBTune)
Jamendo (DBTune)
gnoss
Poké-pédia
Didactalia
SSW Thesaurus
LinkedL CCN
Thesau-rus W
LCSH
LIBRIS
ntnusc
Rådata nå!
Ox Points
Popula-tion (En-AKTing)
Last.FM artists (DBTune)
Last.FM (rdfize)
theses.fr
MARC Codes List
reegle
NHS (En-AKTing)
research data.gov.uk
patents data.go v.uk
Good-win Family
flickr wrappr
my Experi-ment
Sudoc
PSH
Norwe-gian MeSH
Ren. Energy Generators
Mortality (En-AKTing)
Classical (DB Tune)
Pokedex
BBC Programmes
BBC Music
semantic web.org
SW Dog Food
IdRef Sudoc
ndlna
GND
VIAF
EEA
Energy (En-AKTing)
CO2 Emission (En-AKTing)
education.data.gov.uk
OpenEI
Chronic-ling America
Event Media
Linked MDB
Portu-guese DBpedia
Revyu
RDF Book Mashup
DDC
Calames
UB Mann-heim
P20
Europeana
Open Election Data Project
legislation data.gov.uk
Ord-nance Survey
Openly Local
Recht-spraak.nl
BBC Wildlife Finder
Tele-graphis
New York Times
URI Burner
Greek DBpedia
Open Calais
data bnf.fr
Deutsche Bio-graphie
Ulm
lobid Resources
NSZL Catalog
Swedish Open Cultural Heritage
EU Insti-tutions
UK Post-codes
statistics data.gov.uk
Wiki
lobid Organi-sations
STW
GESIS
Brazilian Poli-ticians
GovWILD
ESD stan-dards
reference data.gov.uk
data.gov.uk intervals
transpo data.go uk
ECS South-ampton
ECS (RKB Explorer)
OAI
Budapest
Pisa
RESEX
Scholaro-meter
ISTAT Immi-gration
Lichfield Spen-ding
Scotland Pupils & Exams
London Gazette
TWC LOGD
Eurostat
IRIT
ACM
IBM
NVD
Data Gov.ie
Traffic Scotland
CORDIS (RKB Explorer)
Data
YAGO
lingvoj
Disea-some
SIDER
LOCODE
Eurécom
CiteSeer
RAE2001
New-castle
DEPLOY
LOCAH
CORDIS (FUB)
GovTrack
Eurostat (Ontology Central)
Linked Sensor Data (Kno.e.sis)
riese
Open Cyc
Lexvo
Enipedia
LinkedCT
Drug Bank
Pfam
UniProt
PDB
Roma
Course-ware
EURES
Linked EDGAR (Ontology Central)
US SEC (rdfabout)
totl.net
Taxono-my
UniProt (Bio2RDF)
VIVO Indiana
ePrints
dotAC
IEEE
RISKS
FTS
Semantic XBRL
US Census (rdfabout)
EUNIS
Twarql
WordNet (VUA)
Cornetto
LODE
PRO-SITE
ProDom
HGNC
STITCH
VIVO Cornell
LAAS
KISTI
NSF
Scotland Geo-graphy
GeoWord Net
SMC Journals
Climbing
Linked GeoData
WordNet (W3C)
WordNet (RKB Explorer)
SISVU
Affy-metrix
PubMed
Gene Ontology
SGD
Pub Chem
KEGG Drug
VIVO UF
JISC
ECCO-TCP
Finnish Munici-palities
Piedmont Accomo-dations
El Viajero Tourism
Alpine Ski Austria
AGROVOC
ChEMBL
OMIM
InterPro
MGI
GeneID
KEGG Pathway
KEGG Enzyme
KEGG Reaction
bible ontology
PBAC
Italian public schools
Ocean Drilling Codices
AEMET
Metoffice Weather Forecasts
GEMET
Open Data Thesau-rus
Linked Open Colors
Smart Link
UniParc
UniRef
UniSTS
Medi Care
KEGG Glycan
KEGG Com-pound
Turismo de Zaragoza
EARTh
Product DB
Product Types Ontology
Italian Museums
Google Art wrapper
Homolo Gene
Janus AMP
Yahoo! Geo Planet
Weather Stations
Airports
National Radio-activity JP
Sears
Open Corpo-rates
Amster-dam Museum
medu-cator
Linked Open Numbers
Reactome
OGOLOD
UniPath way
Chem2 Bio2RDF
Media
Geographic
Publications
User-generated content
Government
Cross-domain
Life sciences
As of September 2011

Decentralization

Statements not records.



Data

Data > Record Display

Results Index | Previous Search | Email Record | Printer-friendly

What | Quality | Where/When | Who | Access | Record Creator

Record 8 of 23

UK Data Archive Catalogue
XML codeBook for SN:5504 Working Class Social Life in Preston, 1890-1940

What

Title: XML codeBook for SN:5504 Working Class Social Life in Preston, 1890-1940

Alternative Title:

Creator: Roberts, E.

Identifier: 5504

Edition:

Dataset Event Type: Publication

Dataset Event Date: 22 November 2006

Dataset Update Frequency:

Dataset Language: Study Description: English Study Documentation: English

Topic: Social attitudes and behaviour - Society and culture, Social indicators and quality of life - Society and culture, Family life and marriage - Social stratification and groupings,

Controlled Vocabulary:

Controlled Keywords:

Other Keywords: 1890-1940, PRESTON (LANCASHIRE), WORKING CLASS, SOCIAL LIFE, POLITICS, ECONOMIC CONDITIONS, FAMILY LIFE, EMPLOYMENT, RELIGION, EDUCATION, HOUSING, DIET AND NUTRITION, HEALTH, QUALITY OF LIFE, STANDARD OF LIVING, NEIGHBOURS, NEIGHBOURHOODS, COMMUNITIES

Description: This was an in-depth study of working-class social and family life in Preston during the period 1890-1940, using documentary sources and oral evidence. Those interviewed were questioned about the following topics: family life, standards of living, work (both paid and unpaid), leisure, politics, religion, diet, school, housing, the extended family, neighbours and neighbourhoods, and health. The project built on the researchers earlier studies of Barrow and Lancaster.

Main Topics:
Main topics include: working class men and women; social life; domestic life; politics; economic conditions; family relationships; employment; work; religion; education; housing; nutrition; health; quality of life; standard of living; neighbours; neighbourhoods; and local community.

Spatial Representation Type:

Presentation Type: Textual data; Individual (micro) level In-depth/unstructured interview transcripts; Audio-taped interviews

Subject -> Predicate -> Object

Subject -> Predicate -> Object

Subject -> Predicate -> Object

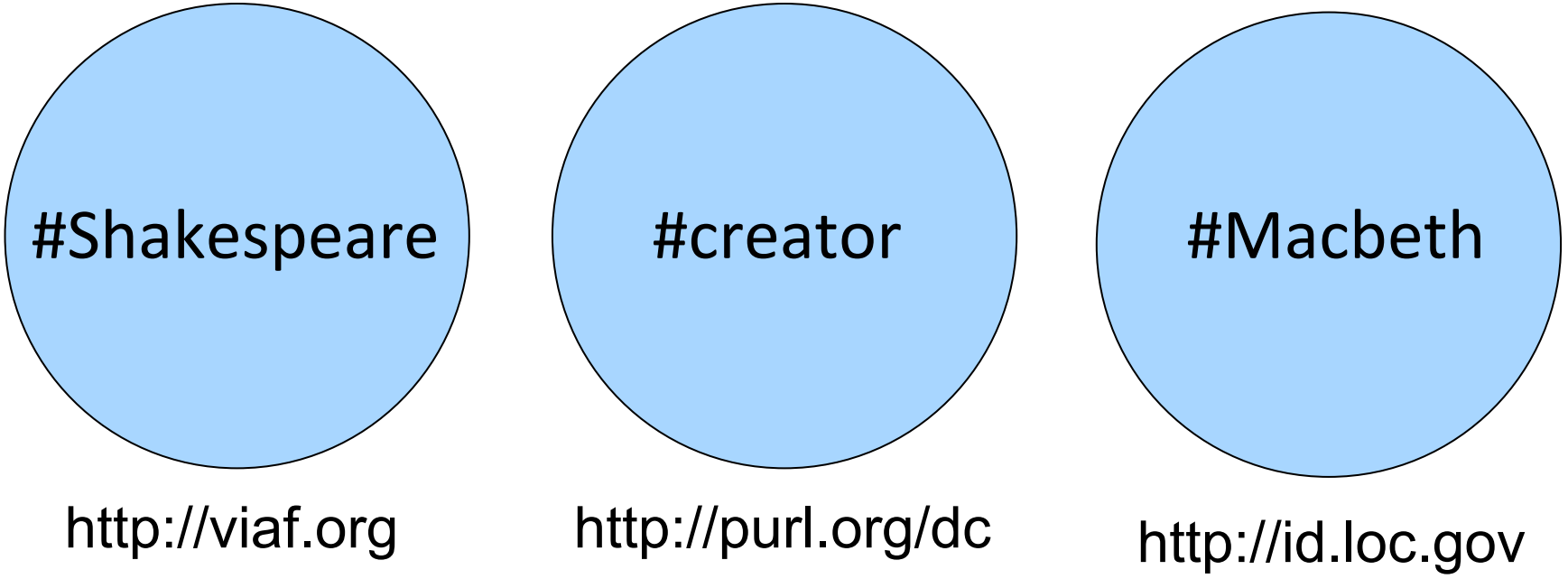
Subject -> Predicate -> Object

Subject -> Predicate -> Object

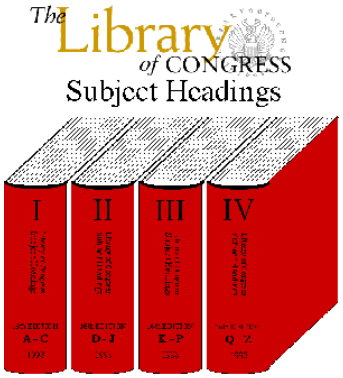
Subject -> Predicate -> Object

Decentralization

Most data stored remotely.



2. Collaboration



Collaboration

```
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010      $a92021087
020      $a1555701205
040      $aDLC$cDLC$dAGL
049      $aHNKA
050   00 $aZ678.9$b.C58 1992
082   00 $a025/.00285$220
100   1  $aCohn, John M
245   10 $aPlanning for automation :$ba how-to-do it manual for
         librarians /$cJohn M. Cohn, Ann L. Kelsey, Keith Michael
         Fiels
260      $aNew York :$bNeal Schuman Publishers,$cc1992
300      $avi, 116 p. ;$c28 cm
440    0 $aHow-to-do it manuals for libraries ;$vno. 25
504      $aIncludes bibliographical references and index
650    0 $aLibraries$xAutomation$xManagement$xHandbooks, manuals, etc
650    0 $aLibrary planning$xHandbooks, manuals, etc
700   10 $aKelsey, Ann L
700   10 $aFiels, Keith Michael
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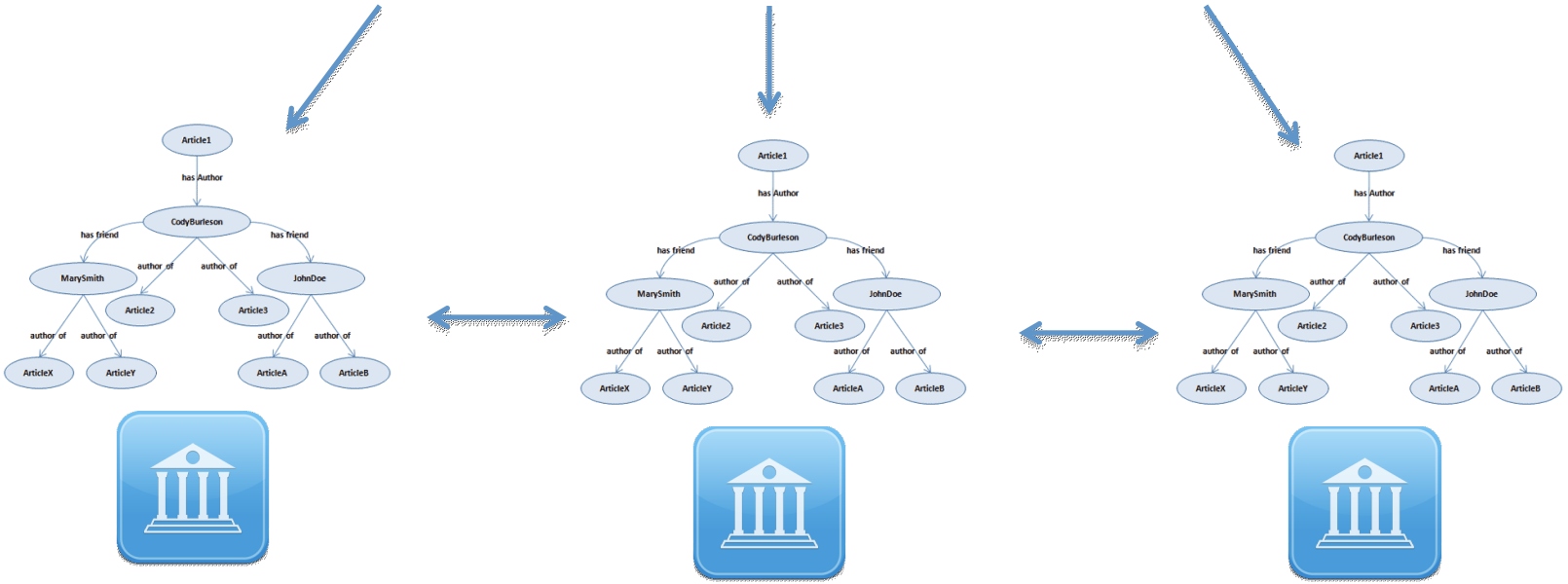
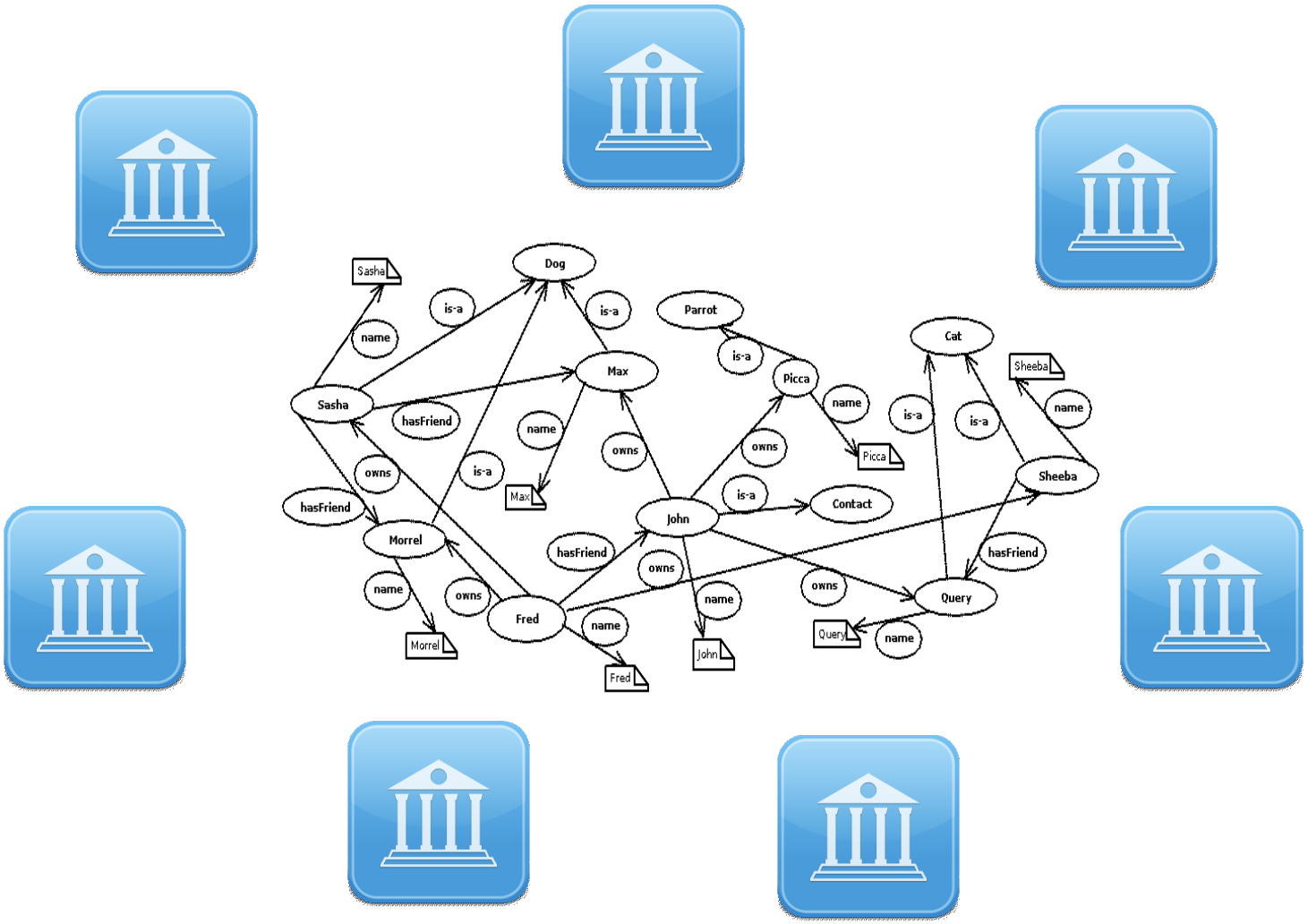


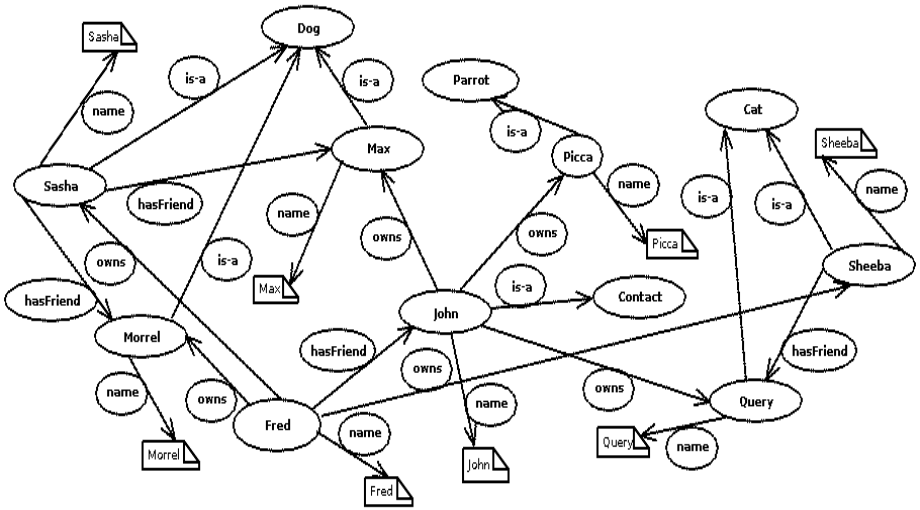
Collaboration



Collaboration

LOUVRE

Google



The New York Times
ON THE WEB

Enhancing Shared Records

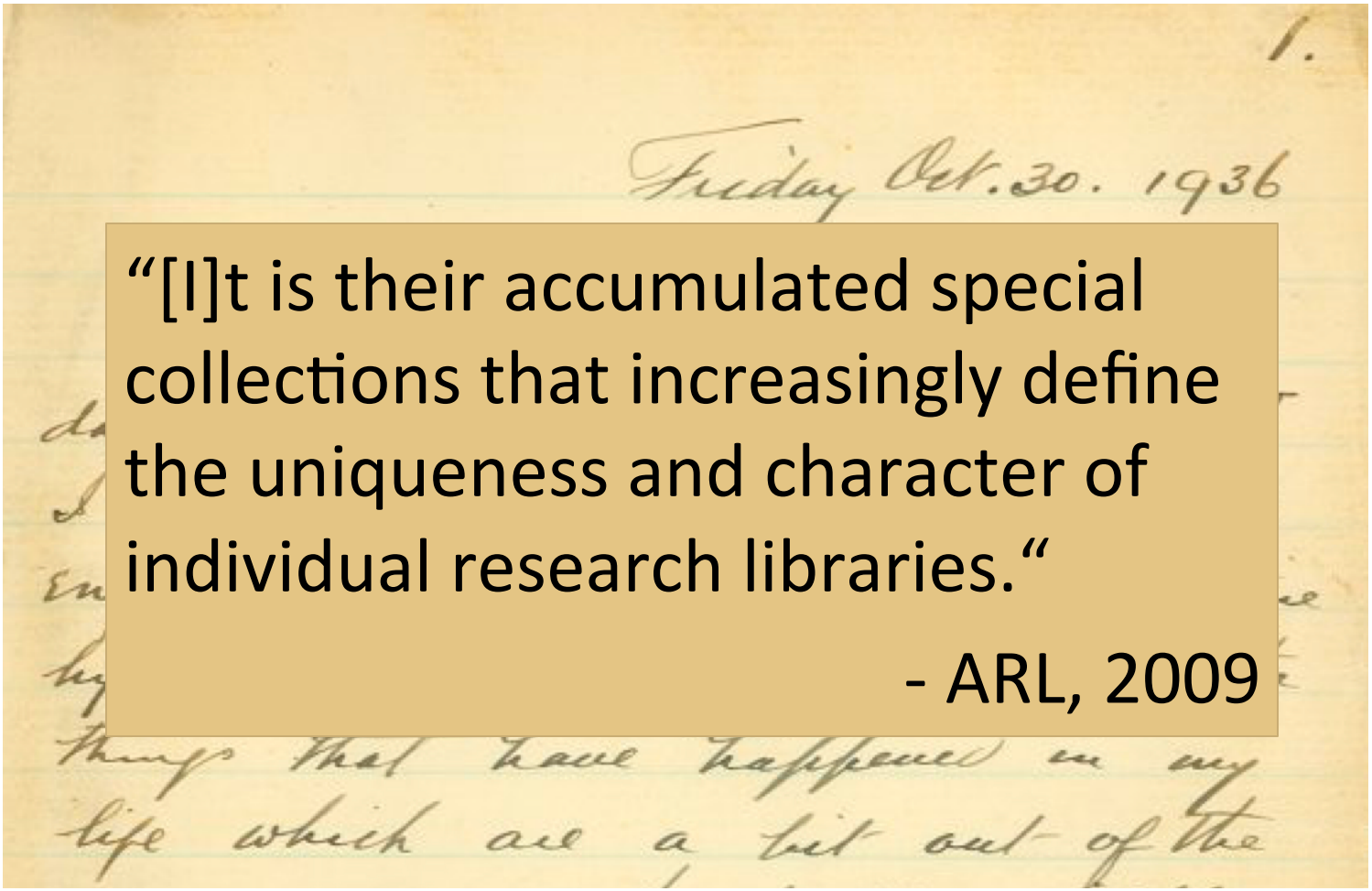
NACO

SACO

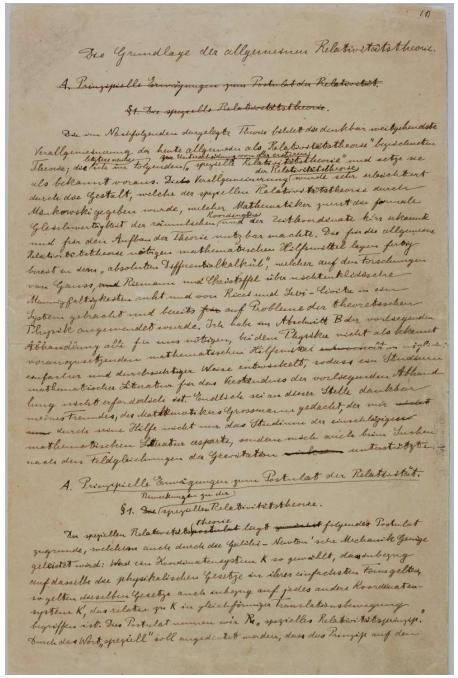
Ontology Development

Library Related Ontologies
RDA Ontology
Dublin Core Ontology
Bibliographic Ontology (BIBO)
Citation (CITO)
Provenance Ontology (PROV-O)
MODS/MADS
FRBR
Holding Ontology

3. Localization



Expose Entity URIs

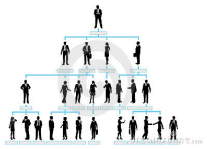


http://mun.ca/doc123

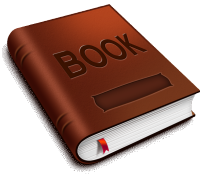
http://mun.ca/event

http://mun.ca/place

http://mun.ca/person



http://mun.ca/org



http://this.ca/book

Annotation

http://mun.ca/annotation

4. Richness

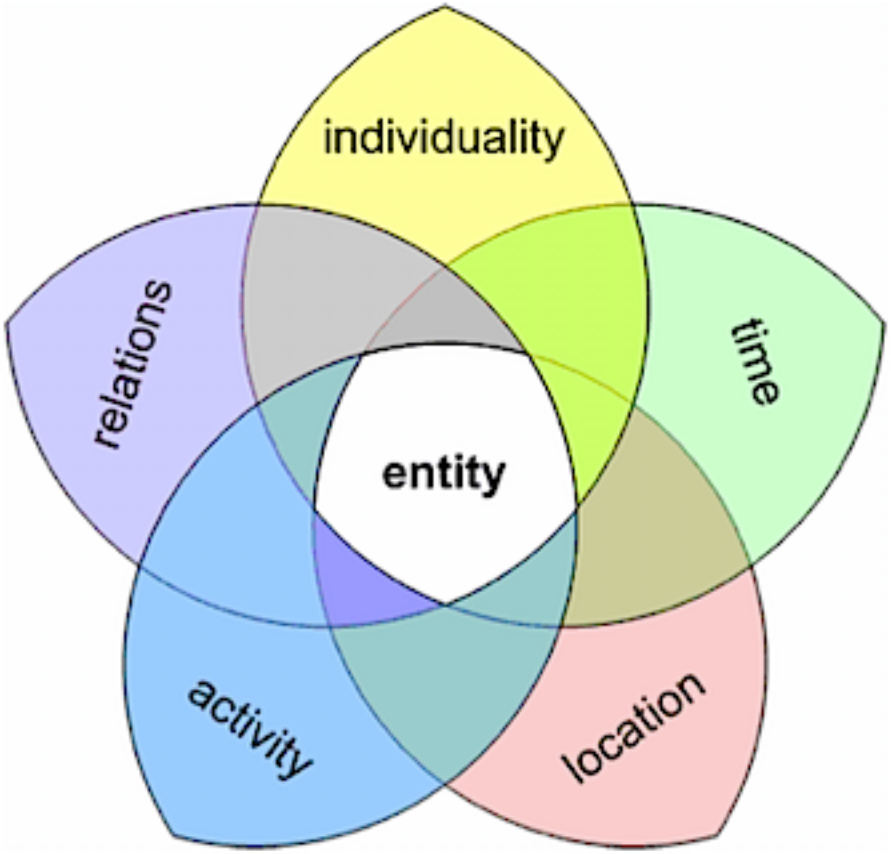
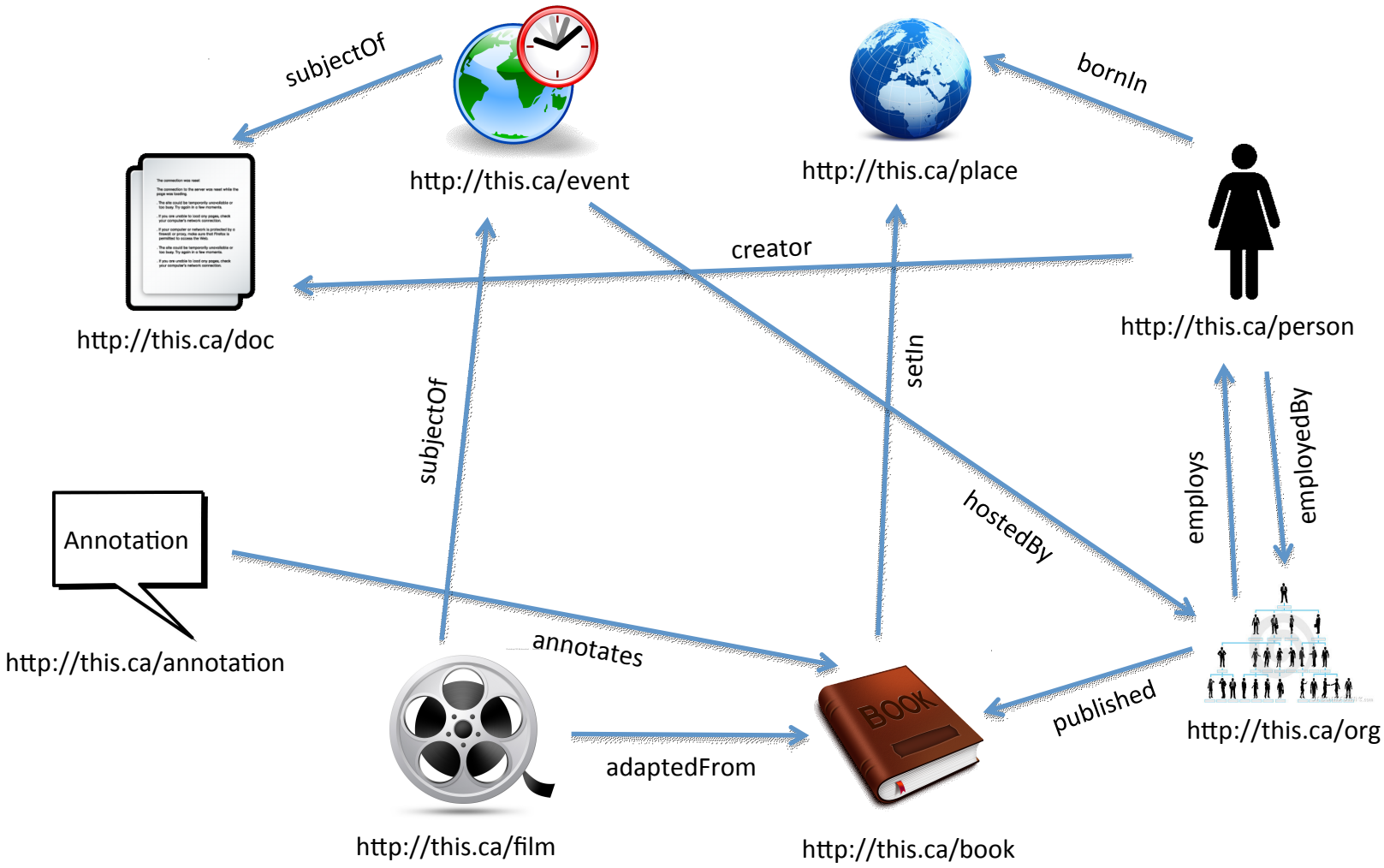
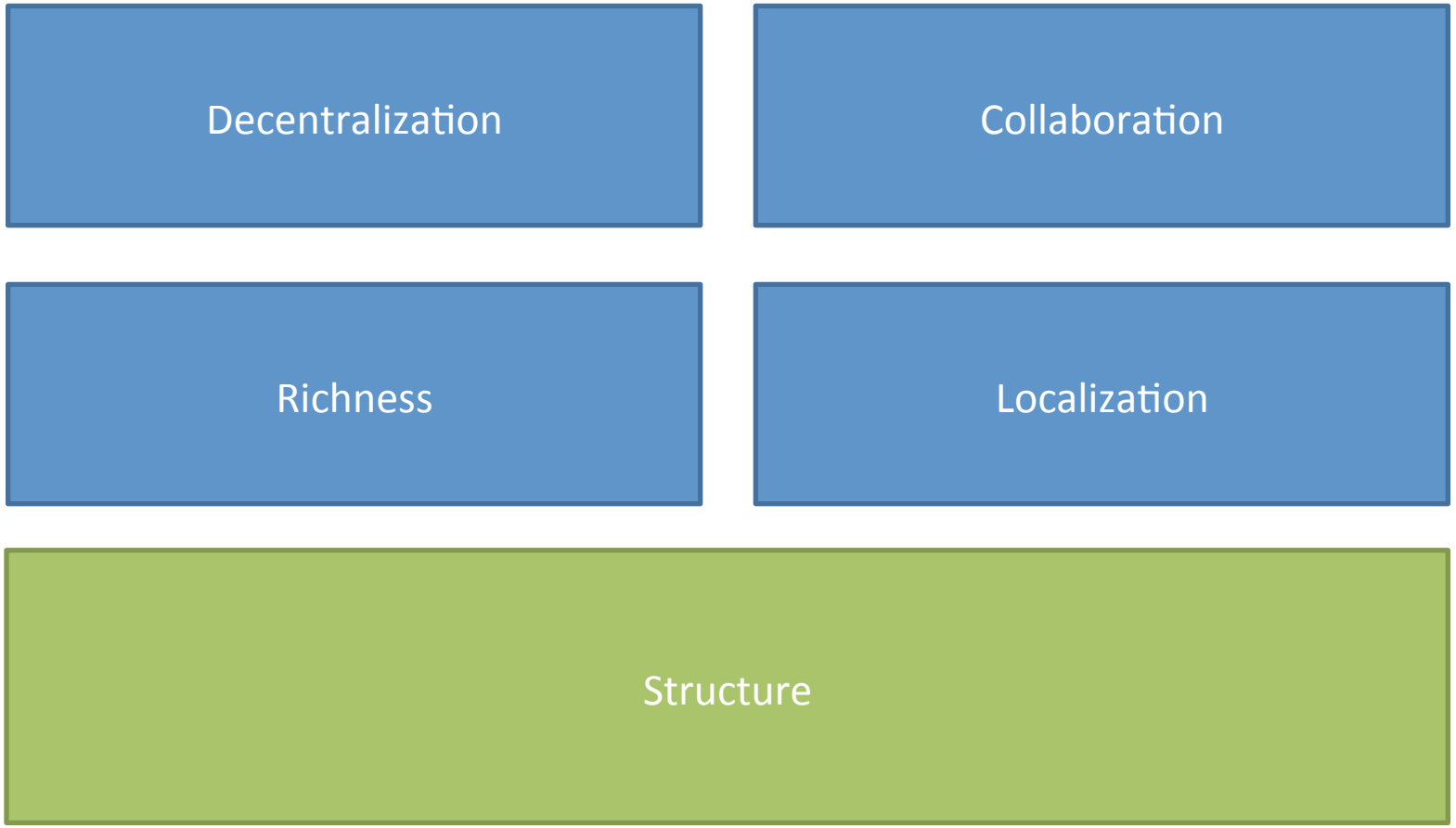


Fig. 1. Five Fundamental Categories for Context Information

Define Relationships



5. Structure


Decentralization
Collaboration
Richness
Localization
Structure

Structured Data

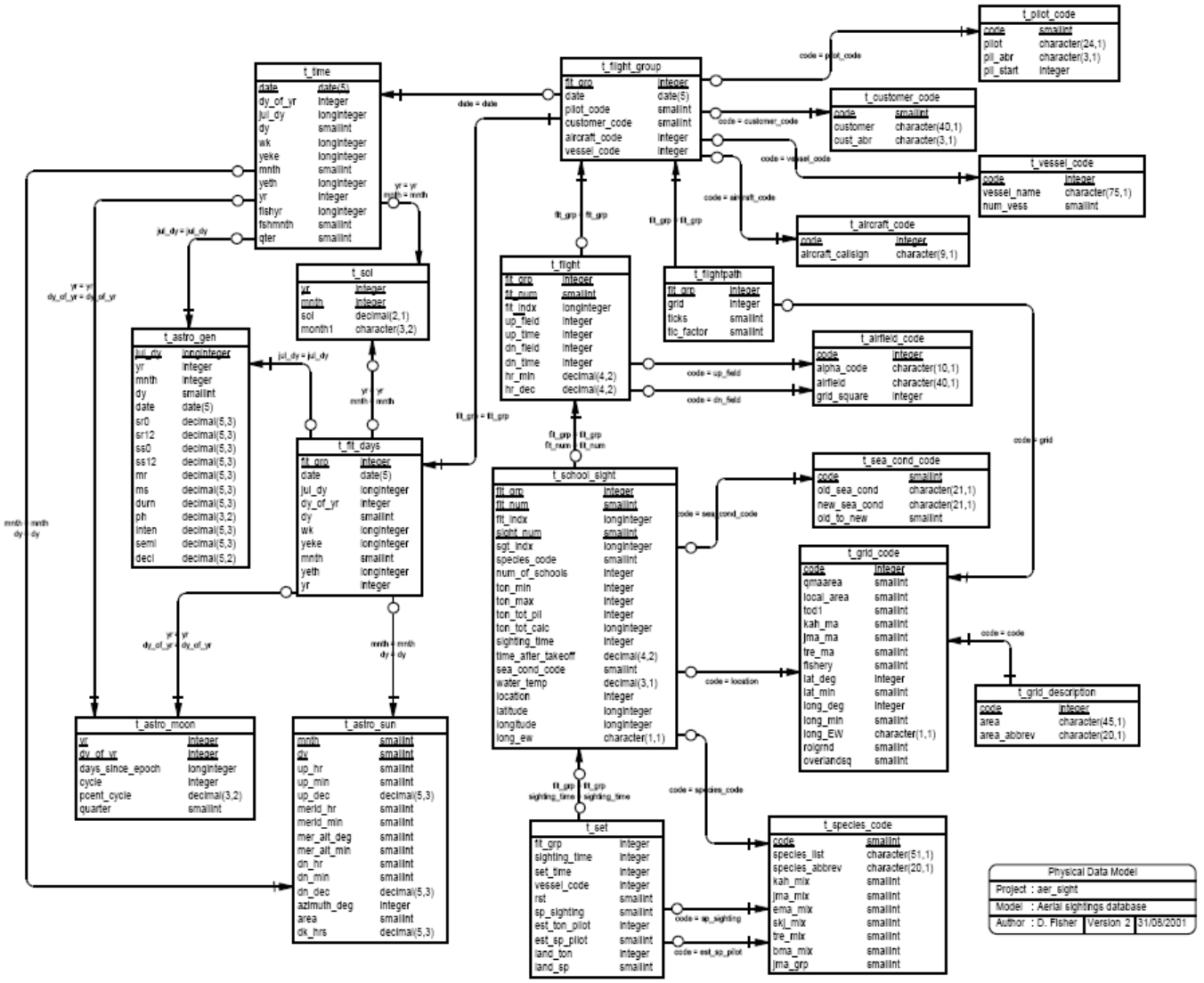
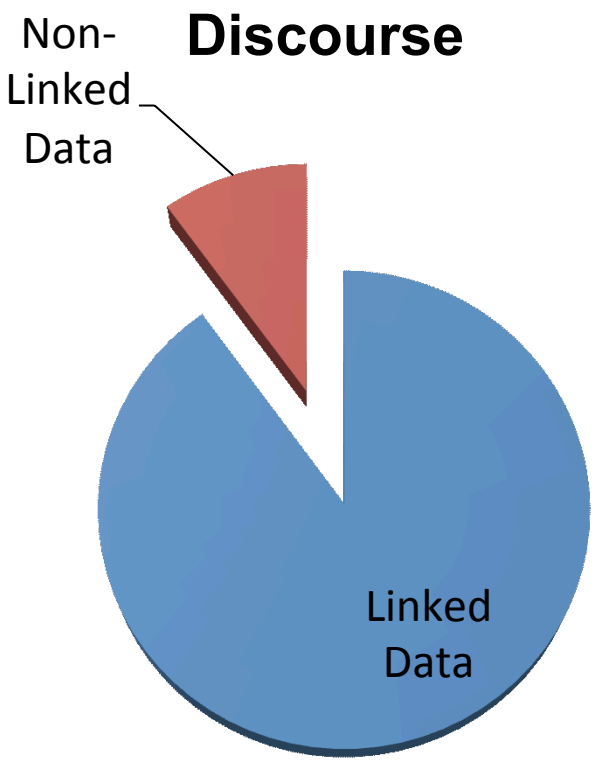


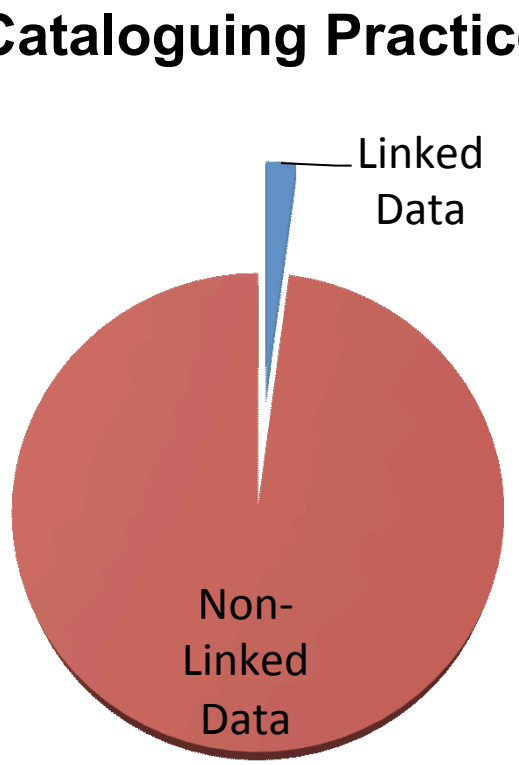
Figure 1: Entity Relationship Diagram (ERD) for the aer_sight database

Semantic Structure

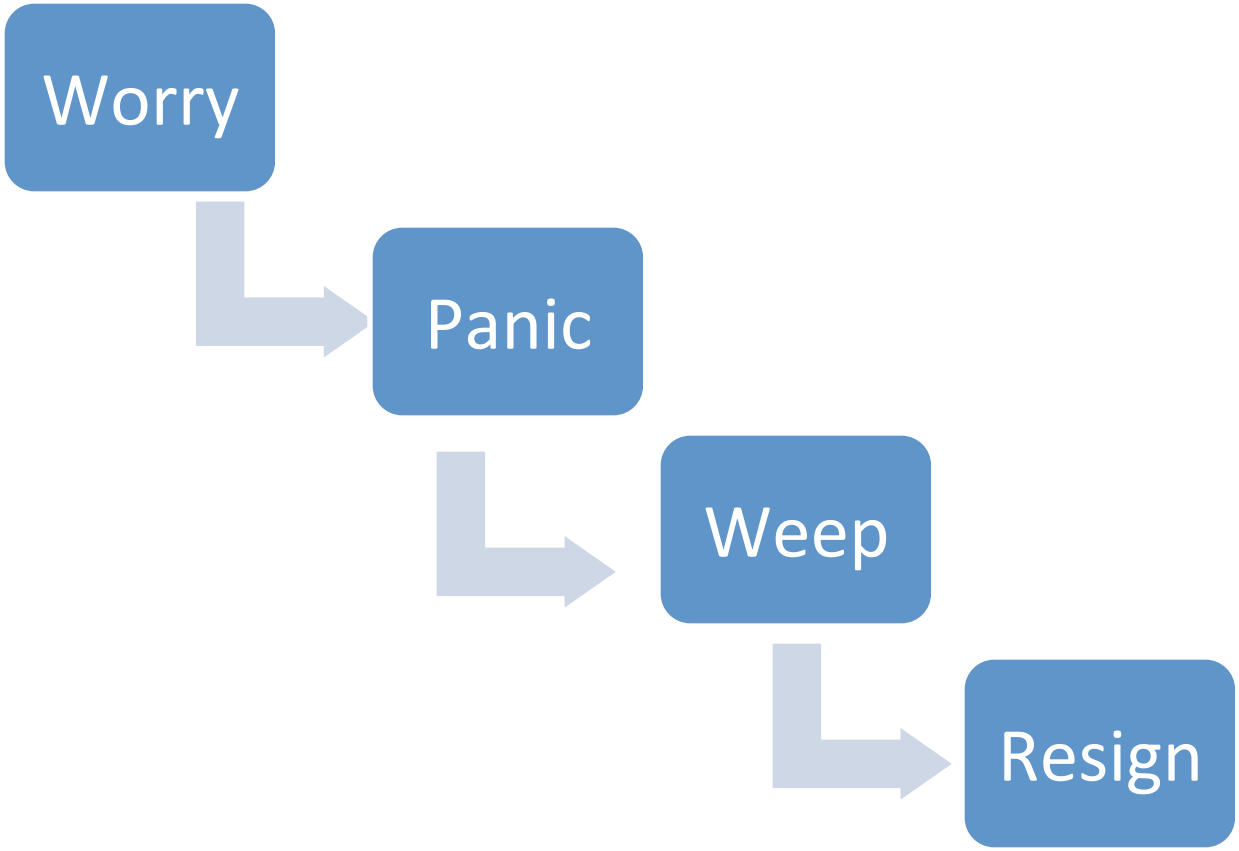
Machine-Actionable Data

mpedson Michael Peter Edson
"Our top two users are computers." Says @udcmrk about the importance of API's and machine readable data.
24 Jan

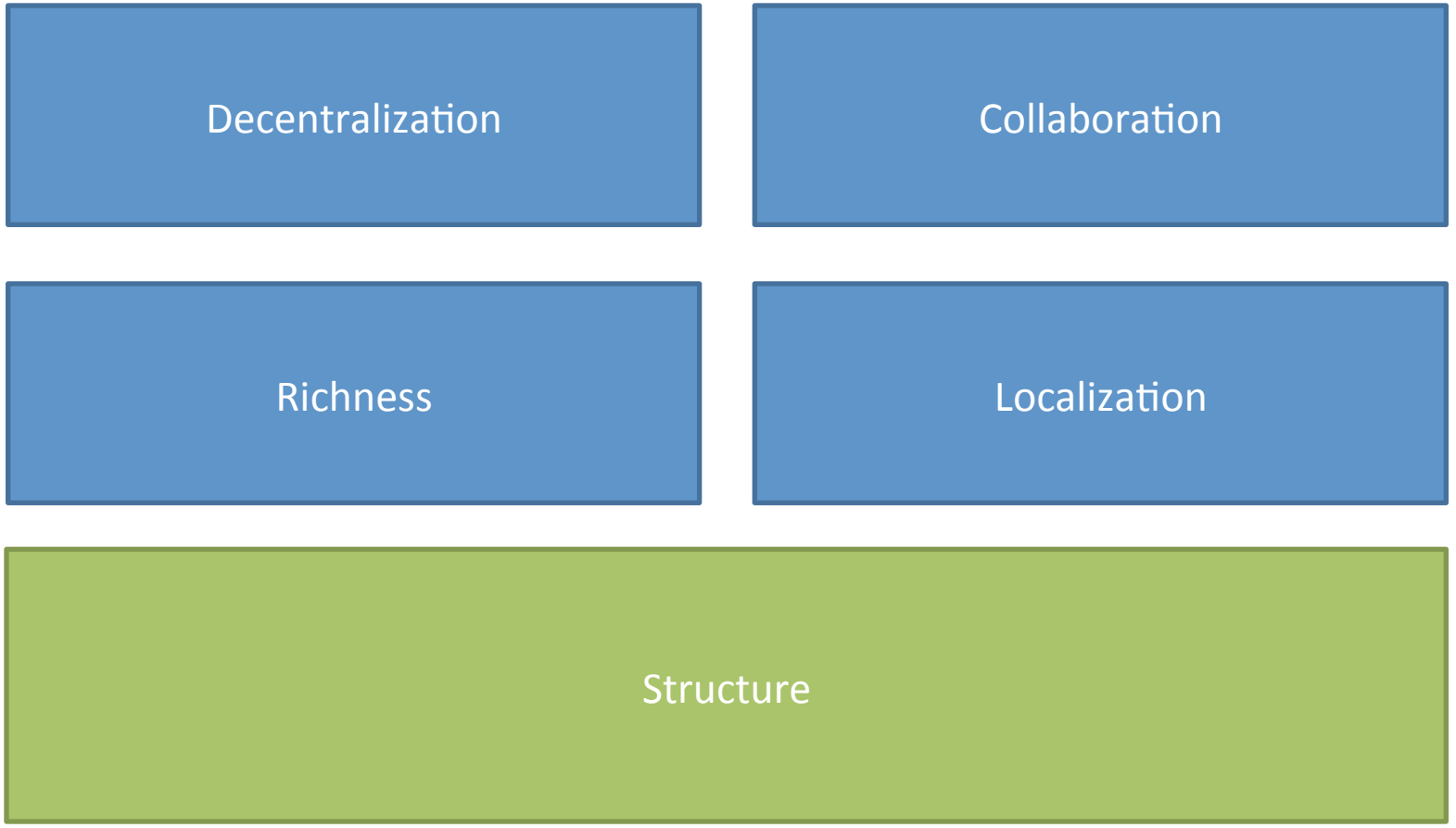

Discourse
Non-
Linked
Data
Linked
Data


Cataloguing Practice
Linked
Data
Non-
Linked
Data

4 Cataloguer Tasks in Relation to Linked Data

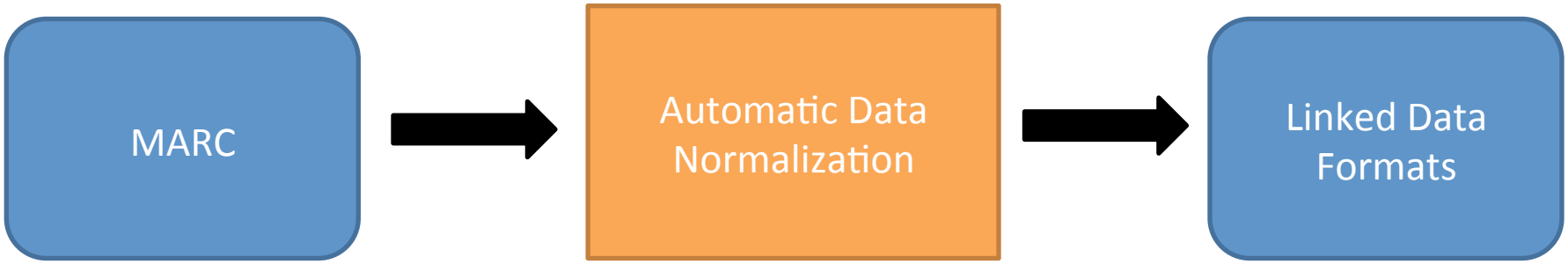


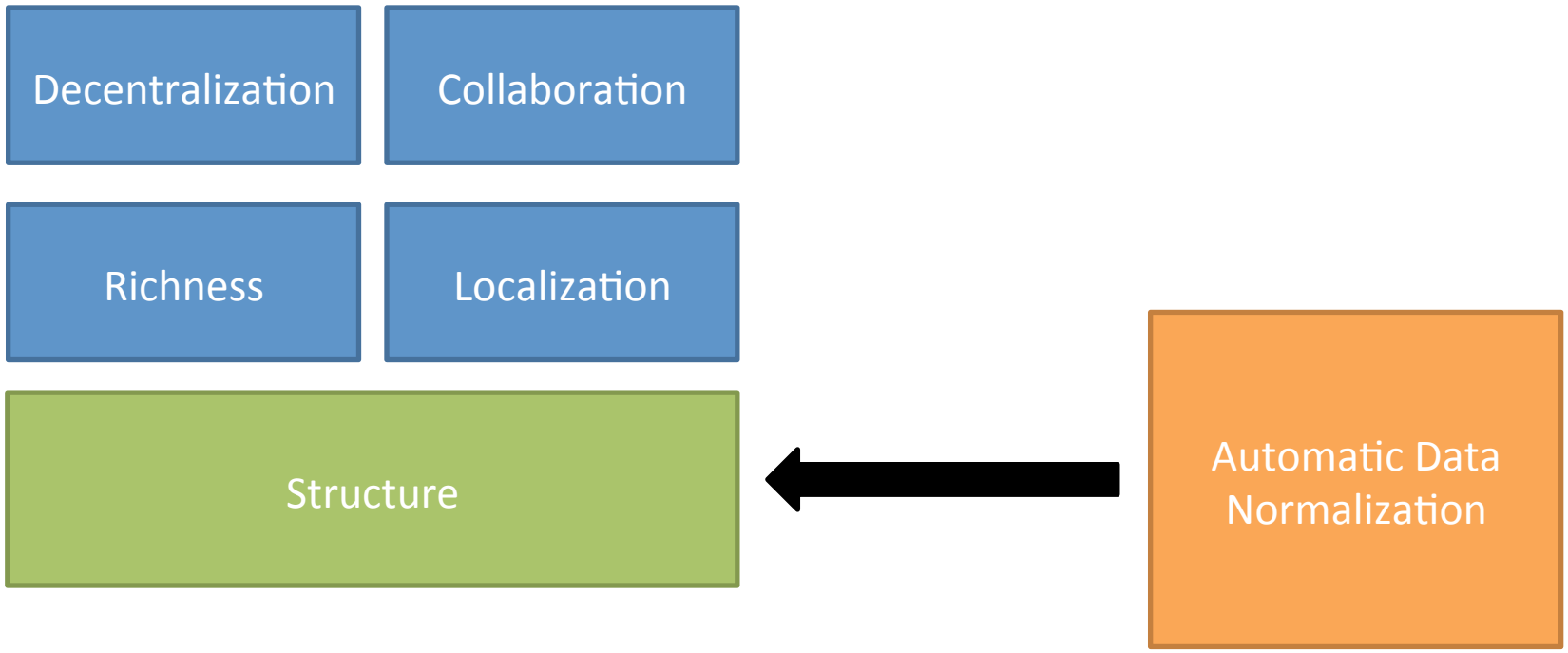
Trust Standard Development?


Decentralization
Collaboration
Richness
Localization
Structure

The greatest consumer of our data is going to be the machine.

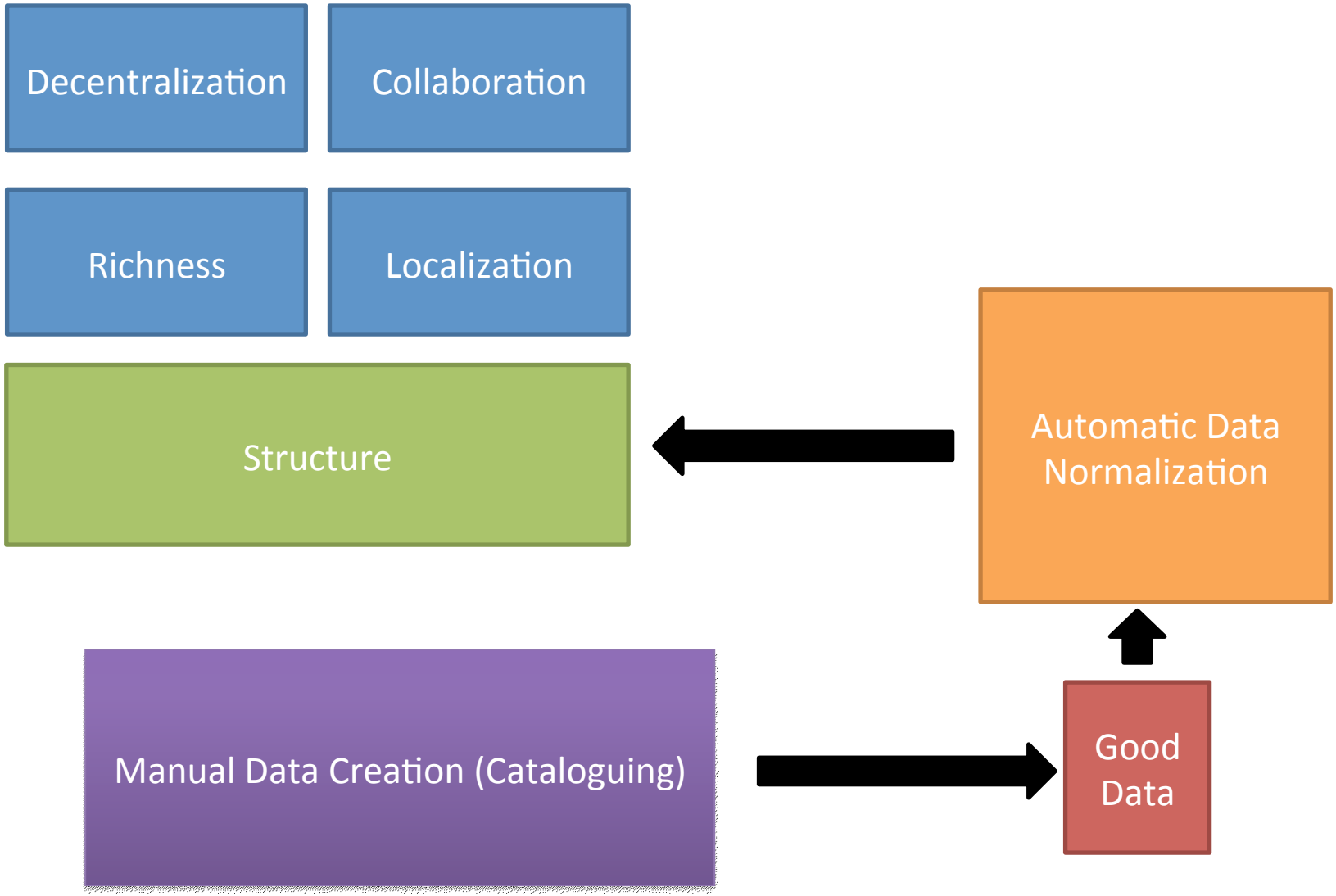
We have to make our data machine understandable.


MARC
Automatic Data Normalization
Linked Data Formats

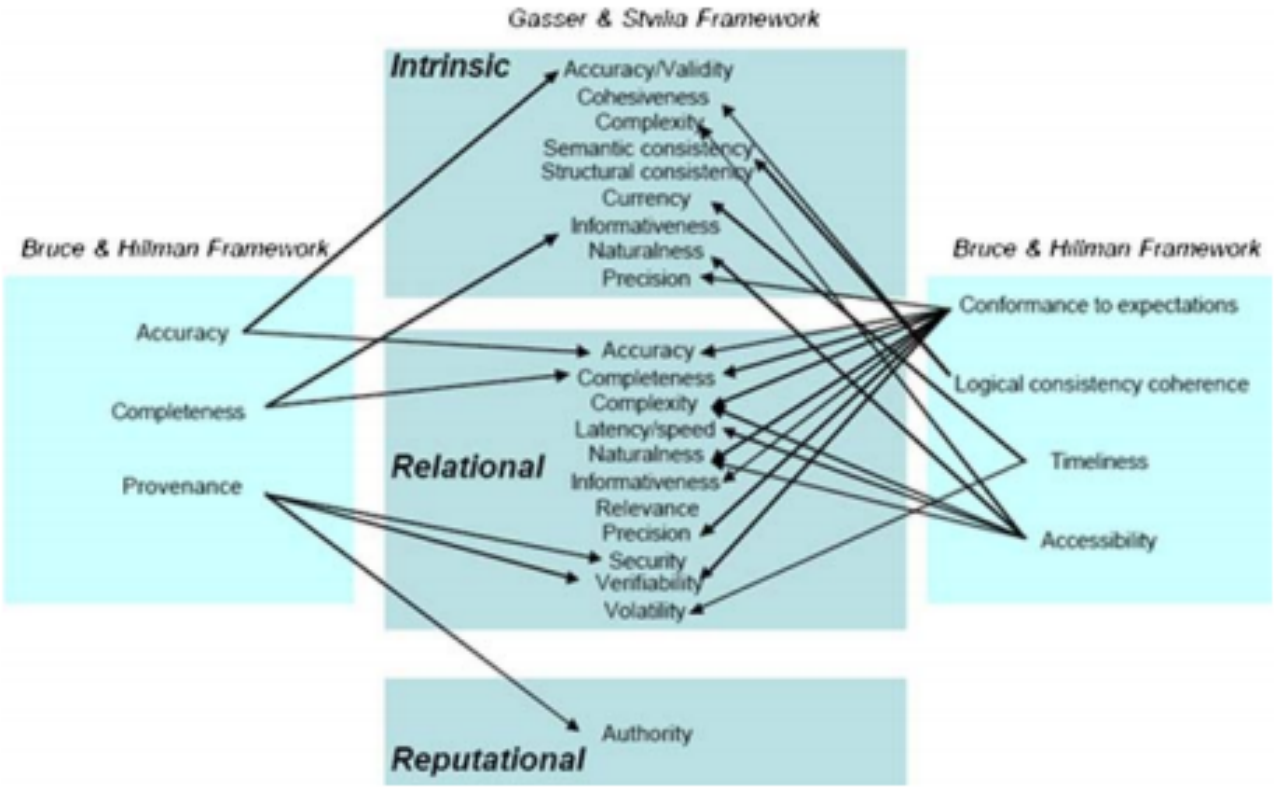

Decentralization
Collaboration
Richness
Localization
Structure
Automatic Data Normalization

“In computer terms, we have a data normalization problem.”

Ross Singer


Decentralization
Collaboration
Richness
Localization
Structure
Automatic Data Normalization
Manual Data Creation (Cataloguing)
Good Data

What is Good Data?



Ochoa, X., & Duval, E. (2009). Automatic Evaluation of Metadata Quality in Digital Repositories, *10*(2), 67–91. doi: 10.1007/s00799-009-0054-4

A Few Markers of Good Data for Data Normalization

Discrete

Each element asserts a single thing

Semantically Unambiguous

Data should be clear in its meaning and minimize multiple interpretations

Consistent

Predictable values

This kind of data …

Helps us in our current environment

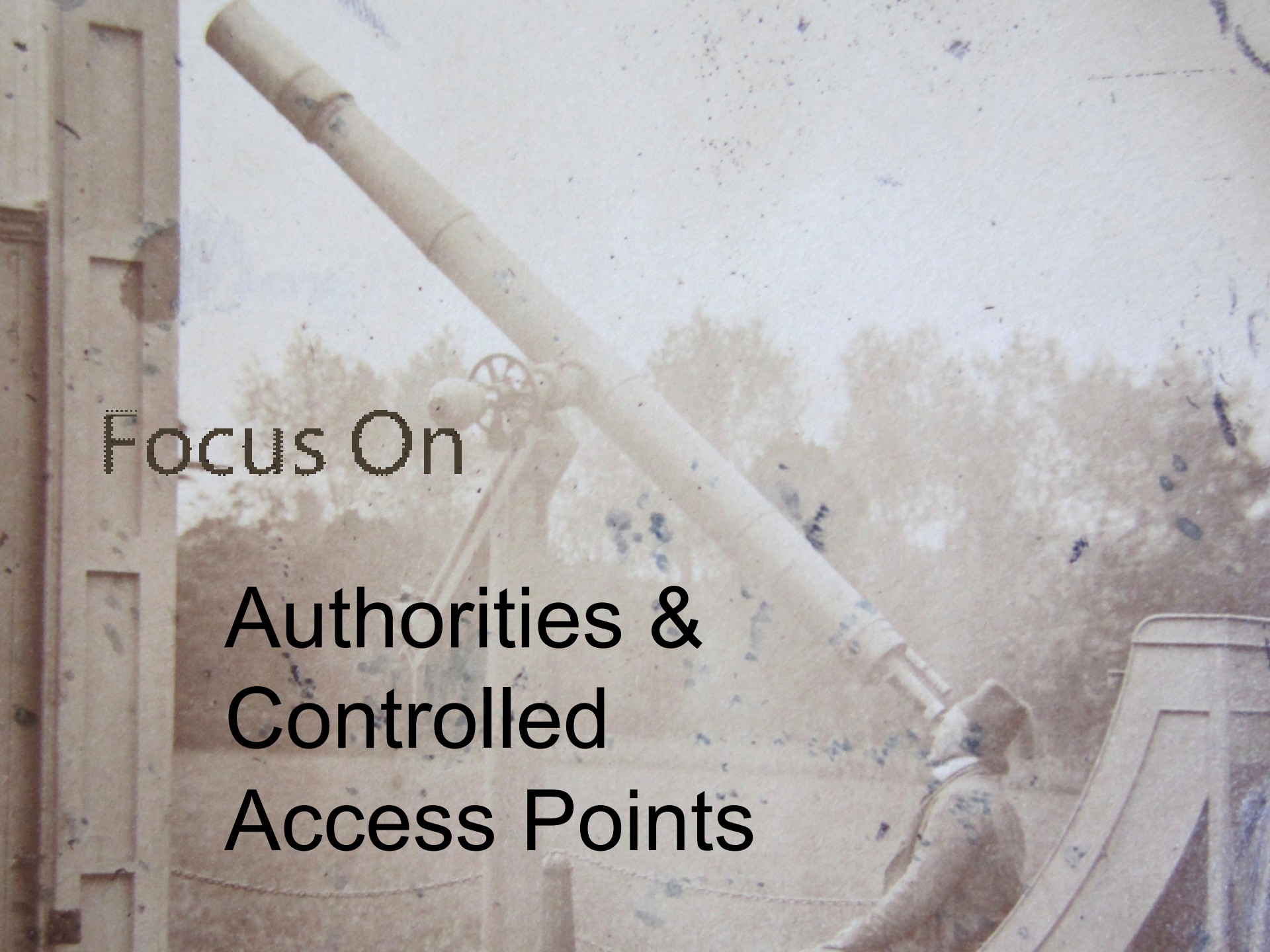
Helps the process of data normalization

Helps the future … even if it isn't Linked Data

Looking at the future ...

... what can cataloguers practically do to plug into it?

FOCUS

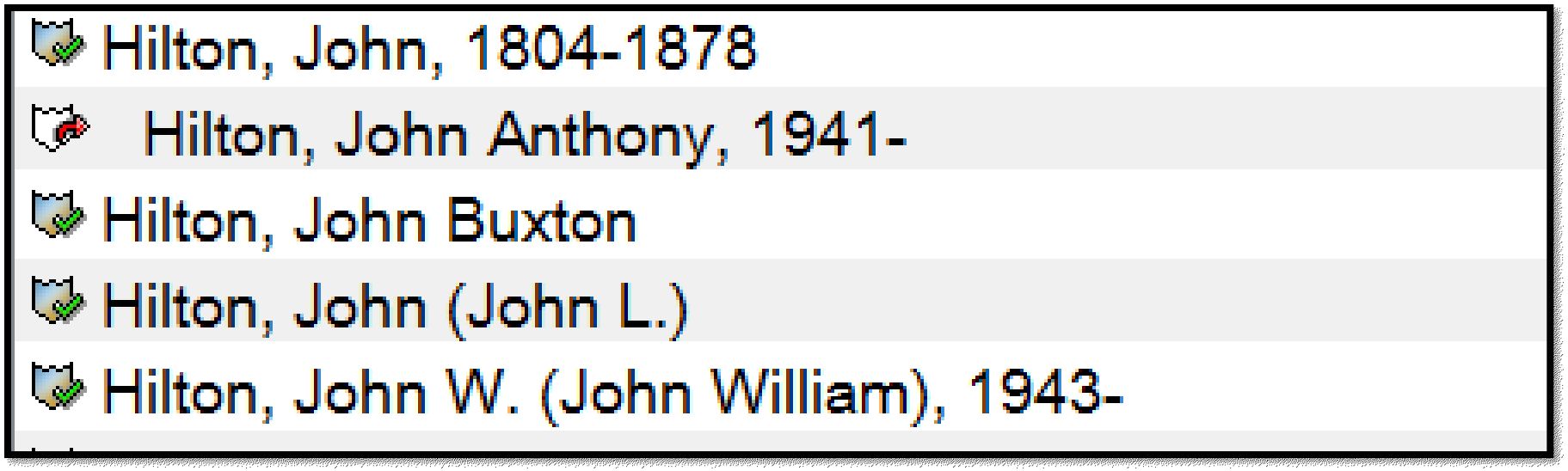


Focus On

Authorities & Controlled Access Points

Authorities

Contain mostly differentiated values

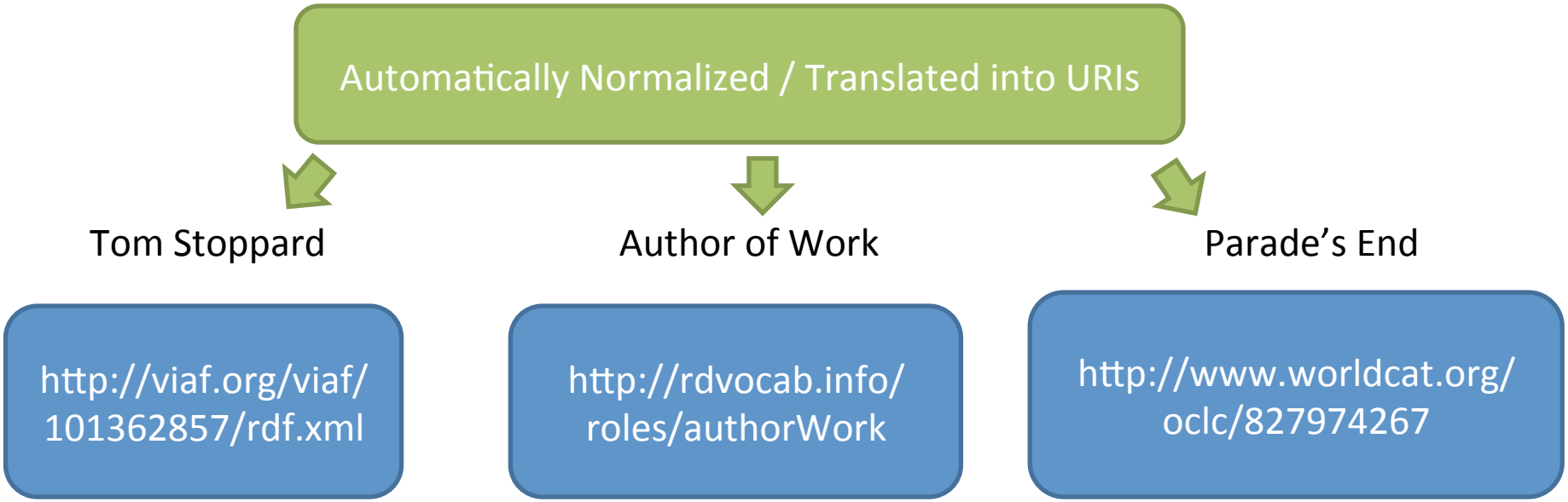


Better for machine processing

Authorities

Controlled Access Points
(MARC 1xx, 6xx, 7xx)

```
=100  1\$aStoppard, Tom,$eauthor.
```



Controlled Access Points

=035 \\$a(Sirsi) a4120534
=040 \\$aCaNfSM$beng$cCaNfSM$erda
=041 \\$geng
=043 \\$an-cn-nf
=098 \\$al ,l
=100 1\$aKavanagh, Ed,$d1954-$einstrumentalist,$eproducer.
=245 10$aOn strings of light :$bChristmas melodies performed on Celtic harp /$cEd Kavanagh.
=264 \1$a[Mount Pearl, Nfld.] :$bEd Kavanagh,$c2009.
=264 \4$cphonogram copyright 2009.
=300 \\$a1 audio disc :$bdigital ;$c12 cm
=336 \\$aperformed music$2rdacontent
=337 \\$aaudio$2rdamedia
=338 \\$aaudio disc$2rdacarrier
=500 \\$aProgram notes printed on container.
=500 \\$aCompact disc.
=505 0\$aO little town of Bethlehem (2:34) -- What child is this? (4:40) -- The cherry tree carol (1:47) -- I wonder as I wander (3:57) -- Angels we have heard on high ; Il est n{acute}e ; Venite adoremus dominum (3:42) -- Bring a torch, Jeannette, Isabella (2:35) -- Snow angels / Ed Kavanagh (2:54) -- The Huron carol ('Twas in the moon) (2:59) -- God rest you merry gentlemen (1:30) -- In the bleak midwinter (2:36) -- Entre le boeuf (3:07) -- It came upon the midnight clear (2:34) -- O come, o come Emmanuel (2:21) -- Silent night (2:59).
=508 \\$aProduced by Ed Kavanagh.
=511 \\$aEd Kavanagh, harp ; Heather Wright, violin, viola ; Rick Hollett, piano accordion, flute ; Christina Smith, cello ; Gerry Strong, tin whistle, wooden flute ; Dave Panting, bass.
=518 \\$aRecorded at MMaP Research Centre (Memorial University) and Recordtime Productions, St. John's, NL.
=650 \0$aCeltic harp music.
=650 \0$aChristmas music$zNewfoundland and Labrador.
=651 \0$aNewfoundland and Labrador$vSongs and music.
=700 1\$aWright, Heather,$einstrumentalist.
=700 1\$aHollett, Rick,$einstrumentalist.
=700 1\$aSmith, Christina,$einstrumentalist.
=700 1\$aStrong, Gerry,$einstrumentalist.
=700 1\$aPanting, Dave,$einstrumentalist.
=740 02$aO little town of Bethlehem.
=740 02$aWhat child is this?
=740 42$aThe cherry tree carol.
=740 02$aI wonder as I wander.
=740 02$aAngels we have heard on high.

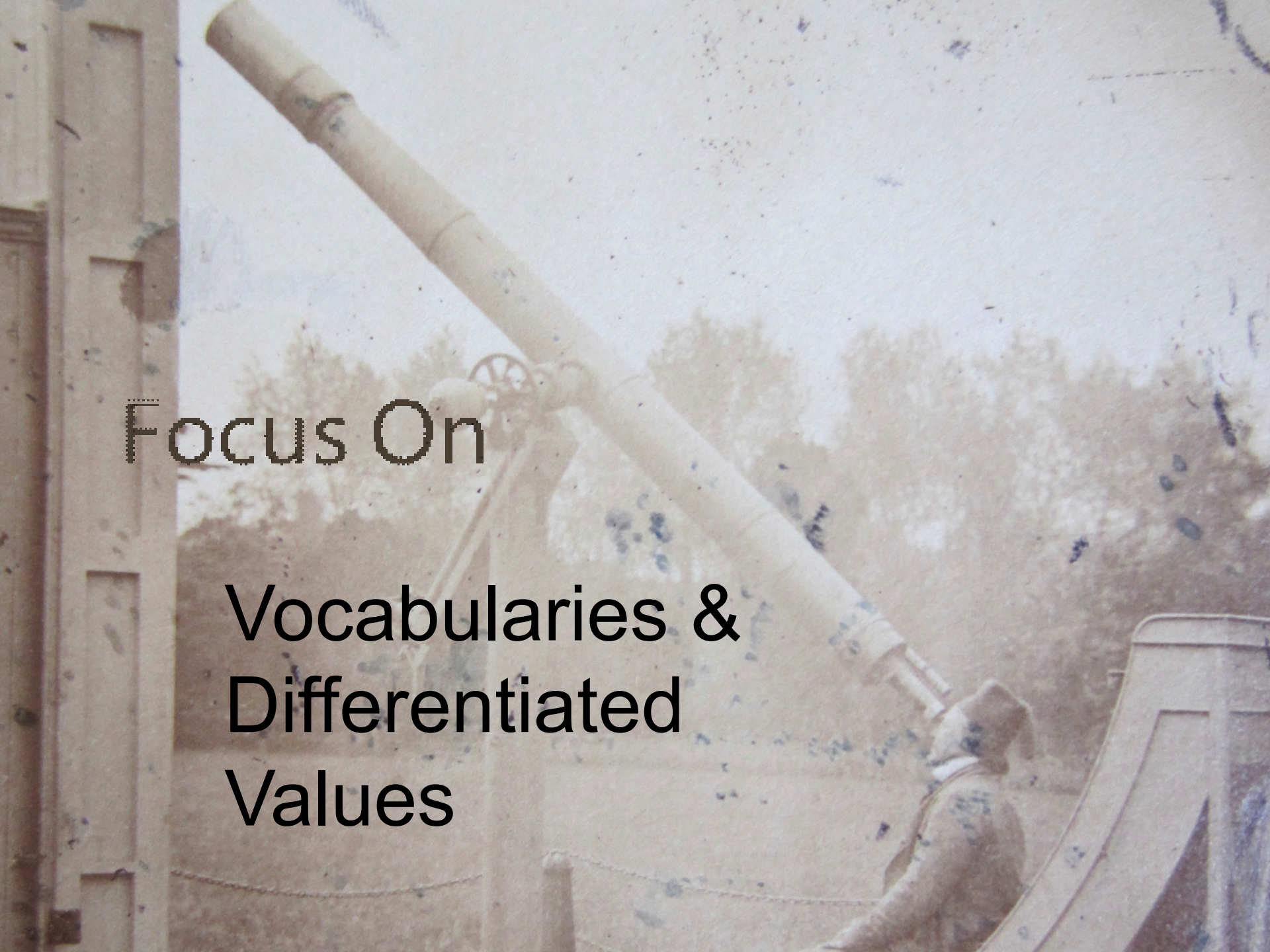
Better to have this compacted in one statement

As opposed to spread throughout the record

AUTHORIZED

UNAUTHORIZED

But in our Current Cataloguing Environment, It May Be the Best We Can Do



Focus On

Vocabularies &
Differentiated
Values

Vocabularies

Provide Consistent Values for Normalization

3.2.1.3 Recording Media Type

Record the media type using one or more of the terms listed in table 3.1.

Alternative

If the resource being described consists of more than one media type, record only:

a) the media type that applies to the predominant part of the resource (if there is a predominant part)

or

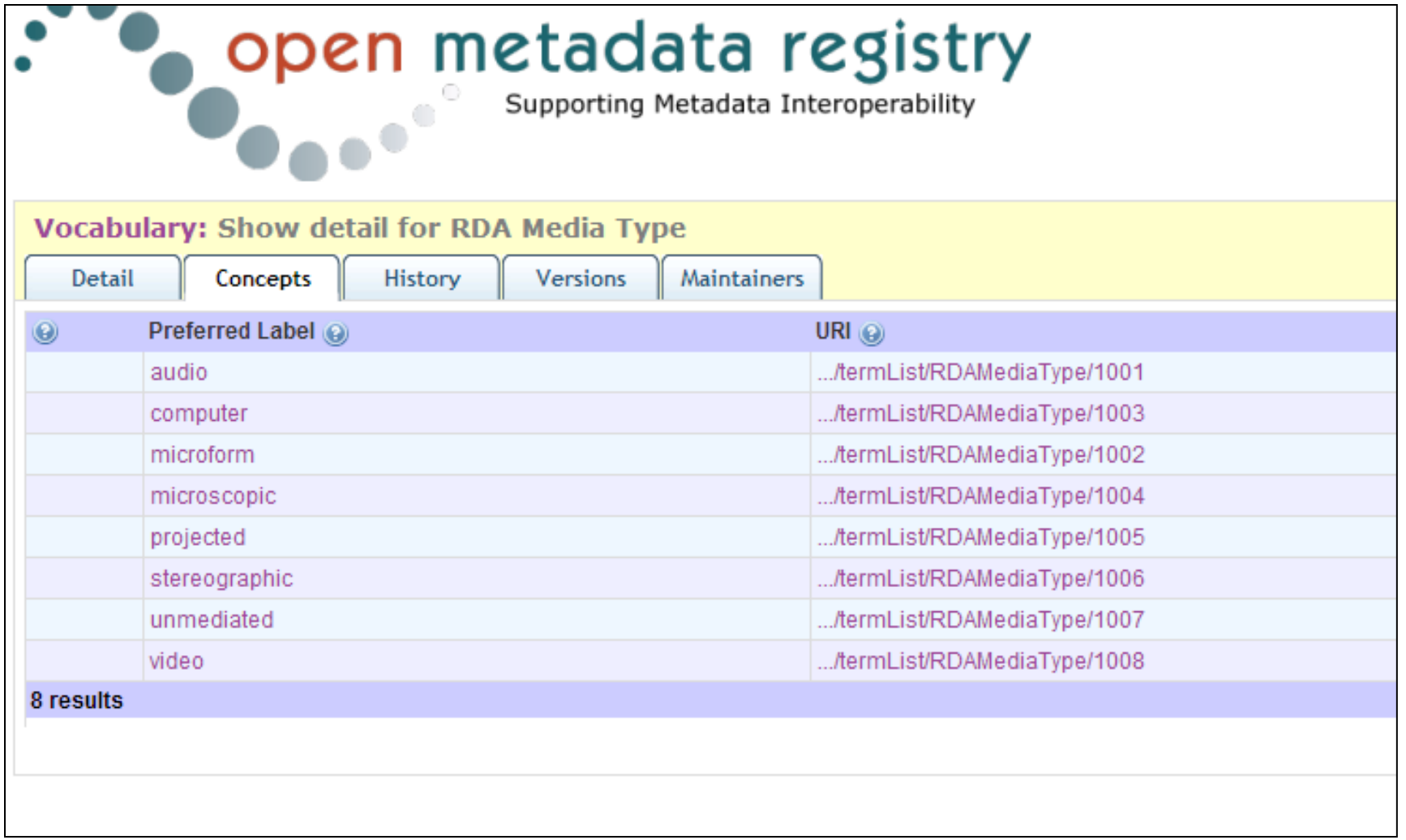
b) the media types that apply to the most substantial parts of the resource (including the predominant part, if there is one).

Use one or more of the terms listed in table 3.1, as appropriate.

TABLE 3.1

audio	Media used to store recorded sound, designed for use with a playback device such as a turntable, audiocassette player, CD player, or MP3 player. Includes media used to store digitally encoded as well as analog sound.
computer	Media used to store electronic files, designed for use with a computer. Includes media that are accessed remotely through file servers as well as direct-access media such as computer tapes and discs.
microform	Media used to store reduced-size images not readable to the human eye, designed for use with a device such as a microfilm or microfiche reader. Includes both transparent and opaque micrographic media.
microscopic	Media used to store minute objects, designed for use with a device such as a microscope to reveal details invisible to the naked eye.
projected	Media used to store moving or still images, designed for use with a projection device such as a motion picture film projector, slide projector, or overhead projector. Includes media designed to project both two-dimensional and three-dimensional images.
stereographic	Media used to store pairs of still images, designed for use with a device such as a stereoscope or stereograph viewer to give the effect of three dimensions.
unmediated	Media used to store content designed to be perceived directly through one or more of the human senses without the aid of an intermediating device. Includes media containing visual and/or tactile content produced using processes such as printing, engraving, lithography, etc., embossing, texturing, etc., or by means of handwriting, drawing, painting, etc. Also includes media used to convey three-dimensional forms such as sculptures, models, etc.
video	Media used to store moving or still images, designed for use with a playback device such as a videocassette player or DVD player. Includes media used to store digitally encoded as well as analog images.

Already Equipped with URIs



Differentiable Values

Example: Exercise the option at RDA 2.8.2.3 for place of publication

Supply the name of the larger jurisdiction (state, province, etc., and/or country) as pa
information was taken from a source outside the resource itself (see **2.2.4** RDA).

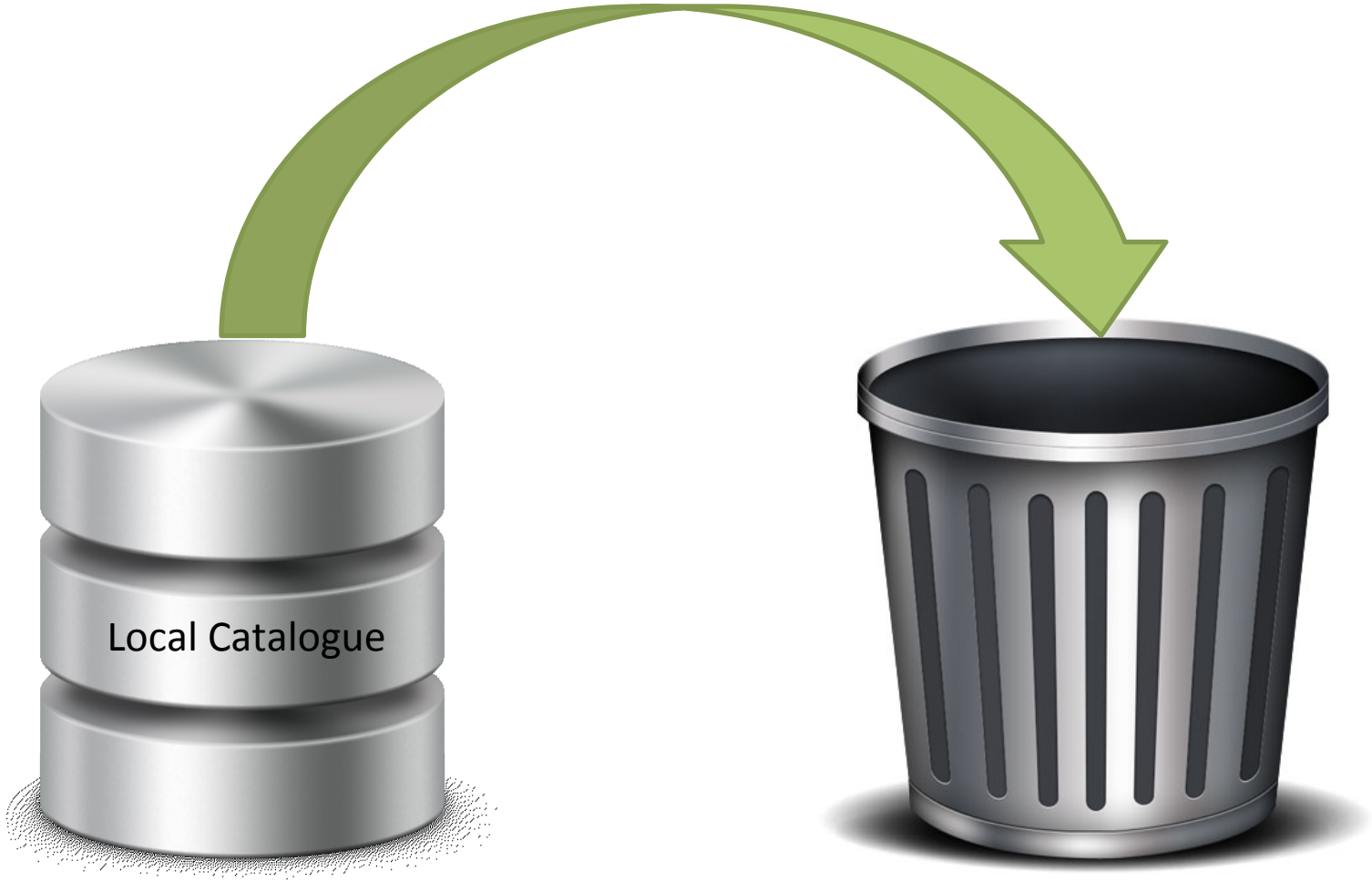
EXAMPLE

Dublin [Ireland]

Dublin [Ohio]

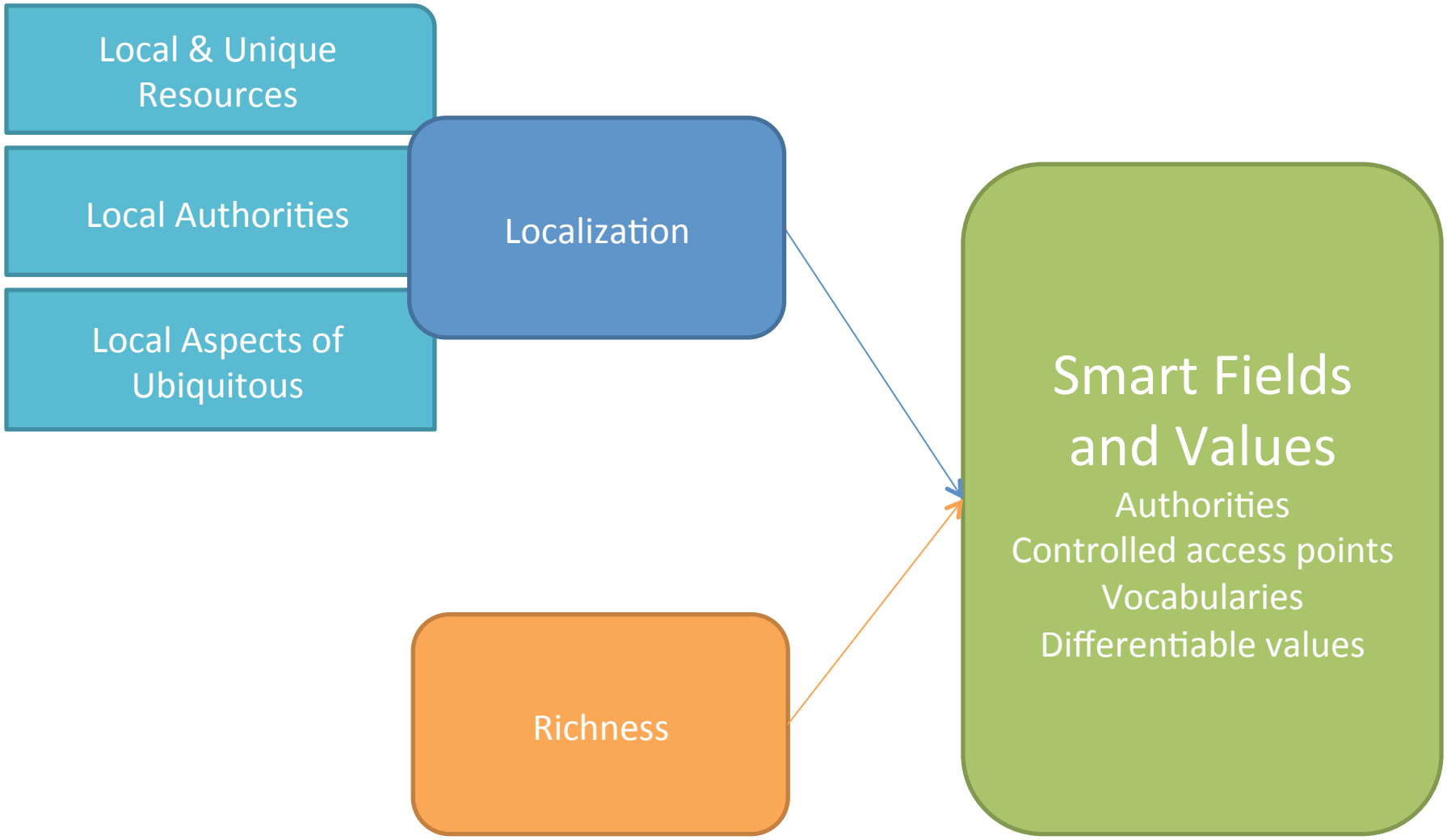
… make the implicit explicit

Focus On
Local


Local Catalogue

Future Value

Unique Assertions > Ubiquitous Assertions


Local & Unique Resources
Local Authorities
Local Aspects of Ubiquitous
Localization
Richness
Smart Fields and Values
Authorities
Controlled access points
Vocabularies
Differentiable values

Some practices DO NOT prepare us for the future.

Trapping Data in Free Text Fields Spread Throughout the Record

=035 \\$a(SIrsI) a4120534
=040 \\$aCaNfSM$beng$cCaNfSM$erda
=041 \\$geng
=043 \\$an-cn-nf
=098 \\$aL.I
=100 1\$aKavanagh, Ed,$d1954-$einstrumentalist,$eproducer.
=245 10$aOn strings of light :$bChristmas melodies performed on Celtic harp /$cEd Kavanagh.
=264 \1$a[Mount Pearl, Nfld.] :$bEd Kavanagh,$c2009.
=264 \4$cphonogram copyright 2009.
=300 \\$a1 audio disc :$bdigital ;$c12 cm
=336 \\$aperformed music$2rdacontent
=337 \\$aaudio$2rdamedia
=338 \\$aaudio disc$2rdacarrier
=500 \\$aProgram notes printed on container.
=500 \\$aCompact disc.
=505 0\$aO little town of Bethlehem (2:34) -- What child is this? (4:40) -- The cherry tree carol (1:47) -- I wonder as I wander (3:57) -- Angels we h
heard on high ; Il est n{acute}e ; Venite adoremus dominum (3:42) -- Bring a torch, Jeannette, Isabella (2:35) -- Snow angels / Ed Kavanagh (2:54)
Huron carol ('Twas in the moon) (2:59) -- God rest you merry gentlemen (1:30) -- In the bleak midwinter (2:36) -- Entre le boeuf (3:07) -- It came up
midnight clear (2:34) -- O come, o come Emmanuel (2:21) -- Silent night (2:59).
=508 \\$aProduced by Ed Kavanagh.
=511 \\$aEd Kavanagh, harp ; Heather Wright, violin, viola ; Rick Hollett, piano accordion, flute ; Christina Smith, cello ; Gerry Strong, tin whistle, w
flute ; Dave Panting, bass.
=518 \\$aRecorded at MMaP Research Centre (Memorial University) and Recordtime Productions, St. John's, NL.

Addicted to Keystrokes

Addicted to Keystrokes

Principle of Common Usage or Practice (RDA 0.4.3.7)

“illustrations” instead of “ill.”

“pages” instead of “p.”

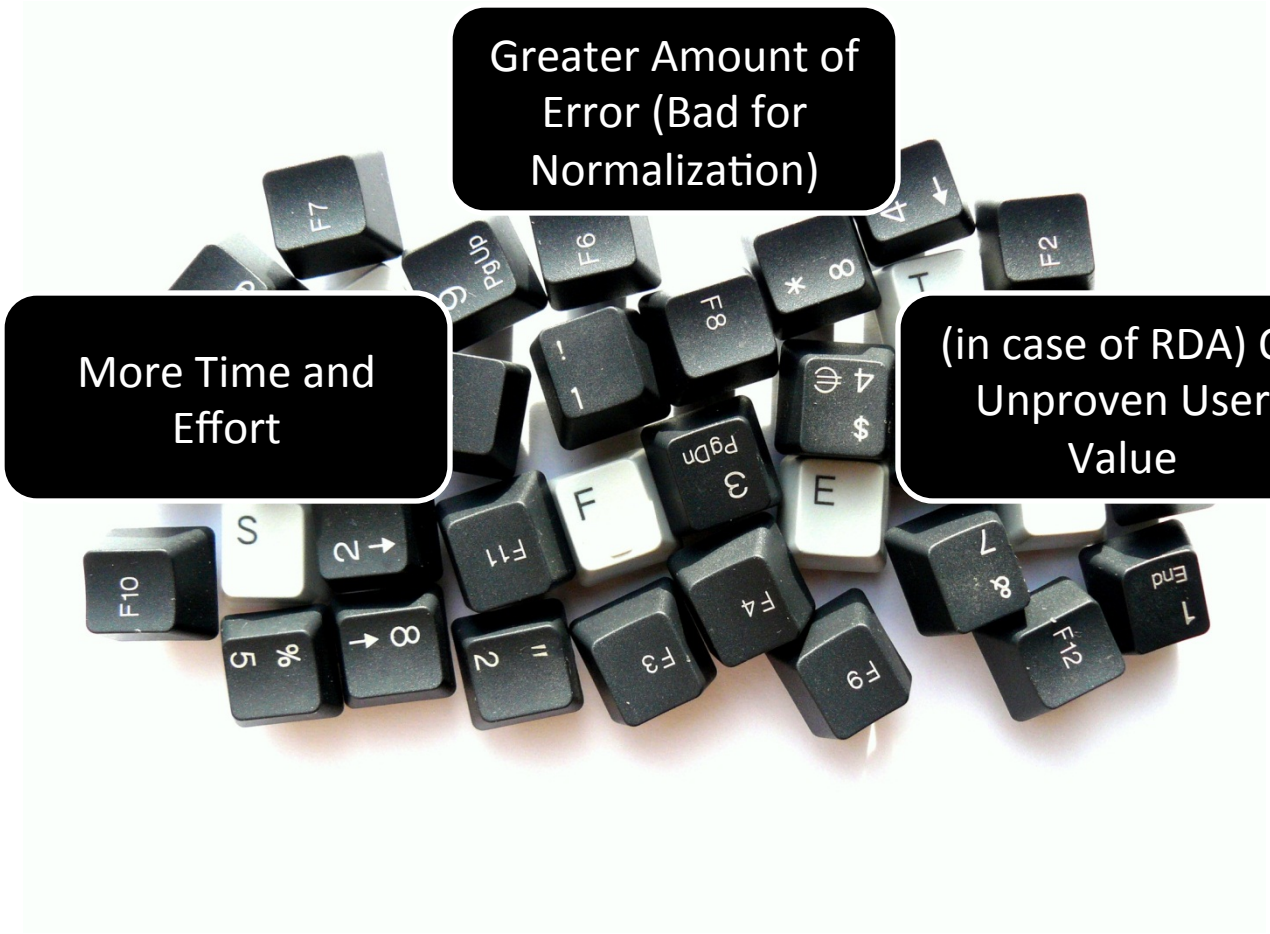
“publisher not identified” instead of “s.n.”

Addicted to Keystrokes

Principle of Representation (RDA 0.4.3.4)

Increased transcription of text

Problems with Keystrokes



“I think a good rule of thumb is that if you’re having to type data, and you haven’t been transported back in time, then you’re doing it wrong.”

Richard Cotton, *Bad Data Handbook*

Punctuation

=100 1\$aStevens, James,$d1892-1971,,$eauthor.

We Need To Focus on Values, Not Display

Punctuation

LC-PCC PS 1.7.1

4. Field 300. Field 300 may end in no punctuation, may end in a right parenthesis when the last element of the field is a parenthetical qualifier, or may end in a period when the last element is an abbreviation. When a record has a 490 field, insure that field 300 ends in a period.

=300 \\$axii, 285 pages :$billustrations (black and white) ;$c24 cm
=336 \\$atext$2rdacontent
=337 \\$aunmediated$2rdamedia
=338 \\$avolume$2rdacarrier
=504 \\$aIncludes bibliographical references and index.

No 490, no period to end 300

490 present, 300 field ends in a "."

=300 \\$aviii, 275 pages ;$c25 cm.
=336 \\$atext$2rdacontent
=337 \\$aunmediated$2rdamedia
=338 \\$avolume$2rdacarrier
=490 1\$aAAR academy series

Local Practice

Genre/Form terms in Topical Heading fields (MARC 650)

```
=245  04$aThe King and I
```

```
=600  10$aLandon, Margaret,$d1903-1993$vFilm adaptations.
=600  10$aLeonowens, Anna Harriette,$d1831-1915$vDrama.
=600  00$aMongkut,$cKing of Siam,$d1804-1868$vDrama.
=650  \0$aFeature films.
=650  \0$aMusical films.
=651  \0$aThailand$xSocial life and customs$vDrama.
=650  \0$aFilms for the hearing impaired.
=650  \4$aMusical films.
```

"About" Musical Films OR "Is a" Musical Film?

Semantic Ambiguity

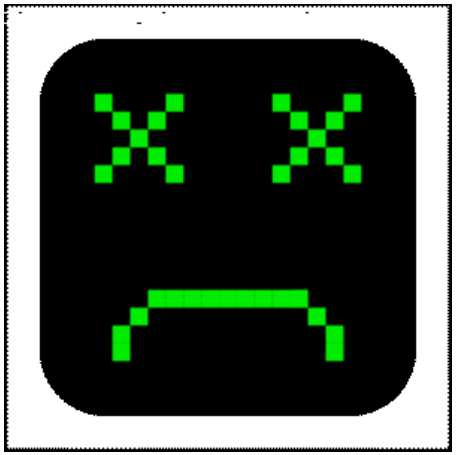
Focus on ...

Structure
Statements
Differentiable Values
Vocabularies
Authorities
Controlled Access Points
Local Data

Good Data

... and start to focus less on

- Punctuation
- Free Text Fields
- The Data we Can’t Easily Normalize
- The Data Machines Can’t Use



Thank you.

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