

How to Design & Build Semantic Applications with Linked Data



#DCMI17

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asis&t

<https://www.asist.org>



METADATA
Dublin Core® Metadata Initiative
INNOVATION

<http://dublincore.org/>



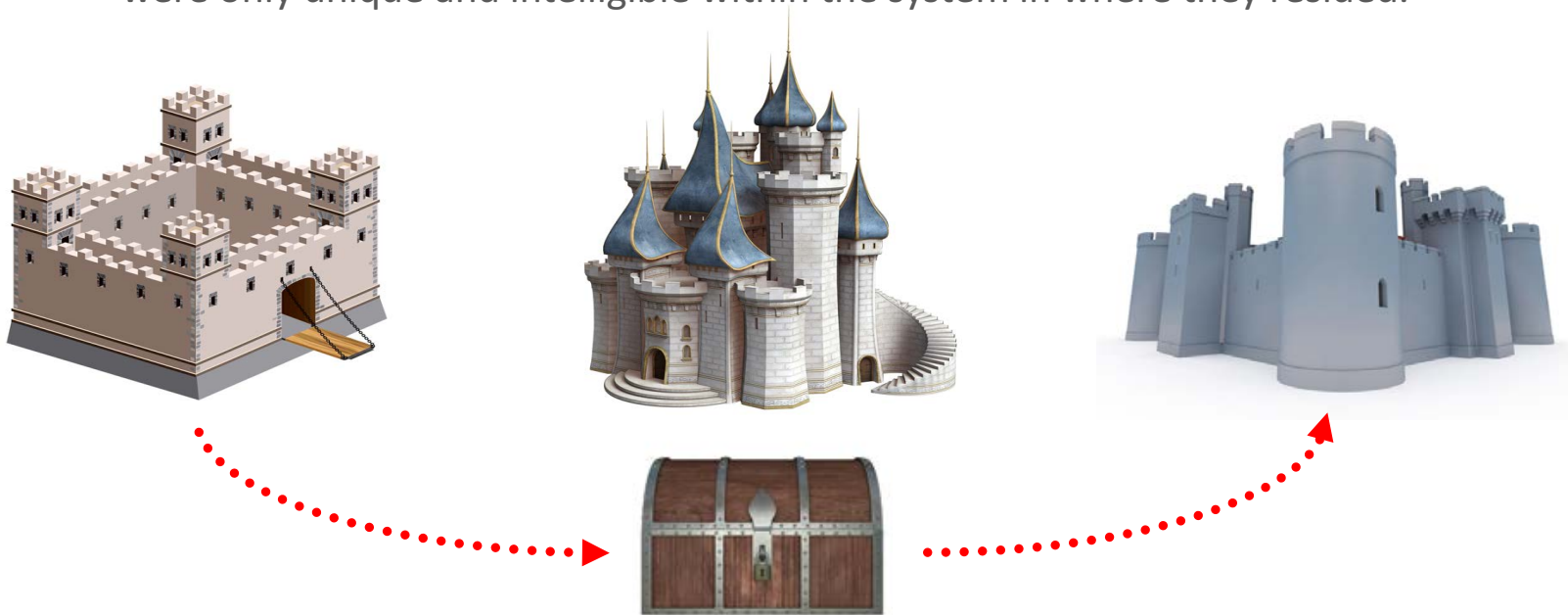
www.synaptica.com



1. **Linked Data:** what is it and why is it good for you (10 mins)
2. **Our Use-case:** building an art-history educational application (5 mins)
3. **Design:** a data architecture based on ontologies (10 mins)
4. **Open Data:** adopting and reusing open data resources (5 mins)
5. **User Experience:** end-to-end UX examples (20 mins)
6. **Graph Databases:** types and performance considerations (5 mins)
7. **Discussion:** Q&A (10 mins)

Linked Data: what is it and why is it good for you

Before Linked Data: Information was locked inside proprietary databases, each of which used custom database schema and every database record was accessed by identifiers that were only unique and intelligible within the system in where they resided.



The guardians of these data ‘fortresses’ didn’t often like sharing data. If it had to be done at all then data was extracted and delivered under lock and key with cryptic instructions how to use it.

After Linked Data: resources (concepts, names, database records, etc.) have global Unique Resource Identifiers (URIs) that are accessible on the web and intelligible to anyone on the planet.



World Wide ~~Web~~ Database

Before Linked Data: web hyperlinks were mere sign posts pointing to other web pages.



After Linked Data: links become semantic, i.e. they express the specific reason why two entities are related.

foaf:Topic

owl:sameAs

prov:wasInfluencedBy

These semantically expressive links, called predicates, assert factual statements and support machine reasoning.

They also have their own URIs identifying their place in ontological schema.

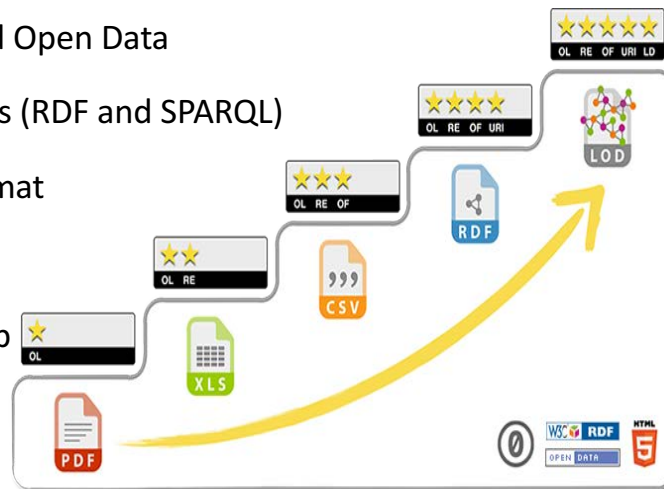
5☆ Links to other Linked Open Data

4☆ W3C Open standards (RDF and SPARQL)

3☆ non-proprietary format

2☆ machine-readable

1☆ available on the Web



Costs and benefits of Five Star Linked Open Data

As a consumer:

- You can discover more (related) data while consuming the data.
- You can directly learn about the data schema.
- You now have to deal with broken data links, just like 404 errors in web pages.
- Presenting data from an arbitrary link as fact is as risky as letting people include content from any website in your pages. Caution, trust and common sense are all still necessary.

As a publisher:

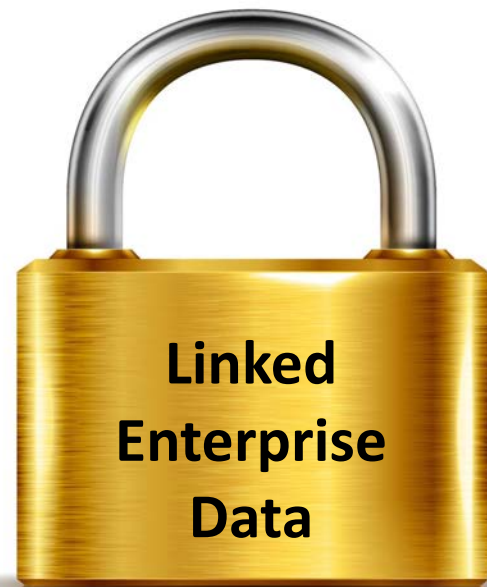
- You make your data discoverable.
- You increase the value of your data.
- Your own organisation will gain the same benefits from the links as the consumers.
- You'll need to invest resources to link your data to other data on the Web.
- You may need to repair broken or incorrect links.

More information on Costs, Benefits and Examples at: <http://5stardata.info/en/>



all Linked Data is *capable*
of being shared

open is
optional



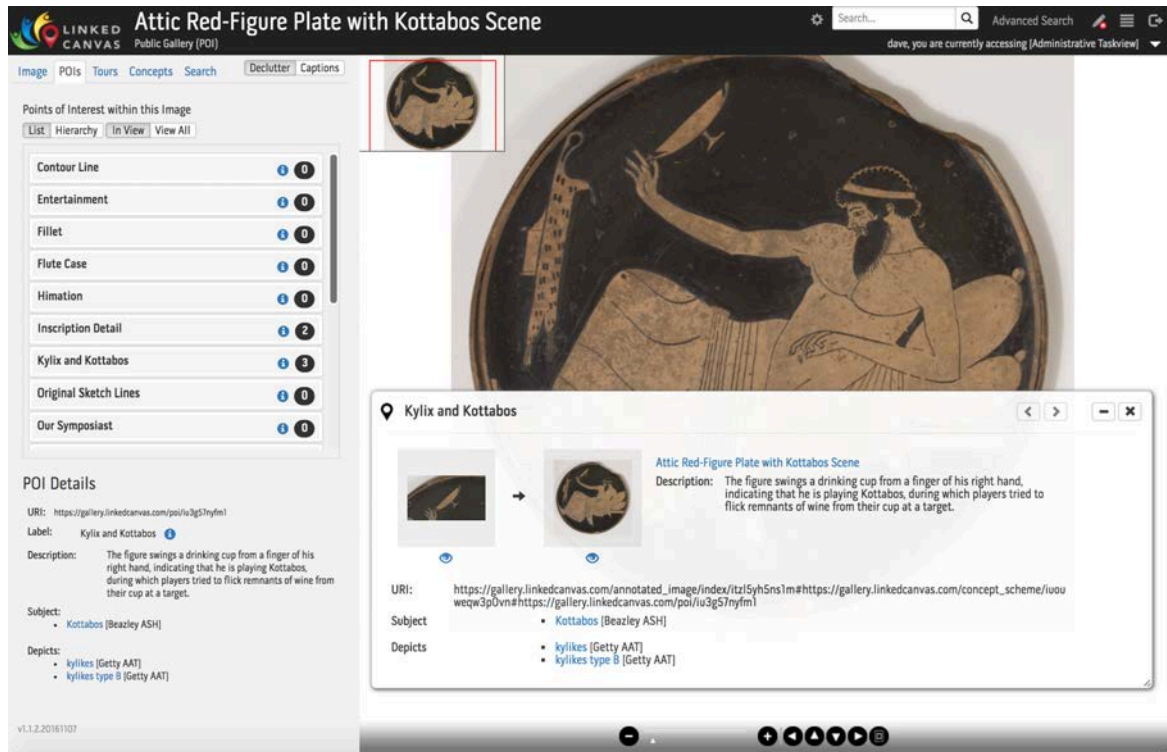
but Linked Data can also
reside behind the firewall

Our Use-case: building an art-history educational application

Art history is the academic study of the history and development of painting, sculpture, and the other visual arts. It usually involves a close analysis of visual images as well as texts.

Our use-case project set out to build an interactive educational application to support the close analysis of art images by multiple users, and to capture their analysis in the form of annotations, semantic indexing and multi-media commentary.

The entire application was designed and built using Linked Data.



The screenshot displays the 'Linked Canvas' application interface for the 'Attic Red-Figure Plate with Kottabos Scene'. The main image shows a figure swinging a drinking cup. A sidebar on the left lists 'Points of Interest within this Image' with categories like Contour Line, Entertainment, Fillet, Flute Case, Himation, Inscription Detail, Kylix and Kottabos, Original Sketch Lines, and Our Symposiast. A 'POI Details' section provides a description, subject, and depicts information for the 'Kylix and Kottabos' POI. A modal window titled 'Kylix and Kottabos' shows a comparison of two images and a detailed description: 'The figure swings a drinking cup from a finger of his right hand, indicating that he is playing Kottabos, during which players tried to flick remnants of wine from their cup at a target.' The modal also lists the URI, subject, and depicts information for the POI.

Linked Canvas Public Gallery (POI)

Image POIs Tours Concepts Search Declutter Captions

Points of Interest within this Image

List Hierarchy In View View All

Category	Count
Contour Line	0
Entertainment	0
Fillet	0
Flute Case	0
Himation	0
Inscription Detail	2
Kylix and Kottabos	3
Original Sketch Lines	0
Our Symposiast	0

POI Details

URI: <https://gallery.linkedcanvas.com/poi/uo3g57nyfm>

Label: Kylix and Kottabos

Description: The figure swings a drinking cup from a finger of his right hand, indicating that he is playing Kottabos, during which players tried to flick remnants of wine from their cup at a target.

Subject:

- Kottabos [Beazley ASH]

Depicts:

- kylikes [Getty AAT]
- kylikes type B [Getty AAT]

Kylix and Kottabos

Attic Red-Figure Plate with Kottabos Scene

Description: The figure swings a drinking cup from a finger of his right hand, indicating that he is playing Kottabos, during which players tried to flick remnants of wine from their cup at a target.

URI: https://gallery.linkedcanvas.com/annotated_image/index/itz15yh5ns1m#https://gallery.linkedcanvas.com/concept_scheme/uouweq3p0vna#https://gallery.linkedcanvas.com/poi/uo3g57nyfm

Subject

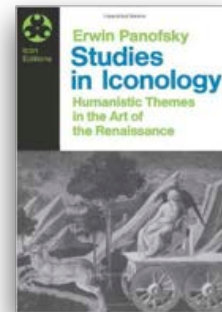
- Kottabos [Beazley ASH]







Depicts

- kylikes [Getty AAT]
- kylikes type B [Getty AAT]



Erwin Panofsky's 1939 seminal work *Studies in Iconology* describes a three-stage approach to the iconographic analysis of art images



(1) Natural analysis: Describe the visual evidence	 Representational	 Image Annotation
(2) Conventional analysis: Interpret the symbolism, allusions, and ideas behind the visual details	 Conceptual	 Semantic Indexing
(3) Intrinsic analysis: Explore and the wider cultural and historic context	 Contextual	 Knowledge Graphs

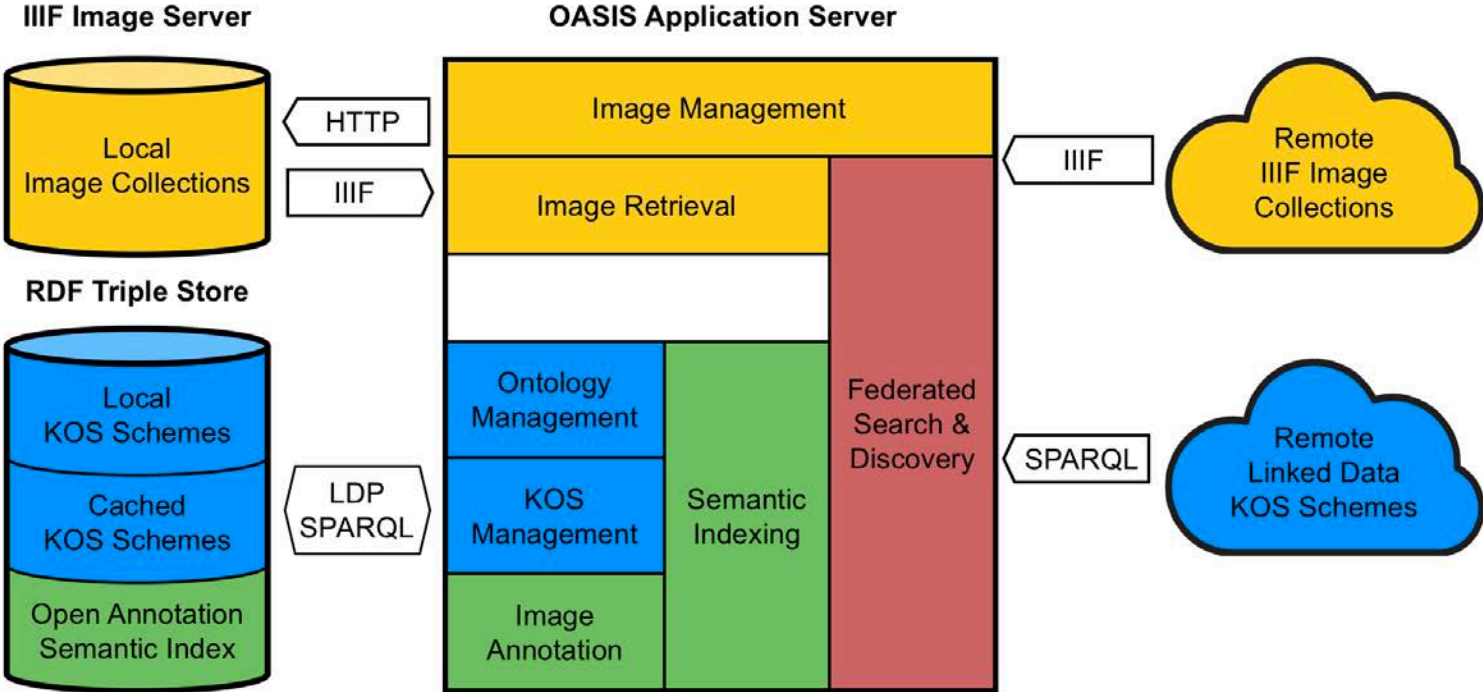
User Requirements

1. Upload and store high-resolution images
2. Catalog images with metadata
3. Pan-and-zoom inside images and define points and areas of interest
4. Annotate points of interest with labels and descriptions
5. Index images and points of interest using Linked Open Data taxonomies
6. Create guide-tours with audio-visual commentary
7. Search and browse across image collections and inside individual images

Design:
a data architecture based on
ontologies

Design: General Principles

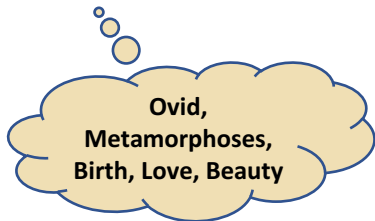
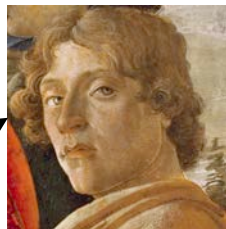
1. Manage all metadata and annotations using W3C Linked Data standards
2. Store Linked Data in an RDF triple store
3. Access images using the IIIF open standard image API
4. Annotate images using the W3C Open Annotation (now Web Annotation) Data Model
5. Adopt and reuse Linked Open Data ontologies
6. Adopt and reuse Linked Open Data taxonomies and reference resources



KOS	Knowledge Organization System
IIIF	International Image Interoperability Framework
LDP	Linked Data Platform
OA	Open Annotation Data Model
SPARQL	SPARQL Query Language for RDF

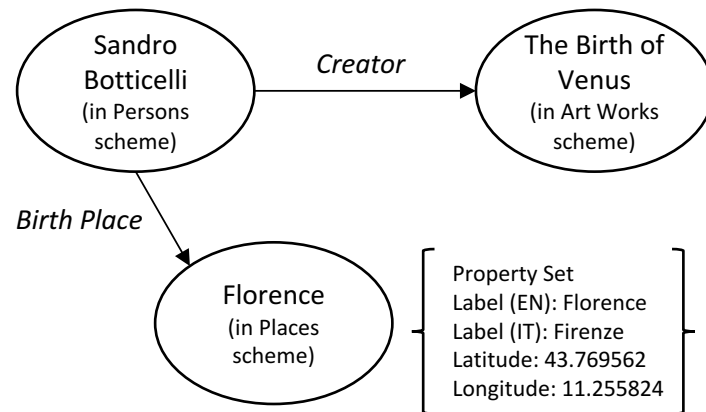
https://en.wikipedia.org/wiki/Knowledge_Organization_Systems
<http://iiif.io>
<http://www.w3.org/TR/2015/REC-ldp-20150226/>
<http://www.openannotation.org/spec/core/>
<http://www.w3.org/TR/rdf-sparql-query/>

Data modelling begins by taking an inventory of the different types of real-world entities and abstract ideas that an information system needs to capture. In our use-case this includes *Art Works... Places... People... Concepts... and Allusions*



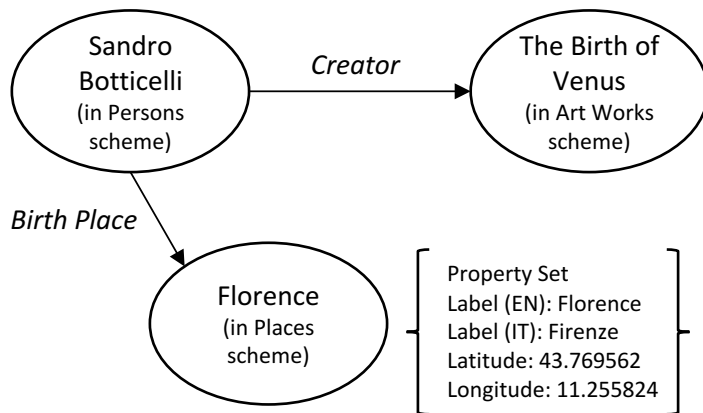
Knowledge Organization Schemes

Provide a formal data model for
Entities, Relationships and their **Properties**



Knowledge Organization Schemes

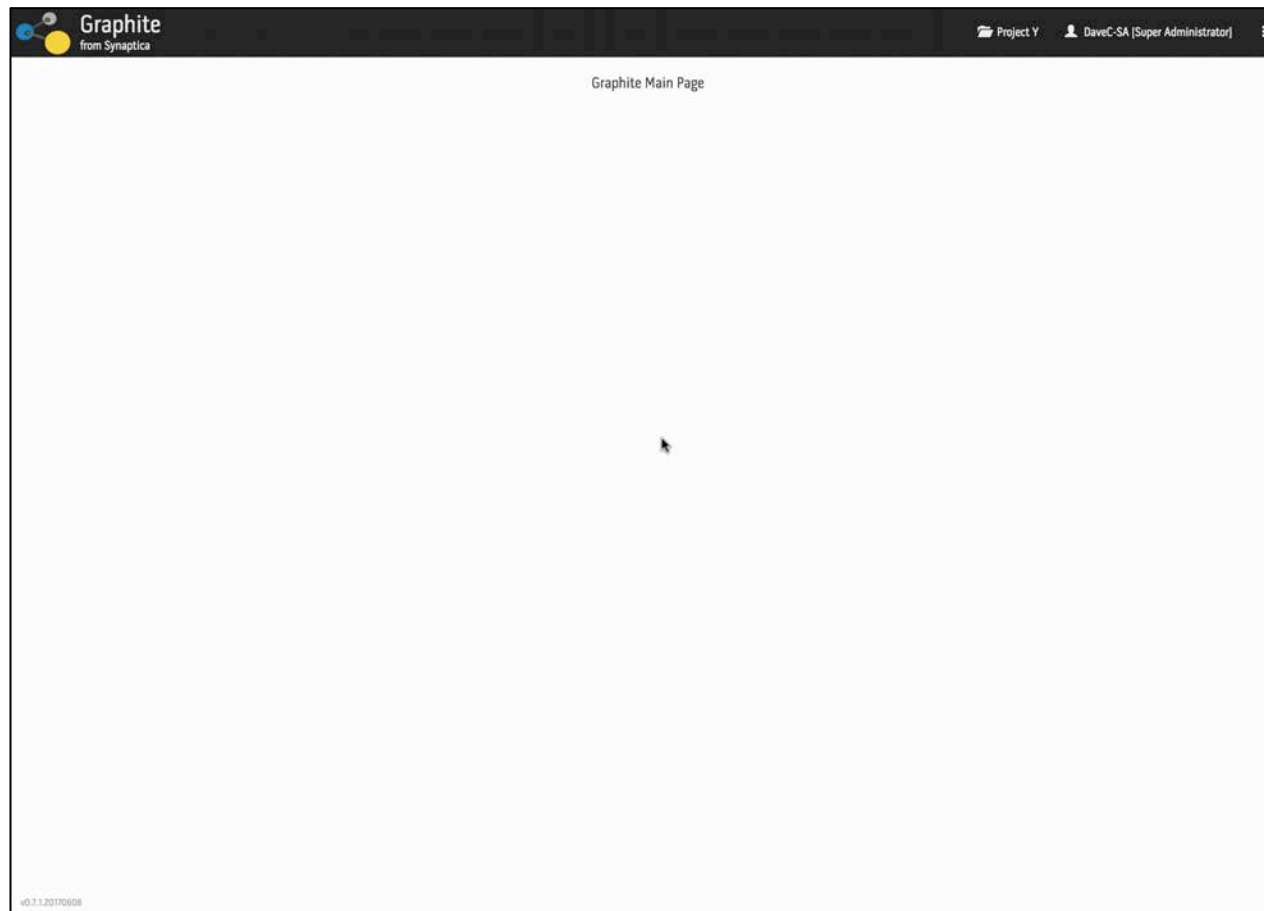
Provide a formal data model for
Entities, Relationships and their **Properties**



- Entities are identified by URIs
- Entities link to their literal properties via property types
- Property types are identified by URIs
- Entities link to other entities via relationship types
- Relationship types are identified by URIs

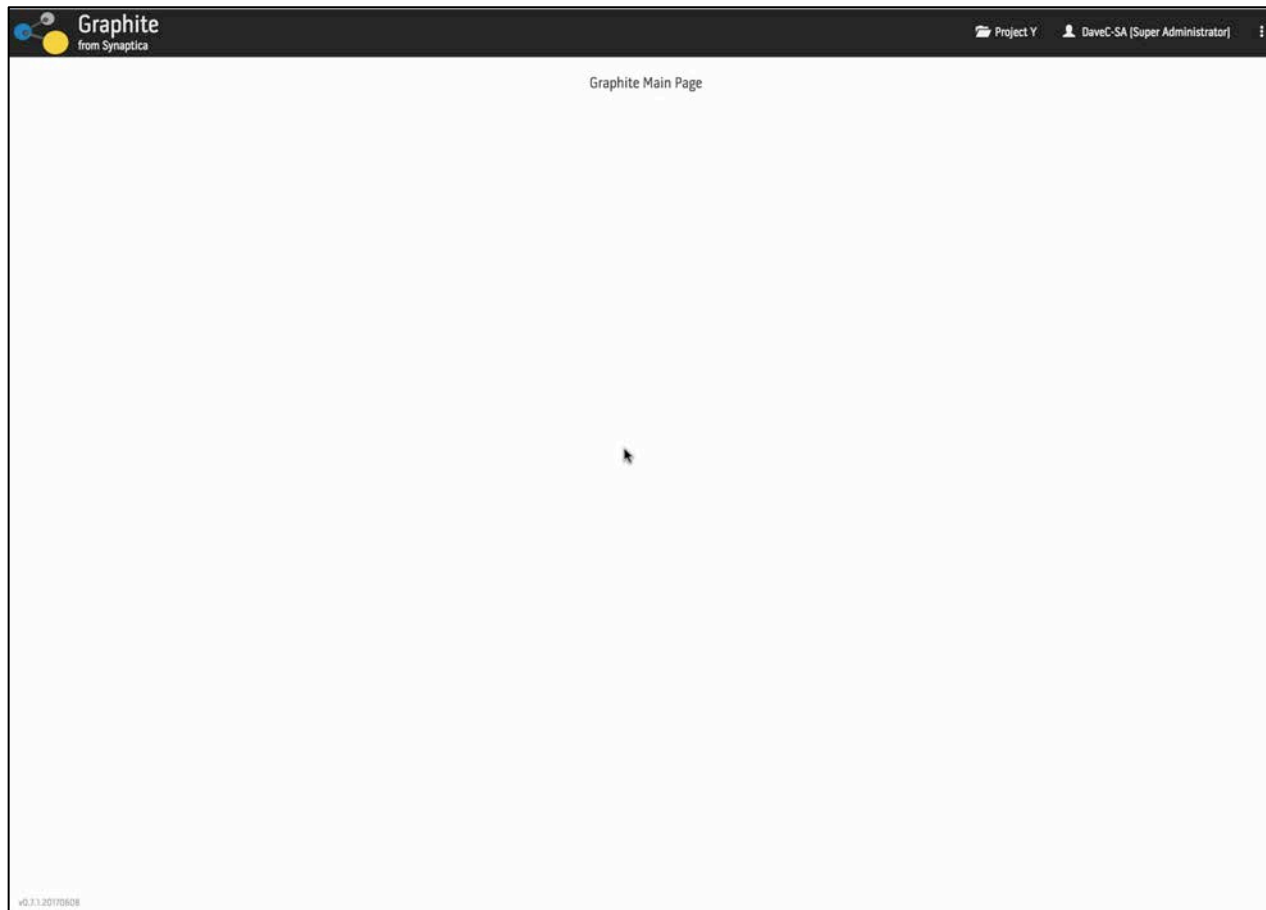
Linked Open Data ontologies provide a ready-made library of reusable property types and relationship types

- By adopting Linked Open Data predicates project **lead times may be reduced** and one's data becomes immediately **intelligible to others**



Mini Screencast: Ontology Management

- A library of open data ontologies can be adopted and managed
- Custom ontologies can also be created as and when needed
- Specific Properties and Relationship predicates can be selected
- Predicates include the URI from the external open data source, or custom minted URIs



Mini Screencast: KOS Scheme Management

- A library of fully customized concept schemes can be managed
- Schemes are designed by adopting property and relationship types from ontologies
- Cardinality, label uniqueness and other attributes can also be specified
- Inter-scheme permissions control relationship building logic and rules

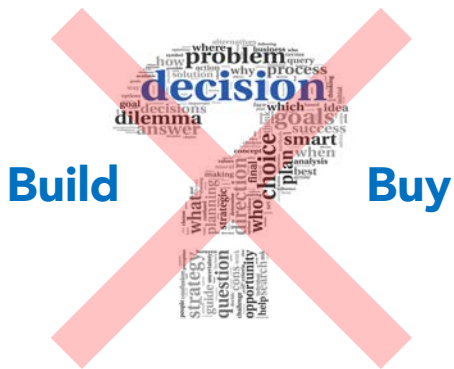
Open Data: adopting and reusing open data resources

Build



Buy





New mantra for taxonomy projects:

ADOPT first

ADAPT second

CREATE third

Trusted authorities

Many subject domains

Millions of concepts

Open data sources

Standard electronic formats

Live query endpoints

and/or file downloads



Linked Open Data
Indexing & Classification
Concept Schemes

Examples used for Linked Canvas Project

LCNAF

- 9.5M primary resources
- 80M relationships & properties

LCSH

- 419K primary resources
- 3.9M relationships & properties

Getty AAT

- 42K primary resources
- 14.7M relationships & properties

IconClass

- 40K primary resources
- 3.4M relationships & properties

DBpedia

- 1.3M primary resources
- 31M relationships & properties

Totals

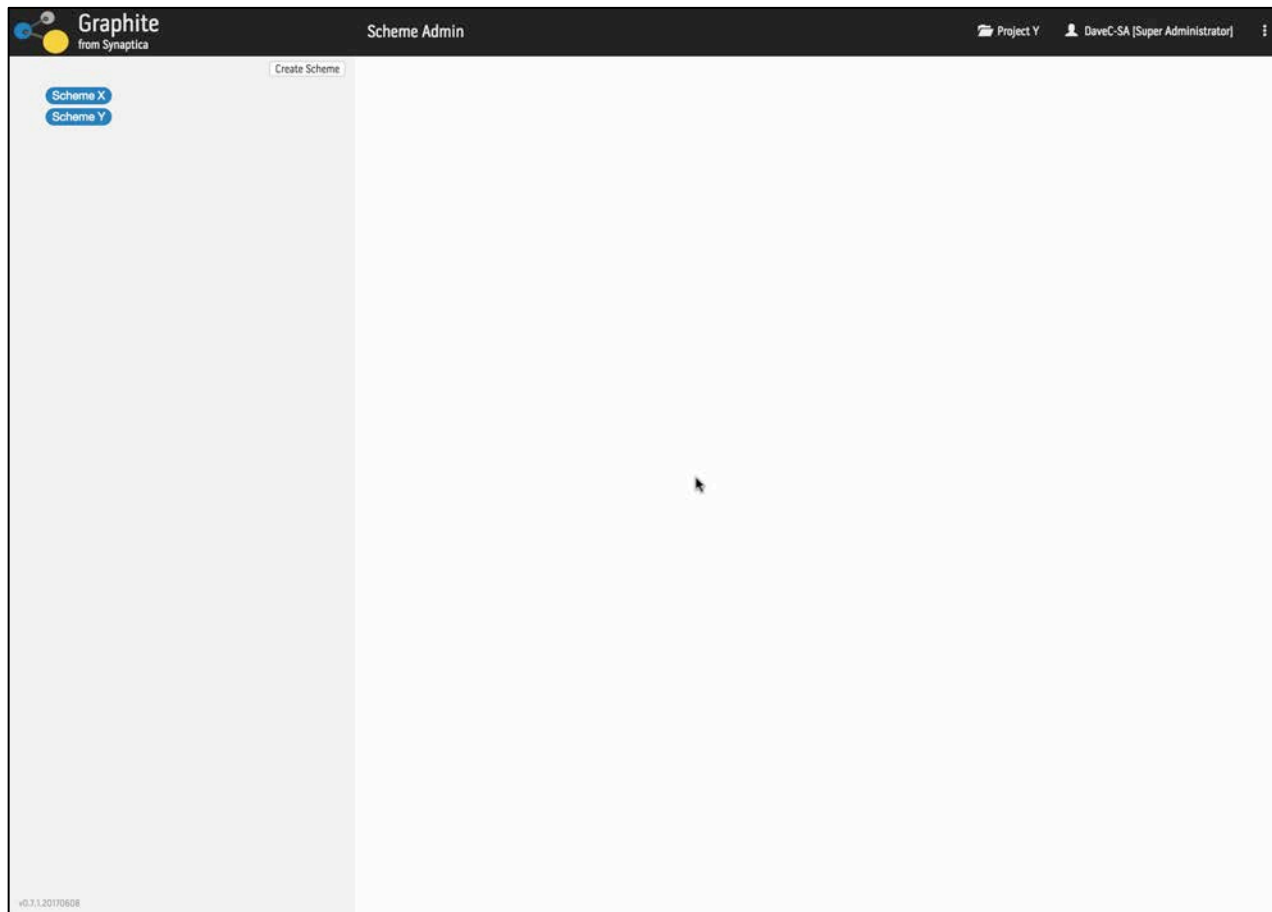
- **11.3M** primary semantic resources
- **133M** relationships & properties

Corporate & Enterprise
Taxonomies

Products & Services
Commodities
Finance
Legal & Regulatory

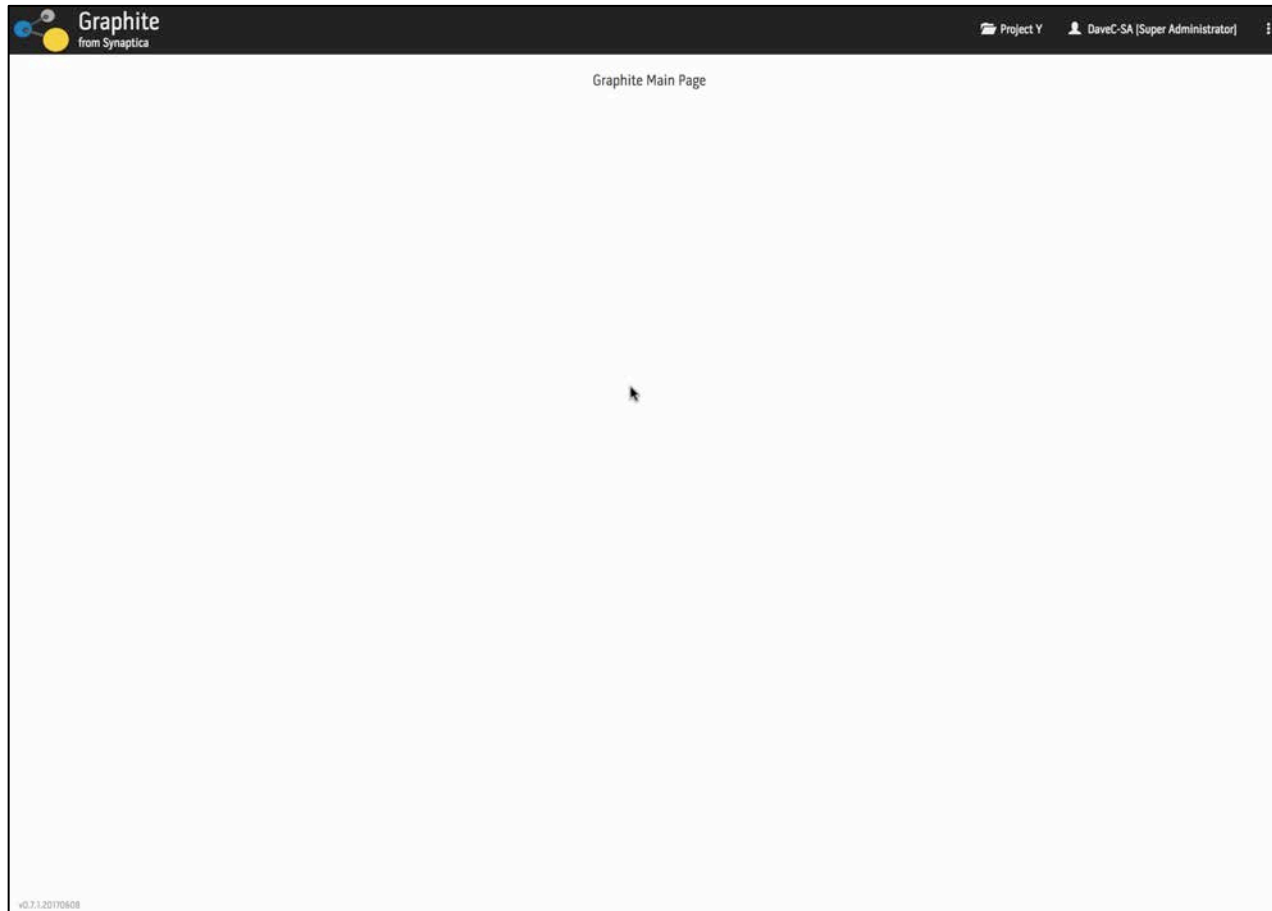
STEMs: Science, Technology,
Engineering & Mathematics
HCLS: Health Care & Life Sciences
Cultural Heritage
News Media
Geospatial
Person Names





Mini Screencast: Design New Concept Scheme

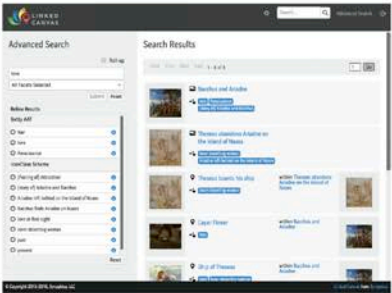
- Create a new KOS called Scheme Z
- Base design on SKOS ontology
- Enable prefLabel, altLabel and Scope Notes properties
- Enable SKOS Broader, Narrower and Related relationships
- Finally... enable the owl:sameAs relationship to support crosswalk mapping from Scheme Z to Scheme Y



Mini Screencast: Create Concepts and Crosswalk

- Create a concept tree animals > mammals > canines in Scheme Z
- Browse in Scheme Y then drag concept 'dogs' and drop on concept 'canines' in Scheme Z using the owl:sameAs relationship

User Experiences: end-to-end UX examples



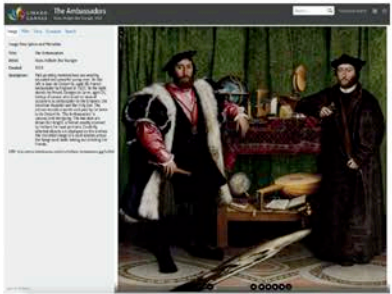
Search inside images or across image collections

LINKED CANVAS delivers advanced search functionality that is easy to use. Search identifies images across collections as well as searching deep inside images to reveal specific points of interest. Search works conceptually to identify images based on subjects, themes and symbols as well as descriptive text.



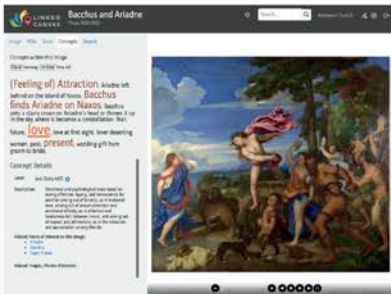
Arrange POIs into a hierarchical table of contents

LINKED CANVAS allows POIs to be explored as an alphabetical list or as an expandable hierarchy. This allows the picture space and the scenes and figurative details in a composition to be arranged and navigated like the table of contents of a book.



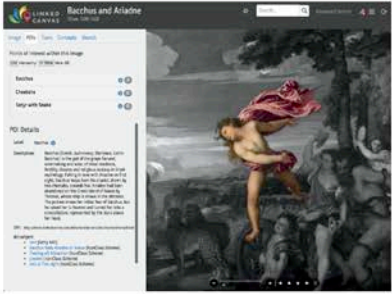
Upload and catalog images

LINKED CANVAS allows users to design their own image catalogs with an extensible set of metadata. It is also possible to import data from external catalogs and integrate the system with collections management systems. Image catalog records may be subject indexed using internal taxonomies or Linked Open Data controlled vocabularies.



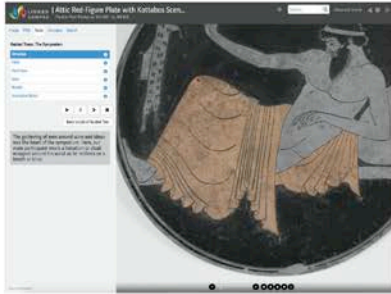
Explore images conceptually

With LINKED CANVAS images can be explored conceptually. As the user pans and zooms around an image, a tag-cloud dynamically updates to reveal the ideas behind the image. Selecting a concept provides explanatory notes as well as links to other visual details on the image and to other images.



Define points of interest (POIs)


With LINKED CANVAS users can pan and zoom inside an image to define points of interest. These can be created quickly using drop-pin or rectangle-frame markers, or the outlines of specific figures can be traced to create a visually stunning way to highlight specific visual details in the context of their surroundings. POIs can then be labeled, annotated and subject indexed.



Create guided tours with audio visual narration

LINKED CANVAS lets users build time-sequenced guided tours with embedded audio and video narration. Multiple guided tours can be created to describe different aspects of an image, such as subject matter versus form and technique. With guided tours users can explore artworks using 'playlist' style controls.

A portrait of a man in a fur-trimmed coat and hat, holding a sword, with white outlines and crop marks indicating a cutout.



The Ambassadors

Demo Image Scheme (POI)

[Image](#)
[POIs](#)
[Tours](#)
[Concepts](#)
[Search](#)
[Declutter](#)
[Captions](#)

Image Description and Metadata

Describe in ▼

[Describe in](#)
[JSON](#)
[JSON-LD](#)
[RDF/XML](#)
[N3](#)
[N-Triples](#)
[N-Quads](#)
[Turtle](#)
[TriX](#)
[TriG](#)
[Binary PDF](#)

IIIF URI: <https://demo.linkedcanvas.com/tour/tor/full/0/default.jpg>

Title: The Ambassadors

Description: This painting memorialises two well educated and powerful young men: Jean de Dinteville, aged 29, French to England in 1533. To the right of Georges de Selve, aged 25, bishop acted on several occasions as ambassador, the Venetian Republic ambassador. The picture records a secret visit to de Dinteville. The Ambassadors intriguing. The two men are shown full-length, a format usually reserved by Holbein for royal portraits. Carefully selected objects are displayed on the shelves. The distorted image of a skull slashes across the foreground, both linking and dividing the friends.

Creator:

- Hans Holbein the Younger

Date Created:

- 1533

v1.3.2.20181101

```
@prefix oasis: <http://schema.synaptica.com/oasis#>.
@prefix oa: <http://www.w3.org/ns/oa#>.
@prefix skos: <http://www.w3.org/2004/02/skos/core#>.
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>.
@prefix sesame: <http://www.openrdf.org/schema/sesame#>.
@prefix owl: <http://www.w3.org/2002/07/owl#>.
@prefix xsd: <http://www.w3.org/2001/XMLSchema#>.
@prefix fn: <http://www.w3.org/2005/xpath-functions>.

<https://demo.linkedcanvas.com/annotated_image/index/itgn221hlory8> a oa:Annotation ,
oasis:AnnotatedImage ;
    oa:hasBody <https://demo.linkedcanvas.com/annotated_image/index/itgn221hlory8#bodyTag>,
    <https://demo.linkedcanvas.com/annotated_image/index/itgn221hlory8#bodyLabel>,
    <https://demo.linkedcanvas.com/annotated_image/index/itgn221hlory8#bodyDescription>;
    skos:inScheme <https://demo.linkedcanvas.com/concept_scheme/itfmg0it3lut8>;
    skos:topConceptOf <https://demo.linkedcanvas.com/concept_scheme/itfmg0it3lut8>;
    oa:hasTarget <https://demo.linkedcanvas.com/annotated_image/index/itgn221hlory8#target>;
    oasis:hasAnnotation <https://demo.linkedcanvas.com/poi/itit5qfptr3>,
    <https://demo.linkedcanvas.com/poi/itit7vcql24>, <https://demo.linkedcanvas.com/poi/ititcoeH84d>,
    <https://demo.linkedcanvas.com/poi/ititep291nb>,
    <https://demo.linkedcanvas.com/poi/ititftpu1em>,
    <https://demo.linkedcanvas.com/poi/ititfwgk9l>, <https://demo.linkedcanvas.com/poi/itithrvbcg2>,
    <https://demo.linkedcanvas.com/poi/ititihiJn8r>,
    <https://demo.linkedcanvas.com/poi/ititkf1s93s>,
    <https://demo.linkedcanvas.com/poi/itit1zun19o>,
    <https://demo.linkedcanvas.com/poi/ititnaR86ui>, <https://demo.linkedcanvas.com/poi/ititpvahdz>,
    <https://demo.linkedcanvas.com/poi/ititrywlolk>,
    <https://demo.linkedcanvas.com/poi/ititu0mox>.

<https://demo.linkedcanvas.com/poi/itit5qfptr3> a oa:Annotation, oasis:AnnotatedImagePoi ;
    oa:hasBody <https://demo.linkedcanvas.com/poi/itit5qfptr3#bodyTag>,
    <https://demo.linkedcanvas.com/poi/itit5qfptr3#bodyLabel>,
    <https://demo.linkedcanvas.com/poi/itit5qfptr3#bodyDescription>;
    skos:inScheme <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
    skos:topConceptOf <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
    oa:hasTarget <https://demo.linkedcanvas.com/poi/itit5qfptr3#target>.

<https://demo.linkedcanvas.com/poi/itit7vcql24> a oa:Annotation, oasis:AnnotatedImagePoi ;
    oa:hasBody <https://demo.linkedcanvas.com/poi/itit7vcql24#bodyTag>,
    <https://demo.linkedcanvas.com/poi/itit7vcql24#bodyLabel>,
    <https://demo.linkedcanvas.com/poi/itit7vcql24#bodyDescription>;
    skos:inScheme <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
    skos:topConceptOf <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
    oa:hasTarget <https://demo.linkedcanvas.com/poi/itit7vcql24#target>.

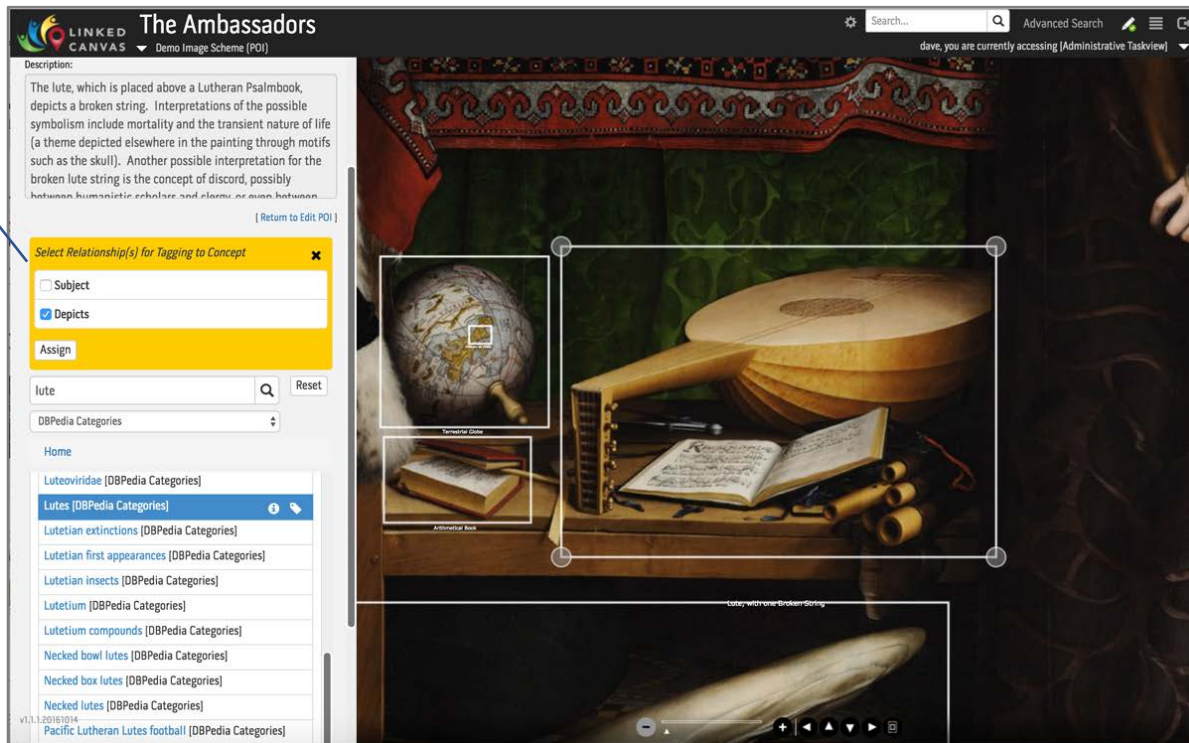
<https://demo.linkedcanvas.com/poi/ititcoeH84d> a oa:Annotation, oasis:AnnotatedImagePoi ;
    oa:hasBody <https://demo.linkedcanvas.com/poi/ititcoeH84d#bodyTag>,
    <https://demo.linkedcanvas.com/poi/ititcoeH84d#bodyLabel>,
    <https://demo.linkedcanvas.com/poi/ititcoeH84d#bodyDescription>;
    skos:inScheme <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
    skos:topConceptOf <https://demo.linkedcanvas.com/concept_scheme/itfmg12216b7m>;
```

Process of indexing a visual detail
inside a painting to the DBpedia
category resource for **Lutes**

<http://dbpedia.org/resource/Category:Lutes>

via the FOAF predicate
Depicts

foaf:depicts



The screenshot shows the 'The Ambassadors' web application interface. The main area displays a painting of a lute with a broken string. A yellow box highlights a specific detail of the lute's body. A sidebar on the left contains a 'Select Relationship(s) for Tagging to Concept' form with the 'Depicts' relationship selected. Below this is a list of DBpedia categories, with 'Lutes [DBpedia Categories]' highlighted. The top of the interface shows the 'LINKED CANVAS' logo and a search bar.

LINKED CANVAS The Ambassadors
Demo Image Scheme (POI)

Description:
The lute, which is placed above a Lutheran Psalmbook, depicts a broken string. Interpretations of the possible symbolism include mortality and the transient nature of life (a theme depicted elsewhere in the painting through motifs such as the skull). Another possible interpretation for the broken lute string is the concept of discord, possibly between humanistic scholars and clergy or even between...

[Return to Edit POI]

Select Relationship(s) for Tagging to Concept

☐ Subject
☒ Depicts

Assign


lute [Search] [Reset]

DBpedia Categories

Home

- Luteoviridae [DBpedia Categories]
- Lutes [DBpedia Categories]**
- Lutetian extinctions [DBpedia Categories]
- Lutetian first appearances [DBpedia Categories]
- Lutetian insects [DBpedia Categories]
- Lutetium [DBpedia Categories]
- Lutetium compounds [DBpedia Categories]
- Necked bowl lutes [DBpedia Categories]
- Necked box lutes [DBpedia Categories]
- Necked lutes [DBpedia Categories]
- Pacific Lutheran Lutes football [DBpedia Categories]

Version: 1.0.1 (20161014)

**LINKED CANVAS**

Bacchus and Ariadne

Demo Image Scheme (POI)

Image POIs Tours Concepts Search

Decluster Captions

Points of Interest within this Image

List Hierarchy In View View All

Ariadne

Bacchus

Cheetahs

Corona Borealis

Satyr with Snake

Signature on Urn

POI Details

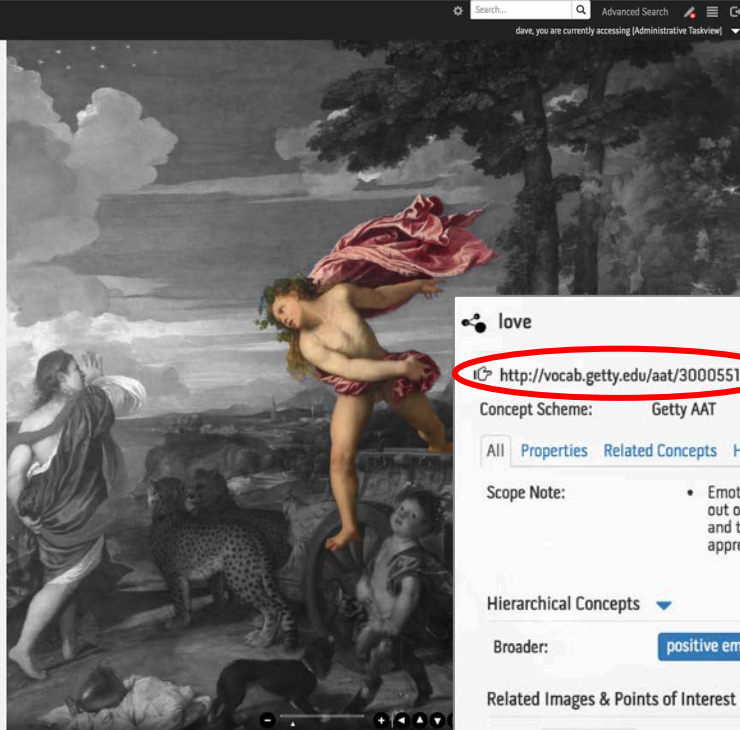
URI: <https://demo.linkedcanvas.com/poi/tce617718gy>

Label: Bacchus

Description: Bacchus (Greek: Διονύσιος, Dionysos; Latin: Bacchus) is the god of the grape harvest, winemaking and wine, of ritual madness, fertility, theatre and religious ecstasy in Greek mythology. Falling in love with Ariadne on first sight, Bacchus kisses from his chariot, drawn by two cheetahs, towards her. Ariadne had been abandoned on the Greek island of Naxos by Theseus, whose ship is shown in the distance. The picture shows her initial fear of Bacchus, but he raised her to heaven and turned her into a constellation, represented by the stars above her head.

Subject:

- present (IconClass)
- love at first sight (IconClass)
- Feeling of Attraction (IconClass)
- Bacchus finds Ariadne on Naxos (IconClass)
- love (Getty AAT)



love

IC <http://vocab.getty.edu/aat/300055165>

Concept Scheme: Getty AAT

All Properties Related Concepts Hierarchical Concepts Related Images & POIs





Scope Note:

- Emotional and psychological state based on strong affection, loyalty, and benevolence for another arising out of kinship, as in maternal love; arising out of sexual attraction and emotional affinity, as in affection and tenderness felt between lovers; and arising out of respect and admiration, as in the valuation and appreciation among friends.

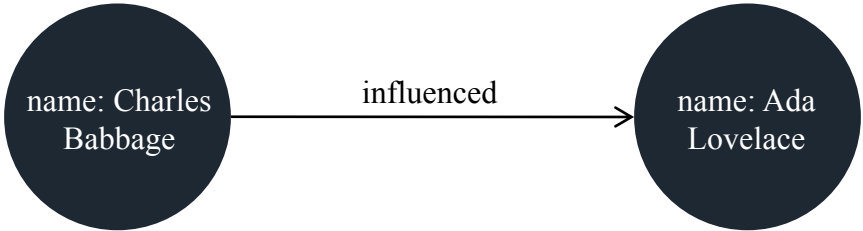
Hierarchical Concepts

- Broader: positive emotions

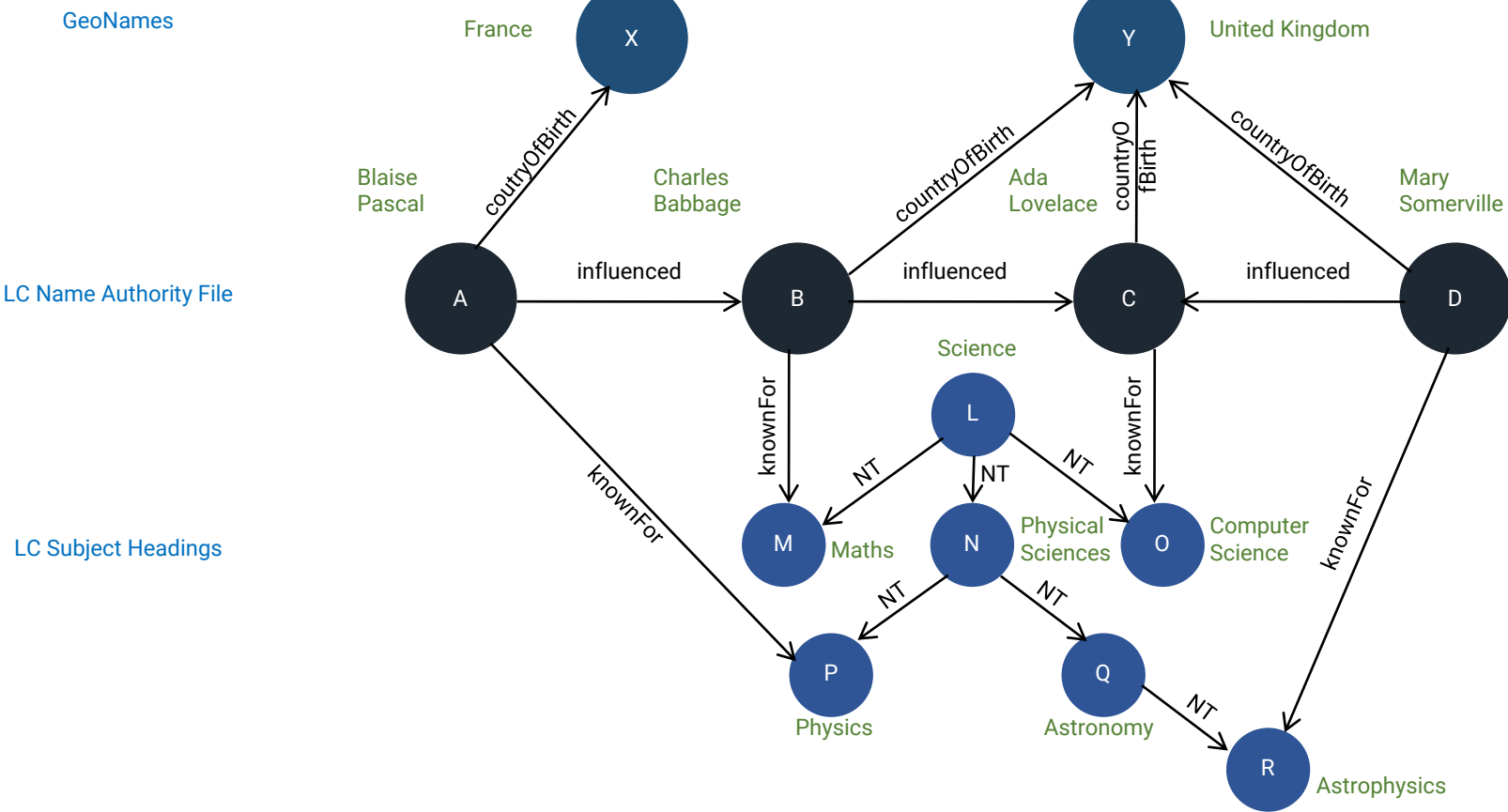
Related Images & Points of Interest

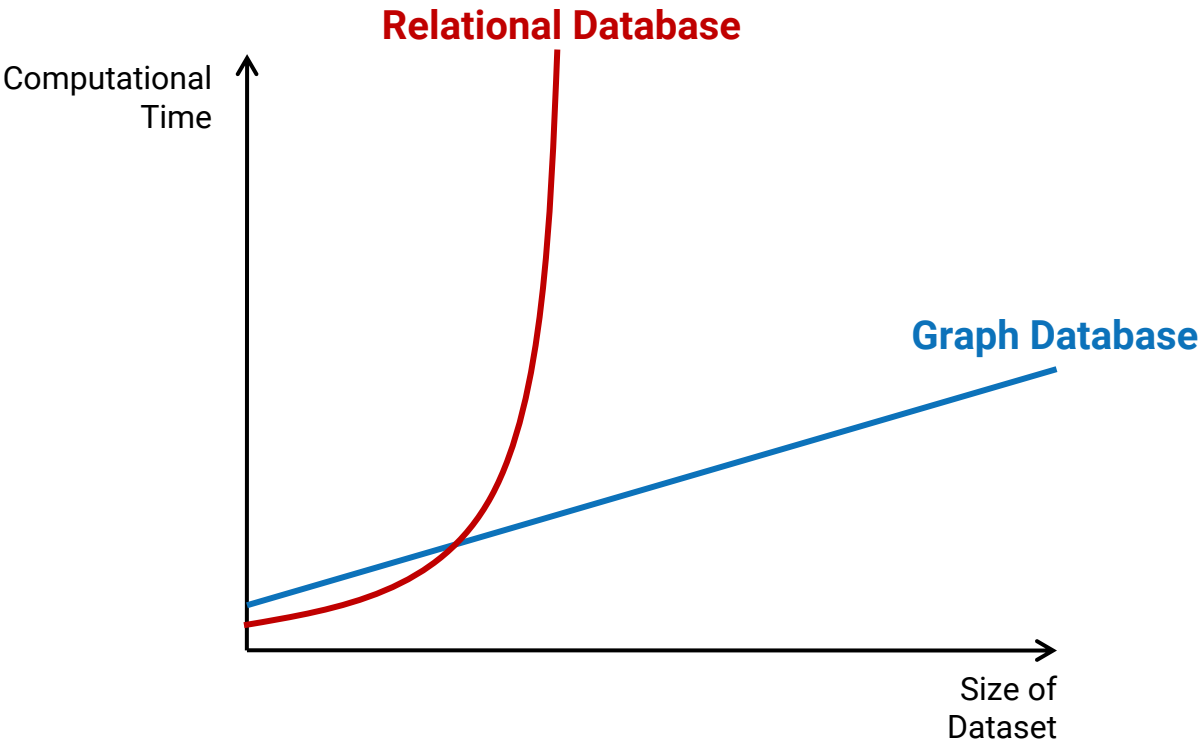
-  Bacchus and Ariadne
-  Ariadne
-  Caeer Flower
-  Bacchus

Graph Databases: types and performance considerations



Subject	Predicate	Object
<http://id.loc.gov/authorities/names/n50031102>	prov:influenced	<http://id.loc.gov/authorities/names/n78030997>
<http://id.loc.gov/authorities/names/n50031102>	foaf:name	"Charles Babbage"
<http://id.loc.gov/authorities/names/n78030997>	foaf:name	"Ada Lovelace"





Graph databases
don't naturally perform well
with free text search... and
remote SPARQL Endpoints
may or may not be
responsive how can these
problems be overcome?

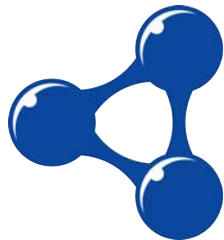
Query:

```
1 select ?Subject ?Term ?Parents ?Descr ?ScopeNote ?Type (coalesce(?Type1,?Type2) as ?ExtraType) {  
2   ?Subject luc:term "vessel AND fish*"; a ?typ.  
3   ?typ rdfs:subClassOf gvp:Subject; rdfs:label ?Type.  
4   filter (?typ != gvp:Subject)  
5   optional {?Subject gvp:placeTypePreferred [gvp:prefLabelGVP [xl:literalForm ?Type1]]}  
6   optional {?Subject gvp:agentTypePreferred [gvp:prefLabelGVP [xl:literalForm ?Type2]]}  
7   optional {?Subject gvp:prefLabelGVP [xl:literalForm ?Term]}  
8   optional {?Subject gvp:parentStringAbbrev ?Parents}  
9   optional {?Subject foaf:focus/gvp:biographyPreferred/schema:description ?Descr}  
10  optional {?Subject skos:scopeNote [dct:language gvp_lang:en; rdf:value ?ScopeNote]}
```

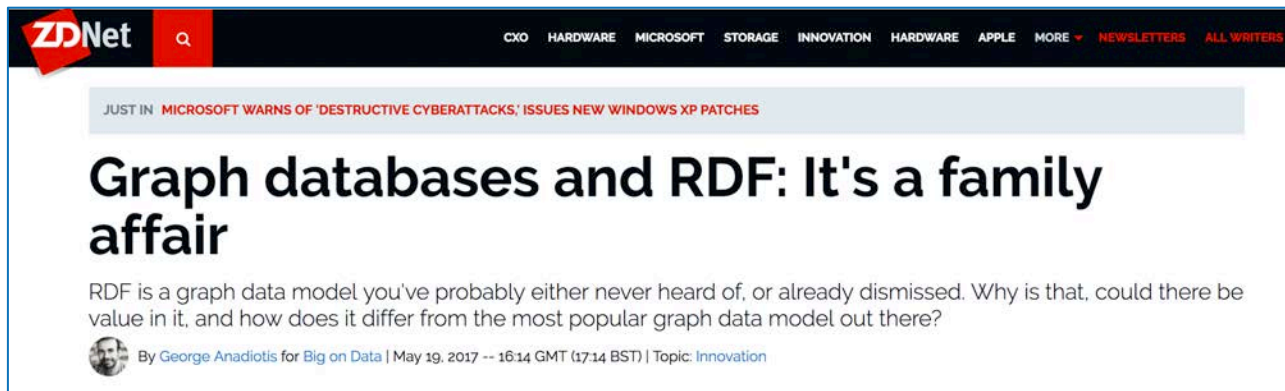
Some Common Options

- Download and cache remote LoD data sources
- Index literal property fields using search tools like Apache Solr
- Use triple store databases with built-in indexing like GraphDB
- Create 'named graphs' that can be used to sub-select from the master graph database


In the Linked Canvas system
with > 11 million entities and
> 130 million properties and
relationships we execute
simple searches sub-second
and multi-word wildcard
phrases in 1-5 seconds




To RDF or not to RDF?



The screenshot shows the ZDNet website header with a navigation bar containing links for CXO, HARDWARE, MICROSOFT, STORAGE, INNOVATION, HARDWARE, APPLE, MORE, NEWSLETTERS, and ALL WRITERS. Below the header is a news ticker that reads: "JUST IN MICROSOFT WARNS OF 'DESTRUCTIVE CYBERATTACKS,' ISSUES NEW WINDOWS XP PATCHES". The main article title is "Graph databases and RDF: It's a family affair". The article text begins with "RDF is a graph data model you've probably either never heard of, or already dismissed. Why is that, could there be value in it, and how does it differ from the most popular graph data model out there?". The author is identified as "By George Anadiotis for Big on Data" with a date of "May 19, 2017 -- 16:14 GMT (17:14 BST)" and a topic of "Innovation".


ZDNet 

CXO HARDWARE MICROSOFT STORAGE INNOVATION HARDWARE APPLE MORE  NEWSLETTERS ALL WRITERS

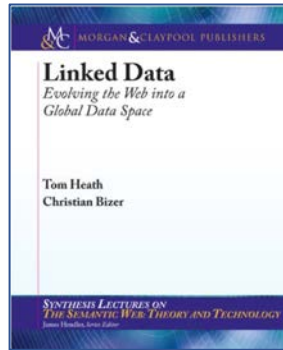
JUST IN MICROSOFT WARNS OF 'DESTRUCTIVE CYBERATTACKS,' ISSUES NEW WINDOWS XP PATCHES

Graph databases and RDF: It's a family affair

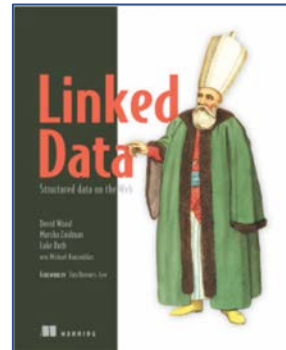
RDF is a graph data model you've probably either never heard of, or already dismissed. Why is that, could there be value in it, and how does it differ from the most popular graph data model out there?

 By George Anadiotis for Big on Data | May 19, 2017 -- 16:14 GMT (17:14 BST) | Topic: Innovation

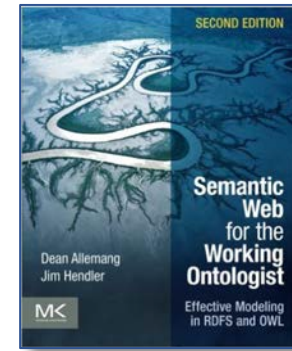
<http://www.zdnet.com/article/graph-databases-and-rdf-its-a-family-affair/>



Heath & Bizer
Morgan & Claypool (pub.)



Ruth, Wood & Zaidman
Manning (pub.)



Allemang & Hendler
Morgan Kaufman (pub.)



LINKED CANVAS

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Tutorial Video Series

Synaptica Tech Talks - Data Modeling with Graphs



This tutorial explores data modelling by comparing and contrasting traditional relational databases with property graph database and RDF Linked Data graph databases.

Linked Canvas 60 Second Tutorials: 01 Uploading Images



This tutorial demonstrates how images may be uploaded and managed within Linked Canvas.

Linked Canvas 60 Second Tutorials: 02 Cataloging Images



This tutorial demonstrates how images may be cataloged within Linked Canvas. Linked Canvas supports an extensible set of image-level metadata.

Showcase Video Series

Bryn Mawr College - The World of the Symposium




Take a guided tour of a 5th C. BCE Attic Red-Figure Plate from the Bryn Mawr College special collection, and discover insights into The World of the Symposium. The annotations and subject indexing (using the Beazley Archive Subject Headings) were prepared by Bryn Mawr College as a cross-faculty exercise.

[View this image live in Linked Canvas](#)

www.linkedcanvas.org

<http://explore.dublincore.net/explore-learning-resources-by-competency/>

 Exploring
Linked Data

Explore Tech Talk Updates About FAQ

Explore Learning Resources by Competency

Search ...

Browse by Competency

▼ How does this work?

- + New Comp Index (588)
 - + Fundamentals of Resource Description Framework (214)
 - + Fundamentals of Linked Data (126)
 - + RDF vocabularies and application profiles (176)
 - + Creating and transforming Linked Data (72)
 - + Interacting with RDF data (349)
 - + Creating Linked Data applications (0)

[View the full Competency Index](#)

[Saved Sets of Learning Resources](#)

[Competency-based Learning Maps](#)


To Explore Linked Data learning resources, select a competency assertion or topic statement in the adjacent panel to view a listing of associated learning resources.

The Competency Index for Linked Data (CI) constitutes a set of topically arranged assertions of the knowledge, skills, and habits of mind required for professional practice in the area of Linked Data.

This structure is illustrated in the adjacent panel. CI development is expected to openly crowd-source expertise in the development processes under the guidance of the project's CI Editorial Board (CIEB). [Learn more about the Competency Index](#).

IMPORTANT NOTES:

- The CI on this page is a work in progress. The CI Editorial Board (CIEB) is developing the competencies and benchmarks and anticipates completion of the CI by June 2016. As sections of competencies are approved by the CIEB, they are added to the version of the CI on the left and learning resources are mapped to it.
- The CI development work is being partially funded through an IMLS National Leadership Grant for Libraries.



WELCOME!

[Register for an account](#)

LOG IN

Username or Email Address

Password

Contact the LD4PE Project

DCMI is a project of ASIST:

8555 16th Street, Suite 850
Silver Spring, Maryland 20910, USA
Tel. 301-495-0900
Fax: 301-495-0810

SITE MAP

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[View page list](#)

Content on this website, unless explicitly stated

Thank You
Dublin Core!

Thank You

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CEO

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www.synaptica.com

www.linkedcanvas.org



Reserve Slides

Managing HTTP-URIs & Linked Data Mapping
Within Relational KOS Management Systems

Minting HTTP-URIs and Managing GUIDs

Example of a Term with HTTP-URI and GUID

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke ; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Limit to Taskview Show All Display Relationship Abbreviations

Highlight by Category Filter by Relationship

dev.synaptica.net/80/thes/details_fs.asp?vunid=31626949

Item Summary "Fruit"

Descriptor: Fruit
Object: NLB_Demo
Categories: Fruit
Status: Active; Candidate; Preferred; Unlocked
UID: 31626949
Created: jdwyer 5/30/2017 9:28:05 AM
Modified: dclarke 5/31/2017 12:15:58 AM

Save Add New Subsume
Refresh Categories History
Deactivate Delete Restore
Copy Linked Data

Sub-Elements

Descriptor: Fruit

skos:Concept: http://synaptica.net/concept/91fed0ba659e4e988bca833d50df207b

skos:scopeNote: The sweet and fleshy product of a tree or other plant that contains seed and can be eaten as food.

skos:historyNote: Published 20170531.

Administrative Attributes:

Approval: Candidate
Workflow: Normal
Language: English
Locked: Unlocked
BLAT: Yes No
BTN: Yes No

Relationships

Add/Edit Relationships Tree View Visualize

Limit to Taskview Show All

Fruit

Top Level Parents

Parents

Children

NT Apples (NLB_Demo)
NT Oranges (NLB_Demo)

Associations

Variants

All terms in Synaptica always have a system-generated unique ID (UID). It is a sequence number unique to each term in the database instance. It is used as the primary ID for terms internally and in imports/exports.

Synaptica also supports the creation of HTTP-URIs. A URI is composed of an HTTP-prefix followed by a unique ID. Any HTTP prefix can be configured in the Admin. tools, thereby supporting custom namespaces. The unique ID has three options: (i) the Synaptica UID; (ii) a true GUID (random 32 character alphanumeric); or the term descriptor. A descriptor is more user friendly than an ID, but is generally discouraged because it necessarily favours a single natural language and because descriptor terminology may change over time. The GUID is longer and more cumbersome than a UID, but GUIDs are generally preferred by the publishing industry as they are universally unique.

Example of Triples Output

The screenshot shows the Synaptica SQL Server DEV 8.0 interface. The top navigation bar includes 'Taskviews', 'Search', 'Tree Browse', 'A-Z Browse', 'Add', 'Reports', 'Tools', and 'Admin'. The 'Reports' tab is active, displaying 'RDF Triples'. Below this, there's a 'Report Parameters' section with 'Taskview:' set to 'Using Current Taskview' and 'Object Class:' set to 'NLB_Demo'. A browser window below the interface displays the output of the report, which is a list of RDF triples. The triples are formatted as follows:

```
# Triples
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
<Vocab_11850> a skos:ConceptScheme ; rdfs:label "NLB_Demo" .
<31626949> a skos:Concept .
<31626949> skos:inScheme <Vocab_11850> .
<31626949> skos:prefLabel "Fruit"@en .
<31626949> http://synaptica.net/concept/ "http://synaptica.net/concept/91fed0ba659e4e988bca833d50df207b" .
<31626949> skos:scopeNote "The sweet and fleshy product of a tree or other plant that contains seed and can be eaten as food." .
<31626949> skos:historyNote "Published 20170531." .
<31626949> skos:narrower <31626950> .
<31626949> skos:narrower <31626951> .
<31626950> a skos:Concept .
<31626950> skos:inScheme <Vocab_11850> .
<31626950> skos:prefLabel "Apples"@en .
<31626950> http://synaptica.net/concept/ "http://synaptica.net/concept/d2dd6f3396a4effa3cb93868f716246" .
<31626950> skos:scopeNote "The round fruit of a tree of the rose family, which typically has thin green or red skin and crisp flesh." .
<31626950> skos:historyNote "Published 20170531." .
<31626950> skos:broader <31626949> .
<31626951> a skos:Concept .
<31626951> skos:inScheme <Vocab_11850> .
<31626951> skos:prefLabel "Oranges"@en .
<31626951> skos:scopeNote "A large round juicy citrus fruit with a tough bright reddish-yellow rind." .
<31626951> skos:historyNote "Published 20170531." .
<31626951> http://synaptica.net/concept/ "http://synaptica.net/concept/6f771ecd15f84e2cad3bffc481987bc" .
<31626951> skos:broader <31626949> .
```

The optional LOD module which will be released with V8.0 supports the export of triples. These can leverage namespace prefixes and HTTP-URIs for terms and predicates (relationship types and property types).

In this example Synaptica UIDs are used as Subjects and Objects in the triples, but in the final version to be released term HTTP-URIs could be used to directly represent Subjects and Objects.

Configuring a concept scheme to use HTTP-URI-based properties

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke; Permission: SA Version 8.0 Log Out Help

Administration Tools > Object Class Manager >

Object Class Manager

[Return to Main Object Class Management Page](#)

Change Existing Object Class: NLB_Demo (UID: 11850)

Abbreviation: NLB_Demo

Description: NLB_Demo

Allow Tree Browse: ☒ Yes ☐ No

Allow Visualization: ☒ Yes ☐ No

[Show / Hide Advanced Options](#)

Other Functions For This Object Class: NLB_Demo (UID: 11850)

- [Descriptor Elements](#)
- [Extended Attributes](#)
- [Object Class / Relationship Rules-Base](#)
- [Descriptor Element Lookups](#)
- [Sub-Element Display Order](#)
- [Object Class / Category Rules-Base](#)
- [Object Class / Linked Data Rules-Base](#)

Existing Extended Attributes

skos:Concept
skos:historyNote
skos:scopeNote

Details

UID	13238
Require Data Entry	No
Data Entry Rule	RulesPrj.cExAttDefault
UI Field Order	3
Max Length	3000
Modified	5/31/2017 12:10:02 AM
Modified By	dclarke
Prefix	skos:historyNote

HTTP-URIs for terms and properties can be configured in the Object Class manager.

In this example the scheme 'NLB_Demo' has been configured with three HTTP-URI properties: skos:Concept; skos:scopeNote; and skos:historyNote.

Note the use of RDF namespace prefixes, which will also be illustrated on a subsequent screen.

Configuring a concept scheme to use HTTP-URI-based properties

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Administration Tools > Object Class Manager >

Object Class Manager

[Return to Main Object Class Management Page](#)

Change Existing Object Class: NLB_Demo (UID: 11850)

Abbreviation	NLB_Demo
Description	NLB_Demo
Allow Tree Browse	<input checked="" type="radio"/> Yes <input type="radio"/> No
Allow Visualization	<input checked="" type="radio"/> Yes <input type="radio"/> No

[Show / Hide Advanced Options](#)

Other Functions For This Object Class: NLB_Demo (UID: 11850)

- [Descriptor Elements](#)
- [Extended Attributes](#)
- [Object Class / Relationship Rules-Base](#)
- [Descriptor Element Lookups](#)
- [Sub-Element Display Order](#)
- [Object Class / Category Rules-Base](#)
- [Object Class / Linked Data Rules-Base](#)

Edit Existing Extended Attribute

[Back](#)

Required Information:

UI Label: skos:Concept

[Show / Hide Advanced Options](#)

Advanced Options:
(Keep default selections unless other settings specifically required)

Require Data Entry: ☐ Yes ☒ No

Data Entry Rule:

Max Length: 3000

Prefix: http://synaptica.net/concept/

The HTTP-URI property for terms (concepts) uses the skos:Concept predicate to identify the URI and the data entry rule has been set to use an HTTP Prefix value + a GUID.

In this example a full HTTP prefix has been specified for concepts, but we could have used a namespace prefix if specified in the RDF Namespace Manager.

Mapping Internal Concepts to External Linked Open Data

Example of a person name record before LoD mapping

Synaptica® SQL Server DEV 8.0

Taskview: NLB URI LOD Demo User: Dave Clarke ; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Limit to Taskview Show All
Display Relationship Abbreviations

Highlight by Category
Filter by Relationship Type

LOD Person Name

Barack Obama

NLB_Demo

Synaptica © Software Copyright ©

Item Summary "Barack Obama"

dev.synaptica.net/80/thes/details_fs.asp?vunid=31727243

Item Summary

Descriptor	Barack Obama
Object	LOD Person Names
Categories	
Status	Active; Candidate; Preferred; Unlocked
UID	31727243
Created	dclarke 5/31/2017 12:38:45 AM
Modified	dclarke 5/31/2017 12:38:45 AM

Save Add New Subsume
Refresh Categories History
Deactivate Delete Restore
Copy Linked Data

Sub-Elements

*Last Name: Obama

First Name: Barack

Administrative Attributes:

Approval: Candidate
Workflow: Normal
Language: English
Locked: Unlocked
BLAT: Yes No
BTN: Yes No

Linked Data

Data Source: All

This named entity only has two fields of information in the internal taxonomy.

Searching LoD sources to identify a mapping target

The screenshot displays the Synaptica SQL Server DEV 8.0 interface. The main window is titled 'Item Summary "Barack Obama"'. It features a left sidebar with navigation options like 'Taskviews', 'Search', 'Tree Browse', 'A-Z Browse', 'Add', 'Reports', 'Tools', and 'Admin'. The central area is divided into two main sections: 'Item Summary' and 'Linked Data'.

Item Summary:

- Descriptor:** Barack Obama
- Object:** LOD Person Names
- Categories:** Active; Candidate; Preferred; Unlocked
- Status:** 31727243
- UID:** dclarke 5/31/2017 12:38:45 AM
- Created:** dclarke 5/31/2017 12:38:45 AM
- Modified:** dclarke 5/31/2017 12:38:45 AM

Below the summary are buttons for 'Save', 'Add New', 'Subsume', 'Refresh', 'Categories', 'History', 'Deactivate', 'Delete', 'Restore', 'Copy', and 'Linked Data'.

Sub-Elements:

- *Last Name:** Obama
- First Name:** Barack

Administrative Attributes:

- Approval:** Candidate
- Workflow:** Normal
- Language:** English
- Locked:** Unlocked
- BLAT:** Yes (selected), No
- BTN:** Yes (selected), No

Linked Data:

The 'Linked Data' section shows a search for 'Barack Obama' using the 'DBpedia: People' data source. The search results are displayed in a table with columns 'Resource' and 'Lang'.

Resource	Lang
Presidency of Barack Obama	en
Barack Obama	en
Barack Obama, Sr.	en
United States Senate career of Barack Obama	en
Early life and career of Barack Obama	en
Illinois Senate career of Barack Obama	en

A red arrow points from the 'Linked Data' section to the 'Resource Search Results' window, which is a modal dialog box. The dialog box has a 'Language Filter' set to 'en' and displays the same search results as the 'Linked Data' section. A second red arrow points from the 'Resource Search Results' window to the 'All matching entities in the LoD data source are displayed and can be previewed...' text block.

After pressing the Linked Data button the system allows the user to choose a pre-configured data source (SPAQRL endpoint) in this case Dbpedia people, and search for matching entities. The keywords of the descriptor and non-preferred terms can automatically be used to initiate a search.

All matching entities in the LoD data source are displayed and can be previewed. Language filters are provided. In this example the second entity will be selected.

Selecting a mapping relationship and target properties

The screenshot shows the Synaptica web application interface. On the left, the 'Item Summary' for 'Barack Obama' is displayed, including fields for Descriptor, Object, Categories, Status, UID, Created, and Modified. Below this are buttons for Save, Add New, Subsume, Refresh, Categories, History, Deactivate, Delete, Restore, Copy, and Linked Data. The 'Sub-Elements' section shows 'Last Name: Obama' and 'First Name: Barack'. The 'Administrative Attributes' section includes fields for Approval, Workflow, Language, Locked, BLAT, and BTN.

The main area displays the 'Properties for Resource' dialog for 'Barack Obama'. The 'Mapping Relationship' is set to 'owl:sameAs'. The 'Selected Properties' section shows 'Property Value' for 'dbo:abstract'. The 'Additional Available Properties' section shows a table with columns 'Property' and 'Value'. The table contains the following entries:

Property	Value
<input checked="" type="checkbox"/> dbo:abstract	en Barack Hussein Obama II (/bəˈroʊk huːˈsæn oʊ ba mə/, born August 4, 1961) is an American politician serving as the President of the United States, the first African American to hold the office. Born in Honolulu, Hawaii, Obama is a grad of Columbia University and Harvard Law School, where he served as president of the Harvard Law Review. He was a community organizer in Chicago before earning his law degree. He worked as a civil rights attorney and taught constitutional law at University of Chicago Law School between 1992 and 2004. He served three terms representing the 13th District in the Illinois Senate from 1997 to 2004, and ran unsuccessfully in the Democratic primary for the United States House of Representatives in 2000 against incumbent Bobby Rush. In 2004, Obama received national attention during campaign to represent Illinois in the United States Senate with his victory in the March Democratic Party primary, his keynote address at the Democratic National Convention in July, and his election to the Senate in November. He began his presidential campaign in 2007 and, after a close primary campaign against Hillary Rodham Clinton in 2008, he won sufficient delegates in the Democratic Party primaries to receive the presidential nomination. He then defeated Republican nominee John McCain in the general election, and was inaugurated as president on January 20, 2009. Nine months after his inauguration, Obama was named the 2009 Nobel Peace Prize laureate. During his first two years in office, Obama signed into law economic stimulus legislation in response to the Great Recession in the form of the American Recovery and Reinvestment Act of 2009 and the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010. Other major domestic initiatives in his first term included the Patient Protection and Affordable Care Act, often referred to as "Obamacare", the Dodd–Frank Wall Street Reform and Consumer Protection Act, and the Don't Ask, Don't Tell Repeal Act of 2010. In foreign policy, Obama ended U.S. military involvement in the Iraq War, increased U.S. troop levels in Afghanistan, signed the New START arms control treaty with Russia, ordered U.S. military involvement in Libya in opposition to Muammar Gaddafi, and ordered the military operation that resulted in the death of Osama bin Laden. In January 2011, the Republicans regained control of the House of Representatives as the Democratic Party lost a total of 63 seats; and, after a lengthy debate over federal spending and whether or not to raise the nation's debt limit, Obama signed the Budget Control Act of 2011 and the American Taxpayer Relief Act of 2012. Obama was reelected president in November 2012, defeating Republican nominee Mitt Romney, and was sworn in for a second term on January 20, 2013. During his second term, Obama has promoted domestic policies related to gun control in response to the Sandy Hook Elementary School shooting, and has called for greater inclusiveness for LGBT Americans, while his administration has filed briefs which urged the Supreme Court to strike down part of the federal Defense of Marriage Act and state level sex marriage bans as unconstitutional. In foreign policy, Obama ordered U.S. military intervention in Iraq in response to gains made by the Islamic State after the 2011 withdrawal from Iraq, continued the process of ending U.S. combat operations in Afghanistan, promoted discussions that led to the 2015 Paris Agreement on global climate change, brokered nuclear deal with Iran, and normalized U.S. relations with Cuba.
<input checked="" type="checkbox"/> dbo:birthDate	1961-08-04
<input checked="" type="checkbox"/> rdfs:label	en Barack Obama
<input type="checkbox"/> foaf:name	en Barack Obama

At the bottom of the dialog are buttons for 'Back to Resource Results', 'Apply', and 'Close'.

A mapping relationship is then selected – in this case 'owl:sameAs'.

Individual properties belonging to the target entity can then be selected. When the Apply button is pressed two things happen: (i) a link is created between the internal entity and the external entity using the specified mapping relationship; (ii) the selected properties are copied (dereferenced) from the target data source and stored inside Synaptica, where they form an integral part of the internal entity record.

Viewing an internal record with mapped Linked Data

The screenshot displays the Synaptica application interface for viewing an internal record with mapped Linked Data. The main content area shows the 'Item Summary' for 'Barack Obama', including details like 'Object: LOD Person Names', 'Status: Active; Candidate; Preferred; Unlocked', 'UID: 31727243', 'Created: dclarke 5/31/2017 12:38:45 AM', and 'Modified: dclarke 5/31/2017 12:38:45 AM'. Below this is a 'Sub-Elements' section with fields for 'Last Name' (Obama) and 'First Name' (Barack). The 'Linked Data' section displays RDF triples for 'Barack Obama', including 'rdfs:label (DBpedia People): Barack Obama', 'dbo:birthDate (DBpedia People): 1961-08-04', and 'dbo:abstract (DBpedia People): Barack Hussein Obama II (/bəˈrɒk huːˈseɪn ouˈbɑːmə/; born August 4, 1961) is an American politician serving as the 44th President of the United States, the first African American to hold the office. Born in Honolulu, Hawaii, Obama is a graduate of Columbia University and Harvard Law School, where he served as president of the Harvard Law Review. He was a community organizer in Chicago before earning his law degree. He worked as a civil rights attorney and taught constitutional law at University of Chicago Law School between 1992 and 2004. He served three terms representing the 13th District in the Illinois Senate from 1997 to 2004, and ran unsuccessfully in the Democratic primary for the United States House of Representatives in 2000 against incumbent Bobby Rush. In 2004, Obama received national attention during his campaign to represent Illinois in the United States Senate with his victory in the March Democratic Party primary, his keynote address at the Democratic National Convention in July, and his election to the Senate in November. He began his presidential campaign in 2007 and, after a close primary campaign against Hillary Rodham Clinton in 2008, he won sufficient delegates in the Democratic Party primaries to receive the presidential nomination. He then defeated Republican nominee John McCain in the general election, and was inaugurated as president on January 20, 2009. Nine months after his inauguration, Obama was named the 2009 Nobel Peace Prize laureate. During his first two years in office, Obama signed into law economic stimulus legislation in response to the Great Recession in the form of the American Recovery and Reinvestment Act of 2009 and

After mapping the term record of an internal entity will display both internal and external data together. In a combined view. Reports and exports can also be generated that deliver a combination of the two data sources.

RDF Namespace Manager

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke ; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Administration Tools >

RDF Namespaces Manager

Existing RDF Namespaces

- igdo
- nib
- owl
- pos
- prov
- rdf
- rdfs
- skm
- skos**
- soic
- vcard
- xsd

Add Edit Delete

Details:

Namespace Abbreviation	skos
Description	SKOS Simple Knowledge Organization System
URI	http://www.w3.org/2004/02/skos/core#
Modified By	smaslow
Modified	10/4/2016 11:24:56 AM

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RDF Namespace Manager allows namespaces and prefixes to be created and managed in the system.

Linked Data Source Manager

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke ; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Administration Tools >

Linked Data Source Manager

Existing Linked Data Sources

- BBC in BlazeGraph
- BBC Programmes
- BBC Programmes and Music
- Data.gov (resolving to HTML address as of 3/14/17)
- DBPedia**
- Europeana Labs
- Getty
- Linked Geo Data
- Linked Movie Database
- LinkedMDB
- OASIS Linked Data
- SeanTest in BlazeGraph

Add Edit Delete

Details:

URI	http://dbpedia.org/sparql
Description	DBPedia
Modified	8/31/2016 6:12:17 AM
Modified By	dclarke

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Linked Data Source Manager allows any publicly accessible SPARQL endpoint to be configured.

Linked Data Mapping Relationships Manager

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke ; Permission: SA Version 8.0 Log Out Help

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Administration Tools >

Linked Data Mapping Relationships Manager

Existing Mapping Relationships

- owl:differentFrom
- owl:sameAs
- skos:broadMatch
- skos:closeMatch
- skos:exactMatch
- skos:mappingRelation
- skos:narrowMatch
- skos:relatedMatch

Add Edit Delete

Details:

Abbreviation	owl:sameAs
Description	owl:sameAs
Modified By	jdwyer
Modified	4/7/2016 3:18:42 PM

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Linked Data Mapping Relationships Manager allows any mapping predicate to be configured.

Concept Scheme to Linked Data Mapping Manager

Synaptica® SQL Server DEV 8.0 Taskview: NLB URI LOD Demo User: Dave Clarke; Permission: SA Version 8.0 Log Out Help

Taskviews Search Tree Browse A-Z Browse Add Reports Tools Admin

Administration Tools > Object Class Manager >

Object Class Manager

[Return to Main Object Class Management Page](#)

Change Existing Object Class: LOD Person Names (UID: 11852)

Abbreviation	LOD Person Names
Description	LOD Person Names
Allow Tree Browse	<input checked="" type="radio"/> Yes <input type="radio"/> No
Allow Visualization	<input checked="" type="radio"/> Yes <input type="radio"/> No

[Show / Hide Advanced Options](#)

[Update Object Class](#)

Other Functions For This Object Class: LOD Person Names (UID: 11852)

- [Descriptor Elements](#)
- [Extended Attributes](#)
- [Object Class / Relationship Rules-Base](#)
- [Descriptor Element Lookups](#)
- [Sub-Element Display Order](#)
- [Object Class / Category Rules-Base](#)
- [Object Class / Linked Data Rules-Base](#)

Object Class Linked Data Rules-Base Manager

Existing Linked Data Rules	Details:															
BBC Programmes: Stuff	UID: 1081															
DBPedia: People	Data Source: DBPedia (http://dbpedia.org/sparql)															
DBPedia: Places	SPARQL: select distinct ?resource ?label where {?resource a foaf:Person . ?resource rdfs:label ?label . #textfilter } LIMIT 100															
Getty: General	Description: People															
Linked Geo Data: Shop	Mappings															
OASIS Linked Data: All	<table><tr><th>Mapping</th><th>Default</th><th>Actions</th></tr><tr><td>owl:sameAs</td><td>Yes</td><td>Edit Delete</td></tr><tr><td>skos:broadMatch</td><td>No</td><td>Edit Delete</td></tr></table>	Mapping	Default	Actions	owl:sameAs	Yes	Edit Delete	skos:broadMatch	No	Edit Delete						
Mapping	Default	Actions														
owl:sameAs	Yes	Edit Delete														
skos:broadMatch	No	Edit Delete														
OASIS Linked Data: U.S. Presidents	Properties															
OASIS Linked Data: Vehicle Brands	<table><tr><th>Property/URI</th><th>Resource Label</th><th>Actions</th></tr><tr><td>foaf:name</td><td>No</td><td>Edit Delete Property Chains</td></tr><tr><td>rdfs:label</td><td>Yes</td><td>Edit Delete Property Chains</td></tr><tr><td>dbo:birthDate</td><td>No</td><td>Edit Delete Property Chains</td></tr><tr><td>dbo:abstract</td><td>No</td><td>Edit Delete Property Chains</td></tr></table>	Property/URI	Resource Label	Actions	foaf:name	No	Edit Delete Property Chains	rdfs:label	Yes	Edit Delete Property Chains	dbo:birthDate	No	Edit Delete Property Chains	dbo:abstract	No	Edit Delete Property Chains
Property/URI	Resource Label	Actions														
foaf:name	No	Edit Delete Property Chains														
rdfs:label	Yes	Edit Delete Property Chains														
dbo:birthDate	No	Edit Delete Property Chains														
dbo:abstract	No	Edit Delete Property Chains														

[Add Mapping](#)

[Add Property](#)

[Add](#) [Edit](#) [Delete](#)

[Linked Data Property Display Order](#)

The Object Class / Linked Data Rules-base link inside the Object Class Manager tool allows an Admin user to configure which Linked Data sources an internal taxonomy can link to; which mapping relationships it can use; and which specific property fields belonging to the external Linked Data source can be selected for dereferencing.