



鏈結資料之發展與應用

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Outline

- ▶ 語意網概論
- ▶ 鏈結資料定義與原則
- ▶ 鏈結資料發展現況與重要資料集
- ▶ 鏈結資料生命週期
- ▶ 案例一：國家圖書館鏈結資料服務
- ▶ 案例二：電影鏈結資料網
- ▶ 案例三：以鏈結資料豐富館藏查詢系統
- ▶ 結論

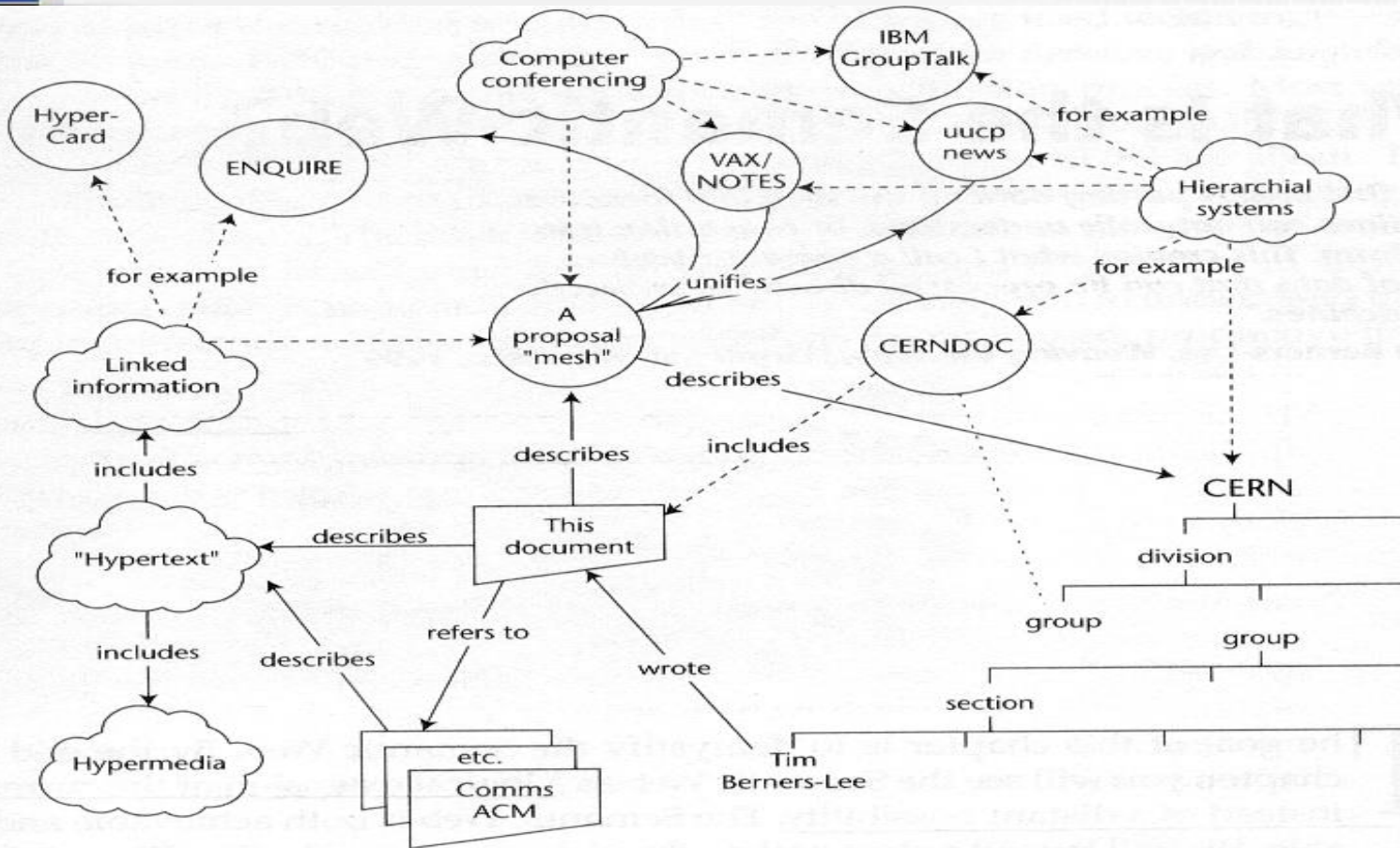


語意網概論

語意網 (Semantic Web)

- ▶ 語意網即是建構一個基礎建設，在這基礎建設下賦予資訊明確的定義，使得電腦能夠理解富含語意的文件和資料，從而促成電腦與人們的協同工作
- ▶ 以電腦能夠理解的方式來描述任何具體或抽象、實體或虛擬事物(thing)的屬性(property)，以及事物間的關聯(relationships)
 - ✿ The Beatles was a popular band from Liverpool.
 - ✿ John Lennon was a member of the Beatles.
- ▶ 鏈結資料是實現語意網的最佳實務

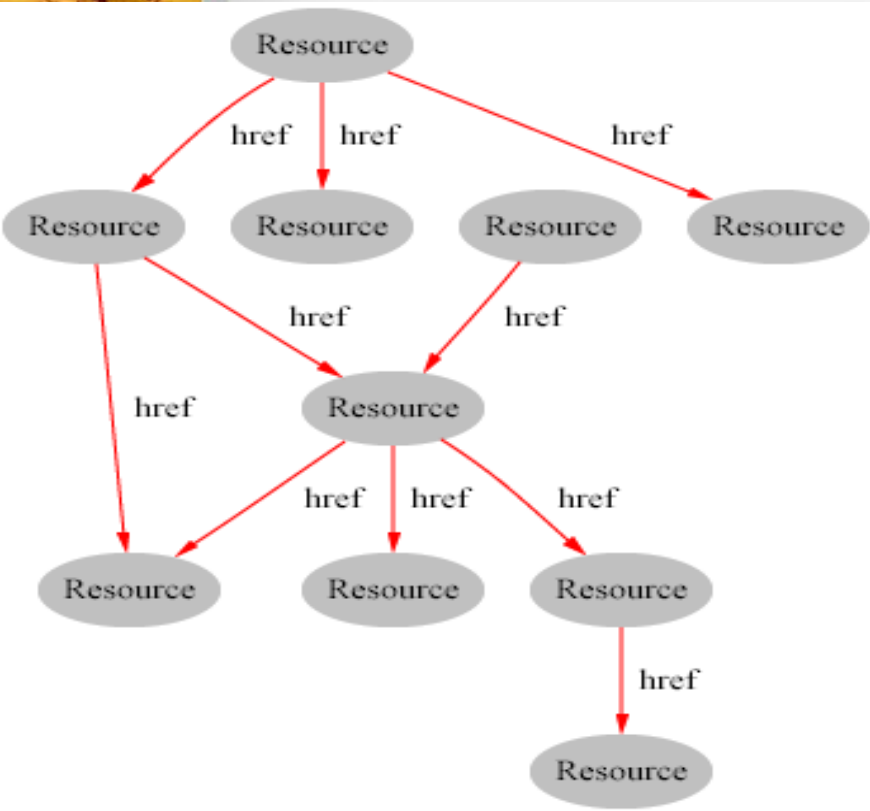
Original Web Proposal to CERN



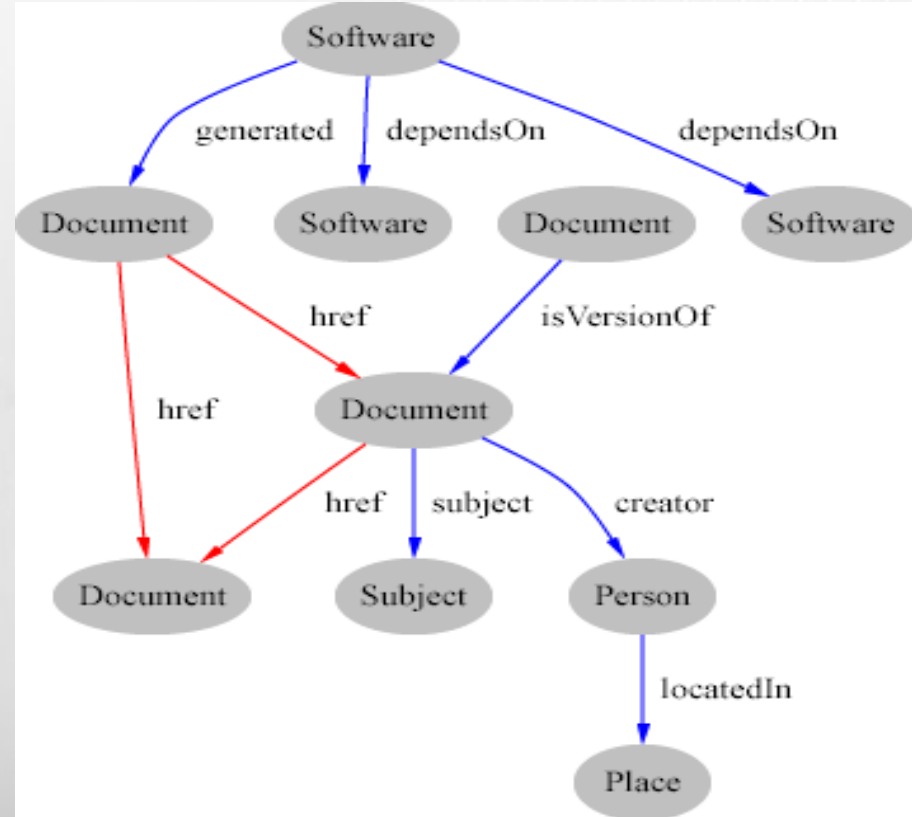
Encompass additional metadata above and beyond what is currently in the Web. This additional metadata is needed for machines to be able to process information on the Web

Web vs. Semantic Web

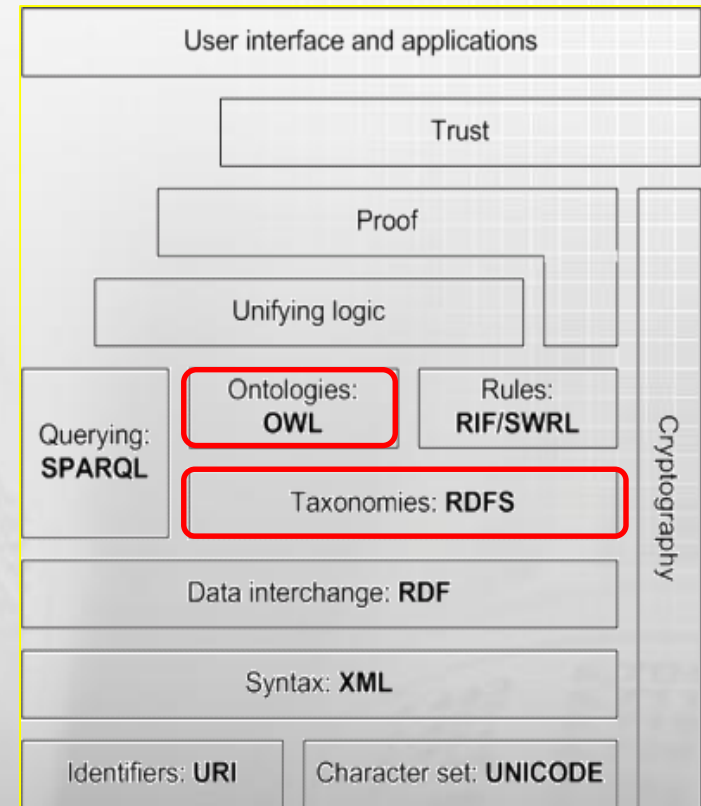
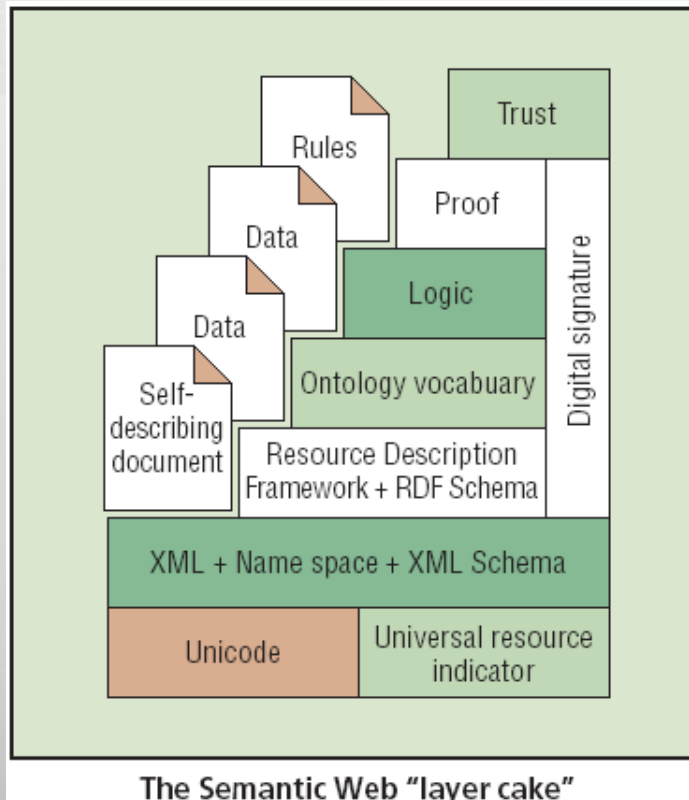
Web



Semantic Web



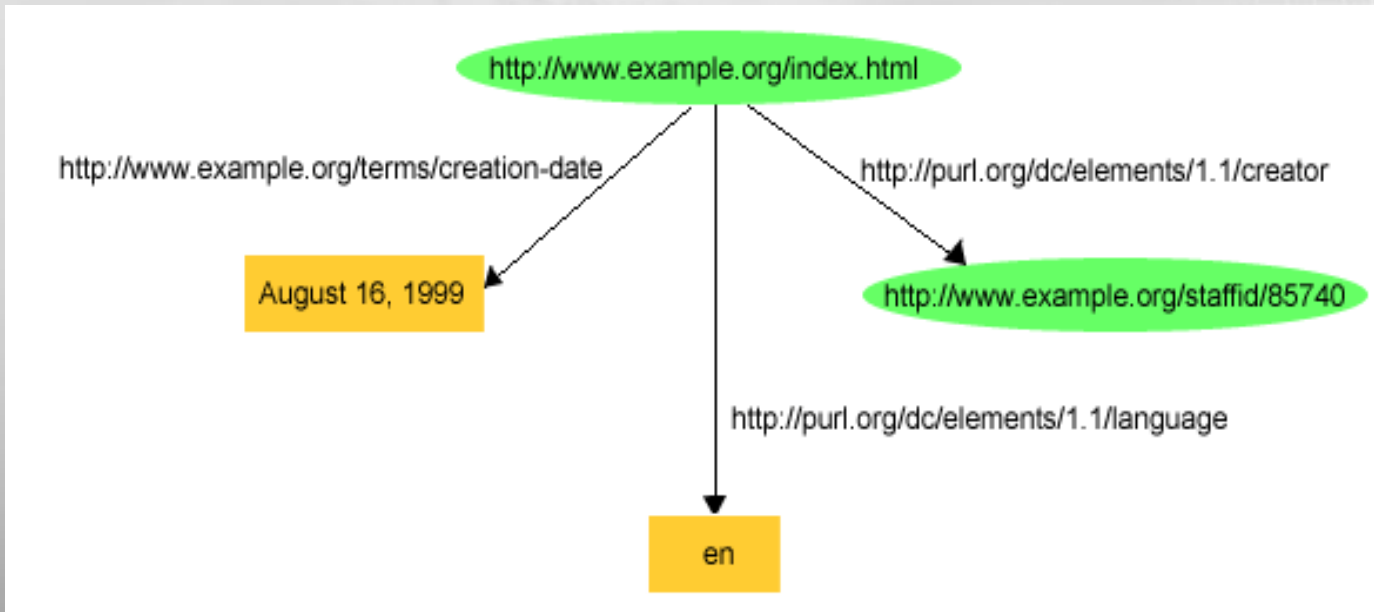
What achieves the Semantic Web?



http://en.wikipedia.org/wiki/Semantic_Web_Stack

Basic RDF Model

- ▶ A model for describing
 - ✿ resources
 - ✿ named properties
 - ✿ property values
- ▶ (resource, property, value)





鏈結資料定義與原則

<http://linkeddatabook.com/editions/1.0/#>

鏈結資料 (Linked Data)

- ▶ 實現語意網的最佳實務
- ▶ 用來將結構化資料發布於Web上，並加以串聯
 - ✿ 支持資源的發現、取用、整合
- ▶ 鏈結資料四原則
 - ✿ 利用URI為資源或事物命名
 - ✿ 以HTTP做為客戶端和伺服器端之間查詢及傳送URI的機制，用以查詢特定URI所代表事物的相關資訊
 - ✿ 伺服器端使用RDF與SPARQL等標準，提供更多的資訊
 - ✿ 對於特定URI所代表事物的相關資訊中，應包含與其他相關事物的連結(連結到該事物的URI)，使得事物間得以串連，以達成構築全域資料空間的目標

Five Stars



Items, Things, Resources

- ▶ To publish data on the Web, the **items in a domain of interest** must first be identified
 - ✿ **Things** whose properties and relationships will be described in the data
 - ✓ Web documents, real-world entities, abstract concepts
 - ✿ **Resource** is used to refer to these *things of interest*, which are, in turn, identified by HTTP URIs

Naming Things with URIs

<http://biglynx.co.uk/people/matt-briggs>

<http://biglynx.co.uk/people/scott-miller>

<http://xmlns.com/foaf/0.1/knows>

<http://biglynx.co.uk/people/linda-meyer>



Description of <http://biglynx.co.uk/people/matt-briggs>

<http://biglynx.co.uk/people/matt-briggs>

http://xmlns.com/foaf/0.1/topic_interest

http://dbpedia.org/resource/Wildlife_photography

<http://biglynx.co.uk/people/matt-briggs>

<http://xmlns.com/foaf/0.1/name>

Matt Briggs

RDF in human-readable format

<http://biglynx.co.uk/people/matt-briggs>

<http://xmlns.com/foaf/0.1/isPrimaryTopicOf>

<http://biglynx.co.uk/people/matt-briggs.rdf>

<http://biglynx.co.uk/people/matt-briggs>

http://xmlns.com/foaf/0.1/based_near

<http://dbpedia.org/resource/Birmingham>

<http://biglynx.co.uk/people/matt-briggs>

http://xmlns.com/foaf/0.1/based_near

<http://sws.geonames.org/3333125/>

<http://biglynx.co.uk/people/matt-briggs>

<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>

<http://biglynx.co.uk/vocab/productions#Director>

<http://biglynx.co.uk/people/matt-briggs>

<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>

<http://xmlns.com/foaf/0.1/Person>

<http://biglynx.co.uk/people/matt-briggs>

<http://purl.org/vocab/relationship/employedBy>

<http://biglynx.co.uk/people/dave-smith>

<http://biglynx.co.uk/people/matt-briggs>

<http://biglynx.co.uk/vocab/productions#directed>

<http://biglynx.co.uk/productions/pacific-sharks>

<http://biglynx.co.uk/people/matt-briggs.rdf>

<http://purl.org/dc/terms/creator>

<http://biglynx.co.uk/people/nelly-jones>

<http://biglynx.co.uk/people/matt-briggs.rdf>

<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>

<http://xmlns.com/foaf/0.1/PersonalProfileDocument>

foaf, dc, skos, productions...: vocabulary
topic_interest, title, directed: vocabulary term

```
<rdf:Description rdf:about="http://biglynx.co.uk/people/matt-briggs">  
  <foaf:topic_interest rdf:resource="http://dbpedia.org/resource/Wildlife_photography"/>  
  <foaf:name> Matt Briggs </foaf:name>  
  <foaf:isPrimaryTopicOf rdf:resource="http://biglynx.co.uk/people/matt-briggs.rdf"/>  
  <foaf:based_near rdf:resource="http://sws.geonames.org/3333125"/>  
  <foaf:based_near rdf:resource="http://dbpedia.org/resource/Birmingham"/>  
  <rdf:type rdf:resource="http://xmlns.com/foaf/0.1/Person"/>  
  <rdf:type rdf:resource="http://biglynx.co.uk/vocab/productions#Director"/>  
  <rel:employedBy rdf:resource="http://biglynx.co.uk/people/dave-smith"/>  
  <productions:directed rdf:resource="http://biglynx.co.uk/productions/pacific-sharks"/>  
</rdf:Description>
```

```
...  
</rdf:RDF>
```

RDF in XML format

Making URIs De-referenceable

▶ De-referenceable

- ✱ HTTP clients can look up the URI using the HTTP protocol and retrieve a description of the resource that is identified by the URI
 - ✓ Resources can be classic HTML documents, real-world objects and abstract concepts

▶ Descriptions of resources are embodied in...

- ✱ HTML: read by humans
- ✱ RDF data: read by machines

▶ HTTP content negotiation

- ✱ Clients send HTTP headers with each request to indicate what kinds of documents they prefer

Providing Useful RDF Information

▶ RDF Data Model

- ✿ Triple: Subject, predicate, object
 - ✓ Two principal types of RDF triples
 - Literal triples
 - RDF links

✿ RDF Graph

▶ RDF Serialization Formats

- ✿ RDF/XML
- ✿ RDFa: embed RDF triples in HTML documents
- ✿ Turtle
- ✿ N-Triples
- ✿ RDF/JSON

Including Links to Other Things

- ▶ Set RDF links pointing into other data sources on the Web
 - ✿ Glue that connects data islands into a global, interconnected data space
 - ✿ Enable applications to discover additional data sources
- ▶ Three types of RDF links
 - ✿ Relationship Links
 - ✿ Identity Links
 - ✿ Vocabulary Links

Relationship Links

- ▶ Point at related things in other data sources
 - ✱ People, places or genes
- ▶ Relationship links enable people to point to background information about the place they live, or to bibliographic data about the publications they have written

王建民（1980年3月31日－），大聯盟登錄名字 Chien-Ming Wang，是台灣旅美職業棒球選手。2005年王建民成為美國職棒大聯盟紐約洋基隊的固定先發投手後，在2006年和2007年成為洋基隊最多勝投手，曾被「體育畫報」評選為美國最受矚目的20位運動員之一，並在2007及2008年入選「時代（雜誌）」全球最具影響力的百大人物之一，成為華人圈中的焦點人物，台灣報導常暱稱「建仔」、譽為「台灣之光」。目前為華盛頓國民隊的先發投手。

Property	Value
dbpedia-owl:abstract	<ul style="list-style-type: none"> Chien-Ming Wang ist ein taiwanischer Baseballspieler. Der Pitcher Wang spielte von 2005-2009 in der nordamerikanischen Major League Baseball für die New York Yankees, seit 2010 für die Washington Nationals. Außerdem ist er Nationalspieler der taiwanischen Baseball-Nationalmannschaft. Wang ist gegenwärtig einer von vier taiwanischen Baseballspielern in der MLB – neben den Los Angeles Dodgers-Spielern Hong-Chih Kuo, Chin-hui Tsao und Chin-Feng Chen. Im Jahr 2007 wurde Wang vom US-Wochenmagazin Time zu einer der 100 einflussreichsten Personen der Welt gekürt. Chien-Ming Wang (born March 31, 1980) is a Taiwanese Major League Baseball pitcher for the Washington Nationals. He was initially signed as an amateur free agent by the New York Yankees for the 2000 season, and played for the Staten Island Yankees. He was considered the Yankees ace pitcher for the 2006 and 2007 seasons, after winning 19 games in both years, to finish among the Major League leaders in victories. Chien-Ming Wang, né le 31 mars 1980 à Tainan, Taiwan, est un lanceur des Lagues majeures de baseball depuis 2005. Il fait partie des Nationals de Washington. 王建民（ワン・チエンミン、Chien-Ming Wang, 1980年3月31日 - ）は、台湾台南市出身のプロ野球選手（投手）。現在は、MLBワシントン・ナショナルズに所属している。NHKの野球放送では、日本語の音読みを当てて「おうけんみん」と呼ばれ、新聞や他局の野球放送では、「ワン・チエンミン」と呼ばれている。 왕치민(王민)은 미국 메이저리그 프로 야구 내셔널리그 동부지구 팀인 워싱턴 내셔널스의 투수이다. 2000년 스테이튼 아일랜드 양키스와 아마추어 자유계약선수로 계약을 맺었다. 2006년과 2007년 양키스 선발투수로 활약하면서 이름을 알리게 되었다. 2009년 시즌 끝으로 방출되어 2010년 2월 워싱턴 내셔널스로 입단하였다. 王建民（1980年3月31日－），大聯盟登錄名字 Chien-Ming Wang，是台灣旅美職業棒球選手。2005年王建民成為美國職棒大聯盟紐約洋基隊的固定先發投手後，在2006年和2007年成為洋基隊最多勝投手，曾被「體育畫報」評選為美國最受矚目的20位運動員之一，並在2007及2008年入選「時代（雜誌）」全球最具影響力的百大人物之一，成為華人圈中的焦點人物，台灣報導常暱稱「建仔」、譽為「台灣之光」。目前為華盛頓國民隊的先發投手。
dbpedia-owl:award	<ul style="list-style-type: none"> dbpedia:World_Series dbpedia:Win-loss_record_(pitching) dbpedia:American_League
dbpedia-owl:battingSide	<ul style="list-style-type: none"> Right
dbpedia-owl:birthDate	<ul style="list-style-type: none"> 1980-03-31 (xsd:date)
dbpedia-owl:birthPlace	<ul style="list-style-type: none"> dbpedia:Taiwan dbpedia:Tainan
dbpedia-owl:formerTeam	<ul style="list-style-type: none"> dbpedia:New_York_Yankees
dbpedia-owl:number	<ul style="list-style-type: none"> 40 (xsd:integer)
dbpedia-owl:position	<ul style="list-style-type: none"> Starting pitcher
dbpedia-owl:statisticLabel	<ul style="list-style-type: none"> dbpedia:Win-loss_record_(pitching)
dbpedia-owl:statisticValue	<ul style="list-style-type: none"> 59.000000 (xsd:float)
dbpedia-owl:team	<ul style="list-style-type: none"> dbpedia:Washington_Nationals dbpedia:New_York_Yankees
dbpedia-owl:throwingSide	<ul style="list-style-type: none"> Right
dbpedia-owl:thumbnail	<ul style="list-style-type: none"> http://upload.wikimedia.org/wikipedia/commons/thumb/e/ed/MG_3905_Chien-Ming_Wang.jpg/200px-MG_3905_Chien-Ming_Wang.jpg
dbpedia-owl:wikiPageExternalLink	<ul style="list-style-type: none"> http://www.youtube.com/watch?v=A7WoaQxqVc http://www.franksfieldofdreams.com/feheroes/wangcm.htm
dbpprop:after	<ul style="list-style-type: none"> dbpedia:Josh_Beckett
dbpprop:awards	<ul style="list-style-type: none"> * Led AL in wins * 2006 Starting Pitcher of the Year Award * World Series champion
dbpprop:bats	<ul style="list-style-type: none"> Right

http://dbpedia.org/page/Chien-Ming_Wang

Identity Links

- ▶ Point at URI **aliases** used by other data sources to identify the same real-world object or abstract concept
- ▶ Enable clients to retrieve further descriptions about an entity from other data sources
- ▶ Identity links have an important social function as they enable different views of the world to be expressed on the Web of Data
- ▶ Multiple URIs identifying the same entity
 - ✱ <http://www.w3.org/2002/07/owl#sameAs>
- ▶ Quality Control

rdfs:label	<ul style="list-style-type: none"> Wang Chien-ming Chien-Ming Wang Chien-Ming Wang 王建民 왕치엔밍 王建民
owl:sameAs	<ul style="list-style-type: none"> http://ja.dbpedia.org/resource/王建民 http://fr.dbpedia.org/resource/Chien-Ming_Wang http://de.dbpedia.org/resource/Wang_Chien-ming http://ko.dbpedia.org/resource/왕치엔밍 freebase:王建民
wdrs:describedby	<ul style="list-style-type: none"> http://dbpedia.org/page/Chien-Ming_Wang http://dbpedia.org/data/Chien-Ming_Wang.n3 http://dbpedia.org/data/Chien-Ming_Wang.nt http://dbpedia.org/data/Chien-Ming_Wang.xml http://dbpedia.org/data/Chien-Ming_Wang.json http://dbpedia.org/data/Chien-Ming_Wang.ttl http://dbpedia.org/data/Chien-Ming_Wang.jrdf http://dbpedia.org/data/Chien-Ming_Wang.jsod http://dbpedia.org/data/Chien-Ming_Wang.atom
http://www.w3.org/ns/prov#wasDerivedFrom	http://en.wikipedia.org/wiki/Chien-Ming_Wang?oldid=495288273
foaf:depiction	http://upload.wikimedia.org/wikipedia/commons/e/ed/MG_3905_Chien-Ming_Wang.jpg
foaf:givenName	Chien-Ming
foaf:isPrimaryTopicOf	http://en.wikipedia.org/wiki/Chien-Ming_Wang
foaf:name	Chien-Ming Wang
foaf:surname	Wang
is dbpedia-owl:wikiPageDisambiguates of	dbpedia:CMW
is dbpedia-owl:wikiPageRedirects of	<ul style="list-style-type: none"> dbpedia:Chien_Ming_Wang dbpedia:建民網 dbpedia:王建民 dbpedia:Wang_40 dbpedia:Wang_Chien-Ming dbpedia:Chin-Ming_Wang dbpedia:Chin_Ming_Wong dbpedia:Chin-Ming_Wong

Vocabulary Links

- ▶ Point from data to the definitions of the **vocabulary terms** that are used to represent the data, as well as from these definitions to the definitions of **related terms in other vocabularies**
- ▶ Vocabulary links make data self-descriptive and enable Linked Data applications to understand and integrate data across vocabularies
- ▶ Mixture of distinct terms from different RDF vocabularies that are used by a data source to publish data on the Web



Property

dbpedia-owl:abstract

dbpedia-owl:award

dbpedia-owl:battingSide

dbpedia-owl:birthDate

dbpedia-owl:birthPlace

dbpedia-owl:formerTeam

dbpedia-owl:number

dbpedia-owl:position

dbpedia-owl:statisticLabel

dbpedia-owl:statisticValue

dbpedia-owl:team

dbpedia-owl:throwingSide

dbpedia-owl:thumbnail

dbpedia-owl:wikiPageExternalLink

dbpprop:after

dbpprop:awards

dbpprop:bats

dbpprop:before

dbpprop:birthDate

dbpprop:birthPlace

dbpprop:br

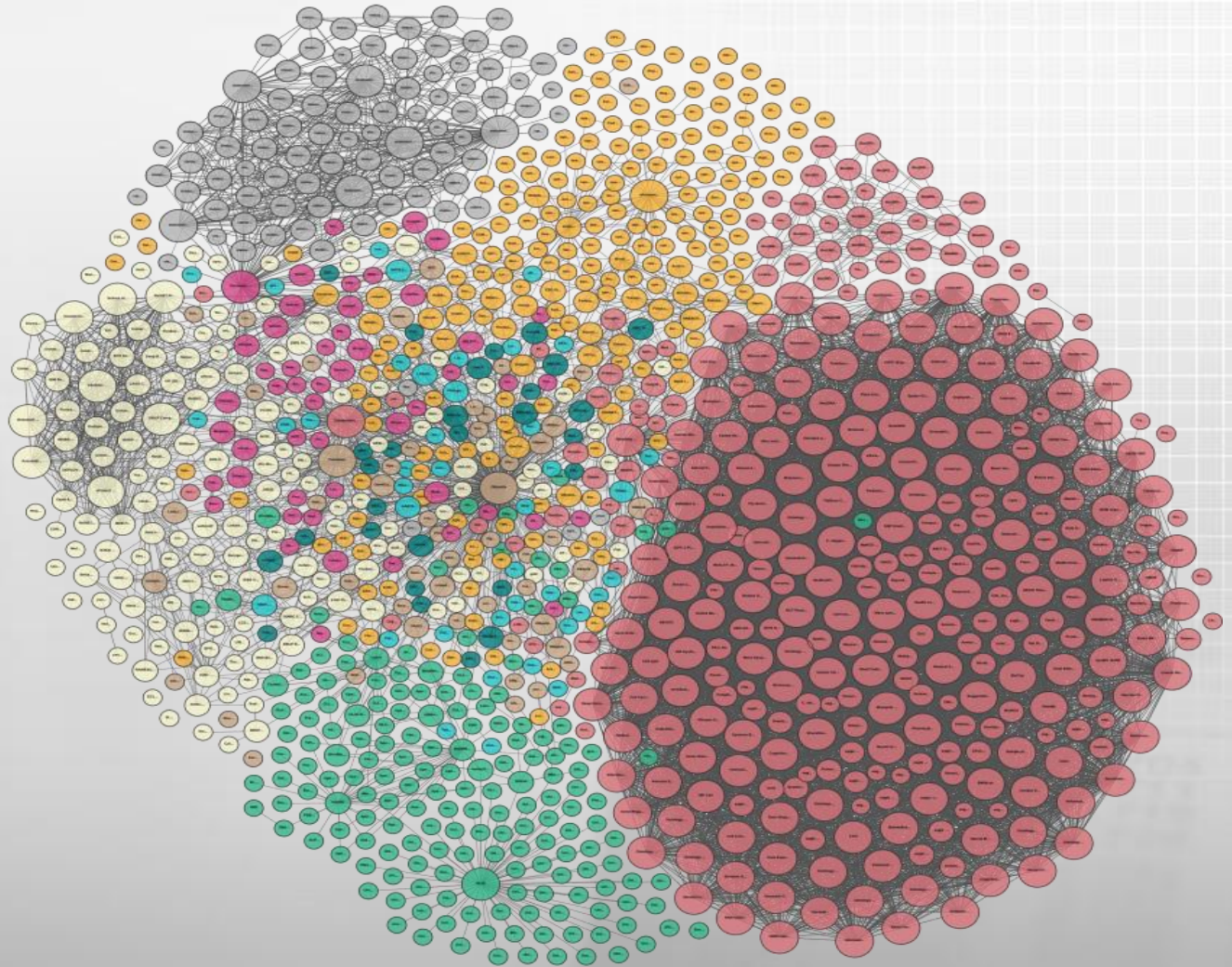
dbpprop:brm



鏈結資料發展現況與重要資料集

LOD Data Cloud as of Feb 2017

Legend



Cross-Domain & Geographic Data

▶ *DBpedia*

- ✿ A data set automatically extracted from publicly available Wikipedia dumps.

- ✿ <http://en.wikipedia.org/wiki/Birmingham> →
<http://dbpedia.org/resource/Birmingham>

▶ *Freebase, UMBEL, YAGO, and OpenCyc*

▶ *Geonames*

- ✿ An open-license geographical database that publishes Linked Data about 8 million locations

Media Data

▶ British Broadcasting Corporation (BBC)

✿ <http://www.bbc.co.uk/programmes>

✿ <http://www.bbc.co.uk/music>

✿ <http://bbc.openlinksw.com/>

▶ New York Times

✿ <http://data.nytimes.com/>

▶ Thomas Reuters: *Calais*

✿ <http://www.opencalais.com/>

Wang, Chien-Ming

<http://data.nytimes.com/N49334626954019256963>

[About This Page](#)

nyt:associated_article_count	64
nyt:first_use	2005-05-18
nyt:latest_use	2009-12-13
nyt:number_of_variants	1
nyt:search_api_query	http://api.nytimes.com/svc/search/v1/article?query=+nytd_per_facet%3A%5BWang%2C+Chien-Ming%5D&rank=newest&fields=abstract,author,body,byline,classifiers_facet,column_facet,date,day_of_week_facet,des_facet,desk_facet,fee,geo_facet,lead_paragraph,material_type_facet,multimedia,nytd_byline,nytd_des_facet,nytd_geo_facet,nytd_lead_paragraph,nytd_org_facet,nytd_per_facet,nytd_section_facet,nytd_title,nytd_works_mentioned_facet,org_facet,page_facet,per_facet,publication_day,publication_month,publication_year,section_page_facet,small_image_height,small_image_url,small_image_width,source_facet,title,url,word_count,works_mentioned_facet
nyt:topicPage	http://topics.nytimes.com/top/reference/timestopics/people/w/chienming_wang/index.html
owl:sameAs	http://data.nytimes.com/wang_chien_ming_per
owl:sameAs	http://dbpedia.org/resource/Chien-Ming_Wang
owl:sameAs	http://rdf.freebase.com/ns/en.chien-ming_wang
rdf:type	http://www.w3.org/2004/02/skos/core#Concept
skos:definition - en	<p>Chien-Ming Wang joined the Yankees with a total lack of fanfare in 2005, but by this year had become manager Joe Girardi's choice to pitch on Opening Day, a spot traditionally reserved for the ace of the staff.</p> <p>Wang's pitching and personal styles are equally removed from those of previous Yankees aces, like Roger Clemens (Wang's boyhood idol) . On the mound, Wang shows as much emotion as someone taking a nap. Instead of strikeouts, he produces grounders almost as steadily as a coach tapping them to infielders.</p>
skos:inScheme	http://data.nytimes.com/elements/nytd_per
skos:prefLabel - en	Wang, Chien-Ming

<http://data.nytimes.com/N49334626954019256963.rdf>

cc:attributionName	The New York Times Company
cc:attributionURL	http://data.nytimes.com/N49334626954019256963

Libraries and Education

▶ VIAF

✿ <http://viaf.org/>

▶ American LC (Subject Heading)

✿ <http://id.loc.gov/authorities/subjects/sh85042531>

▶ OpenLibrary

✿ <http://openlibrary.org/>

▶ DBLP

✿ <http://www.informatik.uni-trier.de/~ley/db/>







▶ Talis Aspire

✿ <http://www.talisaspire.com/>







VIAF

Uniform Title Links (147)

Preferred Forms

-   100 1 _ †a Rowling, J. K. †d 1965-
-   100 1 _ †a Rowling, Joanne K. †d 1
-   100 1 _ †a Rowling, J. K., †d 1965-

WORKS:

- Casual vacancy.
 -  EXPRESSIONS (3)
- Harry Potter   
- Harry Potter and the chamber of secrets  

```
<rdaGr2:dateOfBirth>1965-07-31</rdaGr2:dateOfBirth>
<owl:sameAs rdf:resource="http://d-nb.info/gnd/122340469"/>
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<owl:sameAs rdf:resource="http://www.idref.fr/050222937/id"/>
<owl:sameAs rdf:resource="http://data.bnf.fr/ark:/12148/cb135200136#foaf:Person"/>
<owl:sameAs rdf:resource="http://dbpedia.org/resource/J._K._Rowling"/>
</rdf:Description>
```

▼<!--







Controlled and alternate headings from various authority files

-->

```
<skos:Concept rdf:about="http://viaf.org/viaf/sourceID/NDL%7C00765052#skos:Concept">
  <skos:inScheme rdf:resource="http://viaf.org/authorityScheme/NDL"/>
  <skos:prefLabel>Rowling, J. K., 1965-</skos:prefLabel>
  <skos:altLabel>Rowling, Joanne Kathleen</skos:altLabel>
  <skos:altLabel>ローリング, J. K</skos:altLabel>
  <foaf:focus rdf:resource="http://viaf.org/viaf/116796842"/>
</skos:Concept>
```

-   100 1 _ †a Rowling, J. K.
-   100 1 _ †a Rowling, Joanne K
-   100 1 _ †a رولينج, ج. ك. †d 1965-
-   100 1 _ †a Rowling, J.K. †q (Joanne

EXPRESSIONS (17)

- Harry Potter and the philosopher's stone  
-  EXPRESSIONS (24)
- Harry Potter and the prisoner of Azkaban  
-  EXPRESSIONS (22)
- Harry Potter series 
- Serie Harry Potter 



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RECENTLY

HELP

OPEN
LIBRARY

One web page for every book.

Show only eBooks [More search options](#)

Search Results

101 hits ≡ [Relevance](#) | [Most Editions](#) | [First Published](#) | [Most Recent](#)

NEW!
[Search inside](#)
over 2 million books

And then there were none

Only show eBooks



And Then There Were None by Agatha Christie

38 editions (3 eBooks) - first published in 1940



And Then There Were None by Agatha Christie

2 editions - first published in 2001



And Then There Were None by G.D. Hinton

1 edition - first published in 2000



And Then There Were None by Jonathon Clemmer

1 edition - first published in 2004



And then there were none by Channa Horwitz

1 edition - first published in 1978



And then there were none: a history of the Le Cadre family in the West Indies by Anthony De Verteuil

1 edition - first published in 1992

Zoom In

Focus your results using these [filters](#)

EBOOK?

yes 24

no 77

AUTHOR

[Agatha Christie](#) 15

[Colleen McCullough](#) 3

[Walter Moyle](#) 2

[Anthony De Verteuil](#) 2

[Ronald E. Wade](#) 1

[more](#)

SUBJECTS

[Accessible book](#) 24

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[History](#) 9

[Fiction](#) 8

data.bnf.fr

(BnF) Bibliothèque nationale de France

rechercher dans data.bnf.fr

français

deutsch

About data.bnf.fr

Contact

This page in the data.bnf.fr Labs

data.bnf.fr

Reference information about authors, works and topics.

Welcome to data.bnf.fr.

La Bibliothèque nationale de France vous guide dans ses ressources en regroupant sur une même page toutes les informations issues de ses différents catalogues, ainsi que de sa bibliothèque numérique Gallica.

Le projet utilise les outils du [Web sémantique](#) et s'inscrit dans une démarche d'[ouverture des données](#). data.bnf.fr et Gallica ont reçu le [Stanford Prize for Innovation in Research Libraries \(SPIRL\)](#), et data.bnf.fr est lauréat du prix [Data intelligence awards](#).

LISTE
DES AUTEURS >>>

LISTE
DES ŒUVRES >>>

LISTE
DES THÈMES >>>

Most popular authors

Victor Hugo (1802-1885)

Guillaume Apollinaire (1880-1918)

Marie de Rabutin-Chantal Sévigné (marquise de, 1626-1696)

Alexandre Dumas (1802-1870)

Boris Vian (1920-1959)

Christine de Pisan (1363?-1431?)

Pierre de Saint-Cloud

Francis Poulenc (1899-1963)

Alexandre-Jean-Baptiste Parent-Duchâtelet (1790-1836)

Théophile Gautier (1811-1872)

Most popular works

Les trois mousquetaires

Les misérables

Traité de la police

Fables

Tableaux de la nature

Mille et une nuits

Critique de la faculté de juger

Économie et société

Études philosophiques

Le monde s'effondre

Born today (09-03-1910)



Samuel
Barber
(1910-1981)



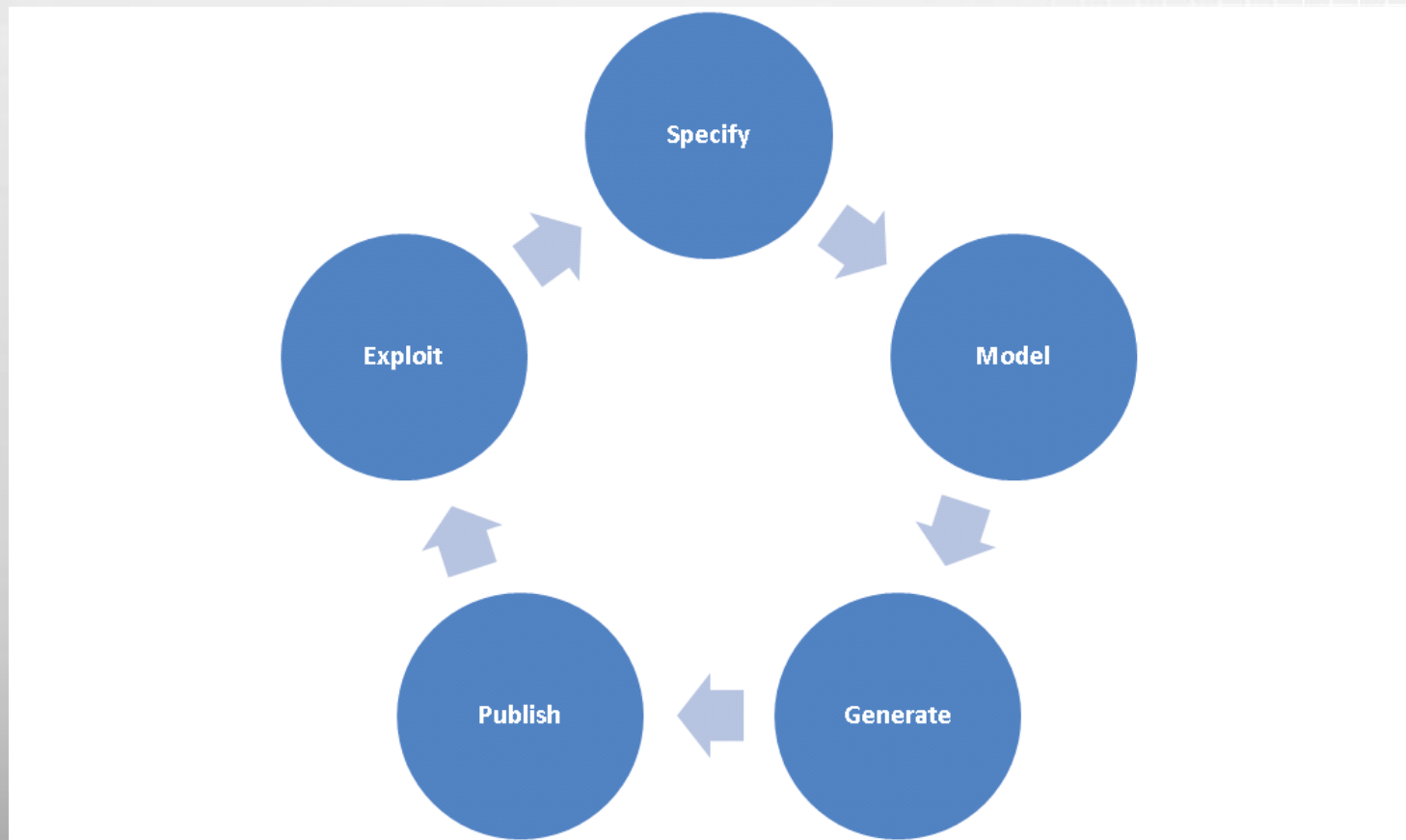
鏈結資料生命週期

Publishing Linked Data

▶ Enrich the Web of Data

- ✿ Library catalog
- ✿ Digital archives
- ✿ 「NBINet臺灣書目控制工作小組(權威建置)」 → 姓名權威、VIAF
- ✿ 《中文圖書分類法》、《中文主題詞表》
- ✿ 《全國新書資訊月刊》的書評、讀書人語，以及各種得獎紀錄
- ✿ ...

Linked Data Life Cycles



Implementation Plan

- ▶ Define your model
 - ✿ URI, resources, relationships
- ▶ **Select** or define your metadata terms
 - ✿ Terms should be defined using an RDF-based standard (RDF or OWL)
- ▶ **Select** or define any controlled vocabularies
 - ✿ Each list of terms will be described in an RDF-compatible format (such as SKOS)
- ▶ Create links from your data (terms) to related data (terms) on the Web

From Library Record to LOD –

Take a record

Field/attribute	Value
Record ID	54321
Title	Museum archives: an introduction
Author	Wythe, Deborah
Date	2004
LCSH	Museum archives
Media/GMD	Electronic
Content form	Text

From Library Record to LOD – Disaggregate to single statements

Record	Attribute	Value
54321	(has) title	Museum archives: an introduction
54321	(has) author	Wythe, Deborah
54321	(has) date	2004
54321	(has) LCSH	Museum archives
54321	(has) media type	Electronic
54321	(has) content form	Text

From Library Record to LOD – Replace record ID with URI

URI	Attribute	Value
mlx:54321	(has) title	Museum archives: an introduction
mlx:54321	(has) author	Wythe, Deborah
mlx:54321	(has) date	2004
mlx:54321	(has) LCSH	Museum archives
mlx:54321	(has) media type	Electronic
mlx:54321	(has) content form	Text

“mlx” = QName (xmlns) = shorthand for “http://MyLibraryX.com/”

From Library Record to LOD – Replace attributes with URIs

URI	URI	Value
mlx:54321	isbd:P1014	Museum archives: an introduction
mlx:54321	rdarole:author	Wythe, Deborah
mlx:54321	isbd:P1018	2004
mlx:54321	dct:subject	Museum archives
mlx:54321	isbd:P1003	Electronic
mlx:54321	isbd:P1001	Text

From Library Record to LOD – Replace values with URIs

subject	predicate	object
mlx:54321	isbd:P1014	“Museum archives: an introduction”
mlx:54321	rdarole:author	viaf:31899419/#Wythe,+Deborah
mlx:54321	isbd:P1018	“2004”
mlx:54321	dct:subject	lcsch:/sh85088707#concept
mlx:54321	isbd:P1003	isbdmt:T1002
mlx:54321	isbd:P1001	isbdcf:T1009

From Library Record to LOD – Publish triples (linked data)

mlx:54321 | isbd:P1014 | "Museum archives: an introduction"

mlx:54321 | [rdarole:author](#) | [viaf:31899419/#Wythe,+Deborah](#) →

mlx:54321 | isbd:P1018 | "2004"

mlx:54321 | [dct:subject](#) | [lcsch:/sh85088707#concept](#) →

mlx:54321 | isbd:P1003 | isbdmt:T1002 →

mlx:54321 | isbd:P1001 | isbdcf:T1009 →

→ isbdcf:T1009 | [skos:prefLabel](#) | "text"@en

→ isbdcf:T1009 | [skos:prefLabel](#) | "tekst"@hr

英國國家圖書館鏈結書目資料之 對映

本體名稱 (縮寫)	取用詞彙元素	資料描述目標
Bibliographic Ontology (bibo)	bibo:isbn10	ISBN10
	bibo:isbn13	ISBN13
Dublin Core	dcterms:contributor	貢獻者
	dcterms:description	附註
	dcterms:extent	稽核項
	dcterms:identifier	識別機構
	dcterms:issued	日期
	dcterms:language	語言
	dcterms:publisher	出版者
	dcterms:subject	學科主題
	dcterms:title	題名
	dcterms:type	類別
dcterms:creator	機構、會議名稱	
dcterms:isPartOf	來自另一個資訊實體	

英國國家圖書館鏈結書目資料之 對映 (Cont.)

International Standard Bibliographic Description (ISBD)	isbd:P1016	出版地
	isbd:P1008	版本
	isbd:P1038	資源的材質屬性或特殊區域
	isbd:P1073	作品之特徵、目的、範圍、類型、語言
SKOS	skos:Concept	表示為rdfs:type概念屬性
	skos:inScheme	描述權威資料來源URI
	skos:notation	表示杜威分類號
RDF Schema	rdfs:label	資源為文字描述
OWL	owl:Interval	表示時間區段
	owl:hasBeginning	
	owl:inXSDDateTime	
FOAF	foaf:Organization	表示實體為機構屬性
	foaf:Person	表示實體為個人屬性
the preliminary version of RDA	rda:placeOfPublication	做為出版地的空白節點
	rda:termsOfAvailability	表示價格，例：£18.95

德國國家圖書館鏈結書目資料之 對映

Bibliographic Ontology (bibo)	bibo:periodical	期刊
	bibo:series	叢書
	bibo:document	文件
	bibo:volume	卷冊
	bibo:coden	叢書或期刊的辨識碼
	bibo:issn	issn
	bibo:isbn	isbn
	bibo:shortTitle	題名縮寫
	bibo:contributorList	貢獻者列表
bibo:authorList	作者列表	

德國國家圖書館鏈結書目資料之 對映 (Cont.)

Dublin Core Terms

dcterms:format	格式 (例如: 文件)
dcterms:hasPart	描述的資源有附件時 (物理或邏輯性質)
dcterms:identifier	識別機構
dcterms:language	語言
dcterms:replaces	取代指定的資源
dcterms:subject	學科主題 (DDC)
dcterms:title	題名
dcterms:contributor	貢獻者
dcterms:isReplacedBy	被指定資源取代
dcterms:isFormatOf	被描述的資源的其他格式
dcterms:alternative	辨別題名及替代題名時

德國國家圖書館鏈結書目資料之 對映 (Cont.)

Dublin Core Elements	dc:publisher	出版者
International Standard Bibliographic Description (ISBD)	isbd:P0005	有另一個語言的標題時
	isbd:P1008	版本
	isbd:P1016	出版地
	isbd:P1018	出版日期 (年)
RDF Schema	rdfs:type	描述資源的類別屬性
	rdf:Seq	描述的資源為容器資源 (Container)
	rdf:_n	容器內的成員，或空白節點
OWL	owl:sameAs	有外部連結之URI
FOAF	foaf:isPrimaryTopicOf	表示資源之主題

Reusing Existing Terms

- ▶ The Dublin Core Metadata Initiative (DCMI) Metadata Terms vocabulary
 - ✿ defines general metadata attributes such as title, creator, date and subject.
- ▶ The Friend-of-a-Friend (FOAF) vocabulary
 - ✿ defines terms for describing persons, their activities and their relations to other people and objects.
- ▶ The Semantically-Interlinked Online Communities (SIOC)
 - ✿ designed for describing aspects of online community sites, such as users, posts and forums.
- ▶ The Description of a Project (DOAP) vocabulary
 - ✿ defines terms for describing software projects, particularly those that are Open Source.
- ▶ The Music Ontology
 - ✿ defines terms for describing various aspects related to music, such as artists, albums, tracks, performances and arrangements.
- ▶ The Programmes Ontology
 - ✿ defines terms for describing programmes such as TV and radio broadcasts.

Reusing Existing Terms (Cont.)

▶ The Good Relations Ontology

- ✿ defines terms for describing products, services and other aspects relevant to e-commerce applications.

▶ The Creative Commons (CC) schema

- ✿ defines terms for describing copyright licenses in RDF.

▶ The Bibliographic Ontology (BIBO)

- ✿ provides concepts and properties for describing citations and bibliographic references (i.e., quotes, books, articles, etc.).

▶ The OAI Object Reuse and Exchange vocabulary

- ✿ is used by various library and publication data sources to represent resource aggregations such as different editions of a document or its internal structure.

▶ The Review Vocabulary

- ✿ provides a vocabulary for representing reviews and ratings, as are often applied to products and services.

▶ The Basic Geo (WGS84) vocabulary

- ✿ defines terms such as lat and long for describing geographically-located things.

Schema.org

2a. schema.org types and properties

Not all web pages are about movies and people—in addition to the Movie and Person types described in section 1, schema.org describes a variety of other item types, each of which has its own set of properties that can be used to describe the item.

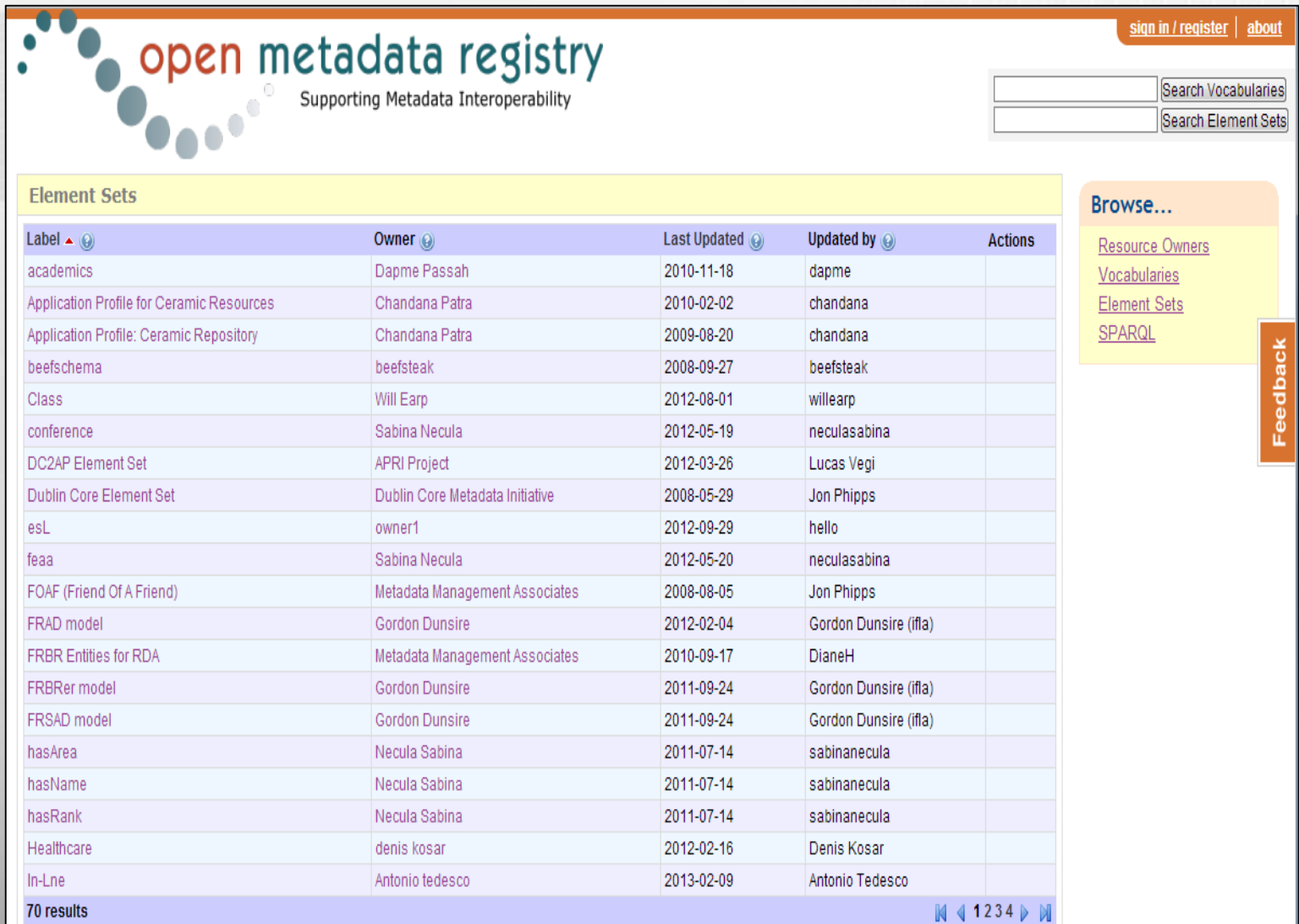
The broadest item type is Thing, which has four properties: `name`, `description`, `url`, and `image`. More specific types share properties with broader types. For example, a Place is a more specific type of Thing, and a LocalBusiness is a more specific type of Place. More specific items inherit the properties of their parent. (Actually, a LocalBusiness is a more specific type of Place *and* a more specific type of Organization, so it inherits properties from both parent types.)

Here's a set of commonly used item types:

- Creative works: CreativeWork, Book, Movie, MusicRecording, Recipe, TVSeries ...
- Embedded non-text objects: AudioObject, ImageObject, VideoObject
- Event
- Organization
- Person
- Place, LocalBusiness, Restaurant ...
- Product, Offer, AggregateOffer
- Review, AggregateRating

You can also see a full list of all item types, listed on a single page.

Open Metadata Registry



The screenshot displays the Open Metadata Registry website. At the top left is the logo with the text "open metadata registry" and "Supporting Metadata Interoperability". To the right are links for "sign in / register" and "about". Below these are two search input fields: "Search Vocabularies" and "Search Element Sets". The main content area is titled "Element Sets" and contains a table with the following columns: Label, Owner, Last Updated, Updated by, and Actions. The table lists 20 different element sets, such as "academics", "Application Profile for Ceramic Resources", and "beefschema". On the right side, there is a "Browse..." section with links for "Resource Owners", "Vocabularies", "Element Sets", and "SPARQL". A vertical "Feedback" button is located on the far right. At the bottom of the table, it indicates "70 results" and includes pagination controls.

open metadata registry
Supporting Metadata Interoperability

sign in / register | about

Search Vocabularies
Search Element Sets

Element Sets

Label	Owner	Last Updated	Updated by	Actions
academics	Dapme Passah	2010-11-18	dapme	
Application Profile for Ceramic Resources	Chandana Patra	2010-02-02	chandana	
Application Profile: Ceramic Repository	Chandana Patra	2009-08-20	chandana	
beefschema	beefsteak	2008-09-27	beefsteak	
Class	Will Earp	2012-08-01	willearp	
conference	Sabina Necula	2012-05-19	neculasabina	
DC2AP Element Set	APRI Project	2012-03-26	Lucas Vegi	
Dublin Core Element Set	Dublin Core Metadata Initiative	2008-05-29	Jon Phipps	
esL	owner1	2012-09-29	hello	
feaa	Sabina Necula	2012-05-20	neculasabina	
FOAF (Friend Of A Friend)	Metadata Management Associates	2008-08-05	Jon Phipps	
FRAD model	Gordon Dunsire	2012-02-04	Gordon Dunsire (ifla)	
FRBR Entities for RDA	Metadata Management Associates	2010-09-17	DianeH	
FRBRer model	Gordon Dunsire	2011-09-24	Gordon Dunsire (ifla)	
FRSAD model	Gordon Dunsire	2011-09-24	Gordon Dunsire (ifla)	
hasArea	Necula Sabina	2011-07-14	sabinanecula	
hasName	Necula Sabina	2011-07-14	sabinanecula	
hasRank	Necula Sabina	2011-07-14	sabinanecula	
Healthcare	denis kosar	2012-02-16	Denis Kosar	
In-Lne	Antonio tedesco	2013-02-09	Antonio Tedesco	

70 results

Browse...
[Resource Owners](#)
[Vocabularies](#)
[Element Sets](#)
[SPARQL](#)

Feedback

CKAN Registry



the Data Hub — The easy way to get, use and share data

[Search](#) [Groups](#) [About](#)

[Login](#) [Register](#)

Find datasets

Welcome to the Data Hub!

Find data



Library

the Data Hub contains **5222 datasets** that you can browse, learn about and download.

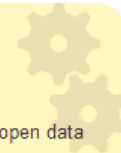
Share data



Add your own datasets to share them with others and to find other people interested in your data.

[Sign up »](#)

Collaborate



Find out more about working with open data by exploring these resources:

- [GetTheData.org](#)
- [DataPatterns.org](#)
- [Open Data Handbook](#)

Who else is here?

Canada

Datasets for <http://www.datadotgc.ca/>. DataDotGC, which launched, in February 2010, is a Canadian, citizen-led effort to promote open data and help share data that has already been...

Canada has **521 datasets**.

Economics Datasets

Group for Economics data especially that which is open data. This can be any kind of data related to economics from development to finance, and micro to macro. We run an open group policy...

Economics Datasets has **151 datasets**.

Linking Open Data Cloud

This group catalogs data sets that are available on the Web as Linked Data and contain data links pointing at other Linked Data sets. The descriptions of the data sets in this group are...

Linking Open Data Cloud has **338 datasets**.

OpenSpending

Datasets to be imported to the OpenSpending.org site. Packages listed here will automatically be available for selection in the OpenSpending web importer.

OpenSpending has **132 datasets**.

bioportal

This group reflects the collection of datasets (ontologies) in BioPortal.

bioportal has **244 datasets**.

Linguistic Resources (partly open)

Linguistic Resources (partly open) has **91 datasets**.

Sindice.com

[About](#)[Search](#)[Submit Your Data](#)[Jobs](#)[Support](#)[Dev](#)

web01 Version: 2.1.17

Sindice - Data Web Services

Millions of websites mark up their content using RDF, Microformats, Microdata, Schema.org, RDFa, Opengraph and more. Sindice helps you find, understand and integrate with their content.

[Start here](#) →[Search](#)[Sparql](#)[Submit](#)[Inspector Tool](#)[Analytics](#)Search: term property advanced **SIG₂MA**Examples: [tim berners lee](#) (by [URI](#)), [michele, deri](#)

Searching on about 708.26 million documents.

LATEST DATA

2013/Nov/22 11:30:15 [23 triples](#) <http://www.playapk.org...download/20129>
2013/Nov/22 11:26:46 [4 triples](#) <http://www.poleonplastering.com>
2013/Nov/22 11:23:03 [4 triples](#) <http://www.info@nanaimopcrepairs.com>
2013/Nov/22 11:19:27 [8 triples](#) <http://tradisionall.obat-acemaxss.com...>

SINDICE IS HIRING

Excited by the Web of Data? Sindice is [hiring](#) ! [Apply with LinkedIn](#)

HIGHLIGHTS

Anything to Triples

[Anything to Triples](#)

Introduction

any23Anything to Triples. New version - **Now available**

Anything To Triples (any23) is a library and web service that allows you to query and retrieve data in RDF format from a variety of Web document following input formats:

DEVELOPERS: START CONSUMING THE WEB OF DATA

SINDICE TWEET

[Follow us](#)

02-07-2010 at 10:15am RT@mhausenblas:
<http://code.google.com/p/sindice4j/> #Java #library providing a simple interface for querying the Semantic Web index #sindice

SINDICE BLOG

[Feed](#)

[How we ingested 100M semantic documents in a day \(And where do they come from\)](#) JUL 18, 2012

How to get some unexpected big data satisfaction First: build an infrastructure to process millions of document documents. ([More](#) →)

[Updates on the Sindice SPARQL Endpoint](#) MAY 18, 2012

SPARQL is really hard to beat as a tool to experiment with data integration across datasets. ([More](#) →)

[Sig.ma Enterprise Edition \(EE\) available](#) AUG 24, 2011

The original Sig.ma The <http://sig.ma> service was created as a demonstration of live, on the fly Web of Data mashup. ([More](#) →)

[Sindice, its startup company and 12 billion+ live triples SPARQL endpoint](#) JUN 14, 2011


Today we're happy to share two big news: 1) We're launching today our startup company set to drive commercialization of Sindice... ([More](#) →)



[Sindice reindexed: find your datasets \(much\)](#) MAY 31, 2011

Sameas.org

<sameAs> interlinking the Web of Data

The Web of Data has many equivalent URIs.
This service helps you to find co-references
between different data sets.
Enter a known URI, or use Sindice to search first.

<sameAs> 

Why not try searching for the string "[Edinburgh](#)", (which we will look up for you on [Sindice](#) first)
or finding other equivalent identifiers for <http://dbpedia.org/resource/Edinburgh>?

If you want to query only for data that has come from [Freebase](#), then consult the [Freebase sameAs store](#).

The [British Library](#) has provided data for their [British Library store](#), and there is a world library store at the [World Library store](#).

Or you can look at one of the [sub-stores](#).

Now over 150 Million URIs!

Currently serving over 150 406 368 URIs which relate to over 53 054 359 apparently distinct entities

The URI colouring is the official colour of the canonical URI, as provided by CoLD - Color the Linked Data Web!

Linked Data SE – Falcons

Falcons

Object [Concept](#) [Ontology](#) [Document](#)

Roger Federer

Search Objects

Type

Any type

agent
animate thing
athlete
being
cause
champion
concept
contestant
entity100001740
jock
living people
person
physical entity
physical object
player
rival
social entity
spatial thing
tennis player
unit

Objects 1 - 5 of 100 for your search **Roger Federer**

罗杰·费德勒 - [TennisPlayersAtThe2000SummerOlympics](#), [PeopleFromBasel\(city\)](#), [champion](#), [champion](#), [TennisPlayersAtThe2004Sum](#)

[SwissTennisPlayers](#), [TennisPlayer](#), [tennis player](#)

- type: [champion](#)
- label: **Roger Federer**
- page: [Roger_Federer](#)
- comment:
- depiction: [Roger_Federer_\(26_June_2009,_Wimbledon\)_2_new.jpg](#)
- subject: [Category:Australian_Open_\(tennis\)_champions](#)
- thumbnail: [200px-Roger_Federer_\(26_June_2009,_Wimbledon\)_2_new.jpg](#)
- name: **Roger Federer**
- birthDate: 1981-08-08
- birthPlace: [瑞士](#)

http://dbpedia.org/resource/Roger_Federer

Roger Federer - Agent

- type: [Agent](#)
- knows: [twitter](#)
- name: **Roger Federer**
- page: [FedererNews](#)
- homepage: <http://www.rogerfederer.com/>
- depiction: [12_normal.jpg](#)
- isDefinedBy: [FedererNews](#)
- knows: [centre_court](#)
- knows: [CNN](#)
- knows: [kingfederex](#)

<http://twitter2foaf.appspot.com/id/FedererNews>

FedererNews

- define: **Roger Federer**

<http://twitter2foaf.appspot.com/data/FedererNews>

Photos for DBpedia.org resource [Roger_Federer](#) - Document

- type: [Document](#)
- label: [Photos for DBpedia.org resource **Roger_Federer**](#)
- primary topic: [罗杰·费德勒](#)
- maker: <http://www4.wiwiss.fu-berlin.de/flickrwrapp/>
- License: [terms.gne](#)

http://www4.wiwiss.fu-berlin.de/flickrwrapp/photos/Roger_Federer

Federer, Roger - Concept

- type: [Concept](#)
- is primary topic of: [73418278779906874903.rdf](#)
- sameAs: [罗杰·费德勒](#)
- is attributionURL of: [73418278779906874903.rdf](#)

Linked Data Browser -- Sig.Ma



SEMANTIC INFORMATION
MASHUP

[Help](#)

[About](#)

[Support](#)

Version: 2.0.8

Spiderman

[Add More Info](#)

[Start New](#)

[Order](#)

[Options](#)

[Use it](#)

spiderman

picture:



[18]



[18]



[18]



[18]



[18]

given name: spiderman [1]

family name: spiderman [1]

comment: Spiderman 3 [2,4]

Spiderman [3,5,9]

Sosyal Medya ve Kişisel Pazarlama Üzerine [13]

Spider-Man is a fictional Marvel Comics superhero. The character was created by writer-editor Stan Lee and writer-artist Steve Ditko. He first appeared in *Amazing Fantasy* #15 (Aug. 1962). Lee and Ditko conceived of the character as an orphan being raised by his Aunt May and Uncle Ben, and as a teenager, having to deal with the normal struggles of adolescence in addition to those of a costumed crime fighter. Spider-Man's creators gave him super strength and agility, the ability to cling to most surfaces, shoot spider-webs using devices of his own invention which he called web-shooters, and react to danger quickly with his spider-sense, enabling him to combat his foes. When Spider-Man first appeared in the early 1960s, teenagers in superhero comic books were usually relegated to the role of sidekick to the protagonist. The Spider-Man series broke ground by featuring Peter Parker, a teenage high school student to whose self-obsessions with rejection, inadequacy, and loneliness young readers could relate. Unlike previous teen heroes such as Bucky and Robin, Spider-Man did not benefit from being the protégé of any adult mentors like Captain America and Batman, and thus had to learn for himself that with great power there must also come great responsibility. A line included in a text box in the final panel of the first Spider-Man story, but later retroactively attributed to his guardian, the late Uncle Ben. Marvel has featured Spider-Man in several comic book series, the first and longest-lasting of which is titled *The Amazing Spider-Man*. Over the years, the Peter Parker character has developed from shy, high school student to troubled but outgoing college student, to married high school teacher to, in

Sources (20)

Approved (0)

Rejected (0)

1 [SPIDERMAN](#) 6 facts | 2010-12-03

[indice](#) <http://spidermanquat.blogspot.com/2008/12...>

2 [Spiderman 3](#) 11 facts | 2010-07-15

[indice](#) <http://it.bestshopping.com/prezzi/Spiderm...>

3 [Spiderman](#) 11 facts | 2010-07-15

[indice](#) <http://it.bestshopping.com/prezzi/Spiderm...>

4 [Spiderman 3](#) 11 facts | 2010-07-15

[indice](#) <http://it.bestshopping.com/prezzi/Spiderm...>

5 [Spiderman](#) 11 facts | 2010-07-14

[indice](#) <http://it.bestshopping.com/prezzi/Spiderm...>

6 [Untitled document](#) 2 facts | 2013-03-20

[OPENLINK](#) <http://sw.opencyc.org/2008/06/10/concept/...>

7 [Spiderman](#) 5 facts | 2013-03-20

[OPENLINK](#) <http://rdf.basekb.com/ns/m.0vkbxi>

8 [Spiderman](#) 6 facts | 2013-03-20

[OPENLINK](#) <http://rdf.basekb.com/ns/m.0zv9f5>

9 [Spiderman](#) 11 facts | 2010-07-15

[indice](#) <http://it.bestshopping.com/prezzi/Spiderm...>

10 [Spiderman](#) 32 facts | 2009-09-13

[indice](#) <http://www.mloknitting.com/?tag=spiderman>

11 [spiderman](#) 7 facts | 2012-10-10

[indice](#) <http://www.hisboycanswim.com/tag/spiderm...>

< 1 [2] >

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4. [Lessons from the Perry Como Sundae ...](#) by [drewp](#)
5. [Holding On for Dear Life | The Moth](#) by [drewp](#)
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7. [A Mexican Mormon Christmas | The Mo...](#) by [drewp](#)
8. [Catherine Smyka StorySLAM Favorites...](#) by [drewp](#)
9. [Lisa Schuldt StorySLAM Favorites | ...](#) by [drewp](#)
10. [A Dish Best Served Cold | The Moth](#) by [drewp](#)

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[food-served-evenings](#) [food-served-lunchtimes](#) [france](#) [free-geodata](#) [fullers](#) [good-beer-guide](#)
[good-beer-guide-2007](#) [hotel](#) [hotels](#) [iswc2007](#) [japanese-food](#) [london](#) [luxury](#) [milton-keynes](#) [movie](#)
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[JohnGoodwin](#) [joney](#) [jovtravels](#) [jumpwei163com](#) [Kake](#) [Kendra](#) [kidehen](#) [KjetilKjernsmo](#) [kjwa](#) [Icdscreen](#) [lianglili](#) [louiedeparis](#) [Louise](#)
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[Snowaddict](#) [sofia](#) [Stefania](#) [stoermer](#) [stradechesi](#) [swebb](#) [teddypolar](#) [testing123](#) [thekohser](#) [tom](#) [travelbaba](#) [travelboy](#)
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Swoogle

- ▶ Creator: eBiquity (University of Maryland, Baltimore County)
- ▶ Three search modes:
 - ✱ **ontology** searches the full text of ontology documents
 - ✱ **data** searches actual instance data
 - ✱ **term** searches only terms that have been defined as classes or properties

vocab.org

- ▶ Creator: Ian Davis
- ▶ The terms at vocab.org do not serve a particular application. For the most part, they are generalized vocabularies, each covering a narrow area.
- ▶ The vocab.org version of FRBR is currently the most used vocabulary for expressing FRBR in linked data, in part because it was the first expression of FRBR in RDF, but also because it is a relatively simple and therefore easy to understand implementation.

Subject List and Thesauri

▶ Non-library and General

- ✿ [DBpedia Ontology](#)
- ✿ [Freebase Types](#)
- ✿ [New York Times Subjects](#)
- ✿ Artificial Intelligence:
OpenCyc and UMBEL
 - ✓ [OpenCyc](#)
 - ✓ [UMBEL](#)

▶ Library-specific Subject Heading

- ✿ [Library of Congress Subject Headings \(LCSH\)](#)
- ✿ [National Agriculture Library \(NAL\)](#)
- ✿ [Thesaurus for Graphic Materials \(TGM\)](#)

Subject List and Thesauri (Cont.)

▶ Library Classification Schemes

- ✿ [Dewey Summaries](#)
- ✿ [Universal Decimal Classification \(UDC\)](#)

▶ Non-library-based List

- ✿ [Geoname](#)
- ✿ [BBC Wildlife Ontology](#)
- ✿ [Dublin Core Type Vocabulary](#)

▶ Library-based Lists

- ✿ [MARC Countries](#)
- ✿ [MARC Geographic Areas](#)
- ✿ [MARC Languages](#)
- ✿ [MARC Relators](#)
- ✿ [RDA Vocabularies](#)

▶ Name Authorities

- ✿ [Virtual International Authority File \(VIAF\)](#)
- ✿ [New York Times People and Organizations](#)

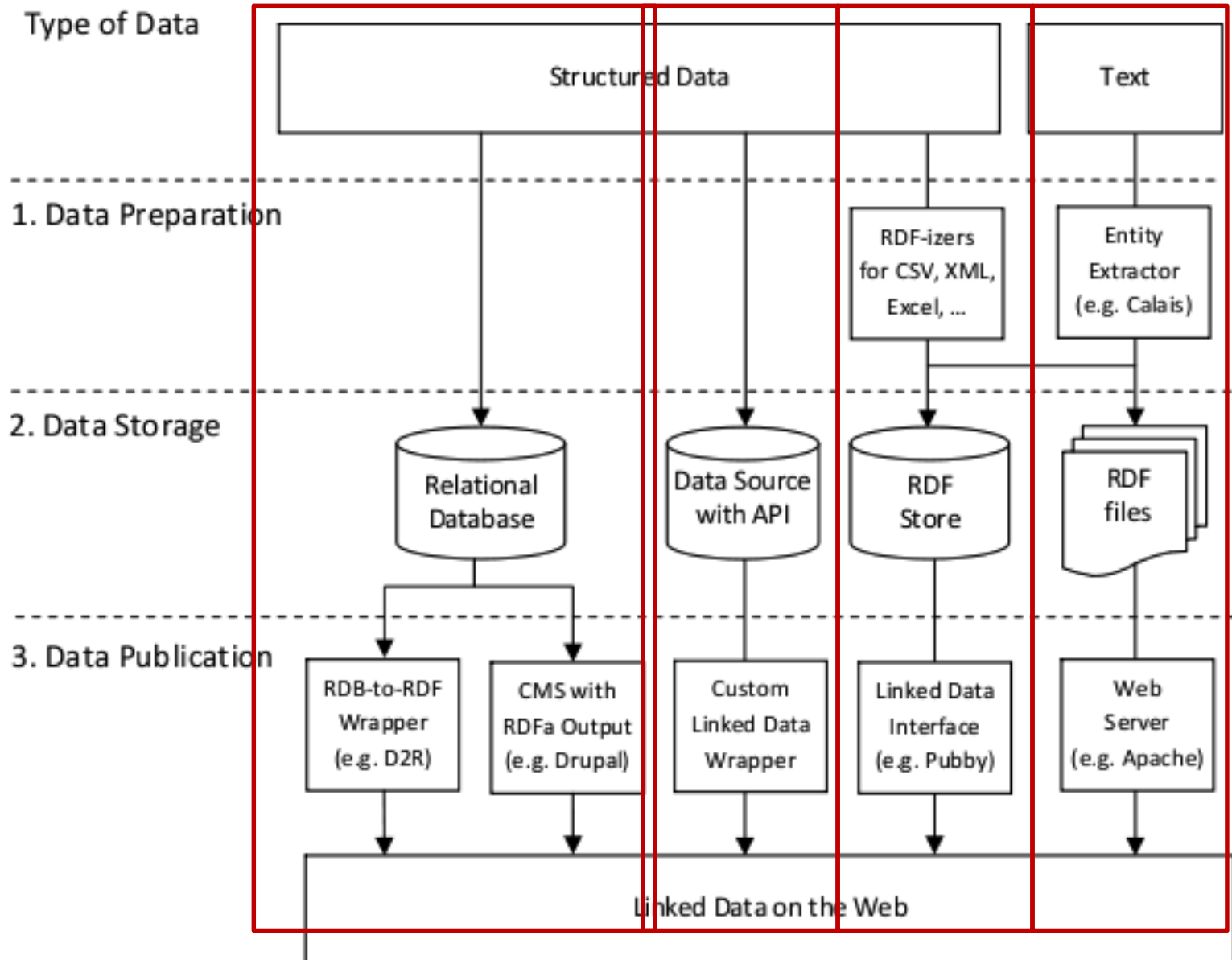
Subject List and Thesauri (Cont.)

▶ Preservation

✿ LC Preservation Level Role and Preservation Events

- ✓ [Library of Congress Preservation Events](#)
- ✓ [Library of Congress Preservation Level Role](#)

Patterns in a Nutshell





案例一：國家圖書館鏈結資料服務

<http://catld.ncl.edu.tw/>

Datasets and Formats

▶ ISO 2709

- ✿ Chinese Name Authority Control(中文人名權威控制): 262,668 records
- ✿ List of Chinese Subject Terms(中文主題詞表): 19,317 records

▶ SQL (bulk loading) and EXCEL (incremental)

- ✿ New Classification Scheme For Chinese Libraries, 2007 ed.(中文圖書分類法2007版): 23,500 records
- ✿ National Central Library Online Catalog(國家圖書館館藏書目資料): 0.7 million records (out of 4 million holding data of NCL)

URI Design

Data source	ID Field	URI
Name authority	System No.	http://catld.ncl.edu.tw/authority/AC{System No.}
Subject terms	Serial No.	http://catld.ncl.edu.tw/subject/SH{Serial No.}
Classification scheme	Classification No.	http://catld.ncl.edu.tw/classification/{Classification No.}
NCL Catalog	System No.	http://catld.ncl.edu.tw/book/{System No.}

Metadata Terms – Name Authority

Field	MARC	SKOS	MADS
標目 - 姓 / 名 Heading- Personal Name	100\$a	skos:prefLabel	mads:FullNameElement
生卒年，朝代 Dates associated with a name	100\$d		mads:DateNameElement
學科領域 Titles and other words associated with a name 372 \$a- Field of Activity	100\$c	skos:scopeNote	mads:TermsOfAddressNameElement
性別 Gender	375\$a		mads:gender

Metadata Terms – Name Authority (Cont.)

Field	MARC	SKOS	MADS
變異標目 - 姓 / 名 See From Tracing- Personal Name	400\$a	skos:altLabel	mads:hasVariant mads: PersonalName
連接 / 參見標目 700 - Established Heading Linking Entry-Personal Name 500 - See Also From Tracing- Personal Name	700/ 500\$a	skos:related	mads:hasRelatedAuthority mads:PersonalName
學歷 / 勳獎 373 - Associated Group	373\$a		mads:has Affiliation mads:Affiliation
參考資料 / 館藏資料 670 - Source Data Found (R)	670\$a		mads:hasSource mads:source

Metadata Terms – Subject Terms

Field	SKOS	MADS
主要標目 Subject terms	skos:prefLabel	mads: authoritativeLabel
原文 English Subject terms	skos:altLabel	mads:hasVariant mads:variantLabel
參考類號 Reference Classification scheme	skos:notation	
參見 Related term (see also)	skos:related	mads:hasRelatedAuthority
用 use (see)	skos:prefLabel	mads: authoritativeLabel
不用 used for (see from)	skos:altLabel	mads:hasVariant mads:variantLabel

Metadata Terms – New Classification Scheme

Field	skos	mads
類號 Classification scheme	skos:notation	mads:code
類目 Class entry	skos:prefLabel	mads:authoritativeLabel
原文 English class entry	skos:altLabel	mads:hasVariant mads:variantLabel
上層類目 Upper class entry	skos:broader	mads:hasBroaderAuthority
下層類目 Lower class entry	skos:narrower	mads:hasNarrowerAuthority

Metadata Terms – NCL Catalog

Field	bibo	dc
書名Title	dcterms:title	dc:title
ISBN	bibo:isbn	dc:identifier
作者Author	bibo:authorList	dc:creator
出版者Publisher	dcterms:publisher	dc:publisher
分類號Classification Scheme	skos:notation	skos:notation
標題Subject terms	dcterms:subject	dc:subject

NCL Linked Data Service – Home Page

國家圖書館鏈結資源

書目搜尋

主題編目資源查詢

主題編目資源搜尋

使用查詢功能時，請鍵入完整或部分的查詢詞，可以使用雙引號「"」或配合布林邏輯運算符號AND、OR或NOT使用。

系統功能(請先登入)

請選擇查詢類型

所有(不分類型)

分類法2007年版

中文圖書主題詞表

人名權威

請輸入查詢詞：

查詢

本網站由國家圖書館與國立師範大學圖書館系統資訊組共同合作建置與維護，如有任何疑問和建議，歡迎與我們連絡。

A user can search New Classification Scheme, Subject Terms, and/or Name Authority Control

NCL Linked Data Service – Result List (Subject Terms)

國家圖書館鏈結資源

書目搜尋

主題編目資源搜尋

系統功能(請先登入)

條約 一共搜尋到：68筆結果。

序號	識別號	主標目	類型	URI
1	sh0001645	天津條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0001645
2	sh0003928	同盟條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0003928
3	sh0004464	江華條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0004464
4	sh0005630	辛丑條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0005630
5	sh0007284	南京條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0007284
6	sh0008162	軍事條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0008162
7	sh0009443	租稅條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0009443
8	sh0009870	馬關係約	主題詞表	http://catld.ncl.edu.tw/subject/sh0009870
9	sh0010492	國際條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0010492
10	sh0011102	條約法	主題詞表	http://catld.ncl.edu.tw/subject/sh0011102
11	sh0011103	條約論	主題詞表	http://catld.ncl.edu.tw/subject/sh0011103
12	sh0013447	媾和條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0013447
13	sh0000959	不平等條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0000959
14	sh0011101	條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0011101
15	sh0001195	互不侵犯條約	主題詞表	http://catld.ncl.edu.tw/subject/sh0001195
16	sh0018655	麵條	主題詞表	http://catld.ncl.edu.tw/subject/sh0018655
17	sh0007345	契約	主題詞表	http://catld.ncl.edu.tw/subject/sh0007345
18	sh0013624	新約	主題詞表	http://catld.ncl.edu.tw/subject/sh0013624
19	sh0017992	舊約	主題詞表	http://catld.ncl.edu.tw/subject/sh0017992
20	sh0000158	二維條碼	主題詞表	http://catld.ncl.edu.tw/subject/sh0000158

[更多結果>>](#)

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NCL Linked Data Service – Subject Term

國家圖書館鏈結資源

主題詞表

權威控制

系統功能(請先登入)

條約

分類法七版： 579.7

分類法八版： 579.7

分類法2007版： 579.7

原文：

註釋：<http://catld.ncl.edu.tw/subject/sh0011101>

用：

不用：

參見：

Term Description

檔案下載

SKOS-RDF/XML

SKOS-JSON

SKOS-N-Triples

SKOS-TURTLE

MADS-RDF/XML

MADS-JSON

MADS-N-Triples

MADS-TURTLE

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NCL Linked Data Service – Classification Scheme

國家圖書館鏈結資源

主題詞表

國際法 579

Broader

權威控制

--> 579.7 條約論/Treaties

Current

系統功能(請先登入)

檔案下載

SKOS-RDF/XML

SKOS-JSON

SKOS-N-Triples

SKOS-TURTLE

MADS-RDF/XML

MADS-JSON

MADS-N-Triples

MADS-TURTLE

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NCL Linked Data Service – MADS RDF/XML

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    <madsrdf:elementValue>Shichang,</madsrdf:elementValue>
  </madsrdf:FullNameElement>
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    </madsrdf:Affiliation>
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    </madsrdf:Affiliation>
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```


王振鵠老師的資料

主要名稱	王振鵠
其他名稱	Wang, Chen-ku.; Wang, Zhen-gu.; Wang, Zhenhu.; Wang, jhen-gu.;
生-卒年	19240718-
專長領域	圖書館學
生平	王振鵠 - 維基百科, 自由的百科全书, http://zh.wikipedia.org/wiki/王振鵠
學經歷	<p>中國圖書館學會「圖書館事業貢獻獎」, 1986- 中國圖書館學會圖書館自動化作業規劃委員會召集人, 1962- 中國圖書館學會常務理事, 1962- 中國圖書館學會常務監事, 1962- 中國圖書館學會理事長, 1991-1995 中國大學中文系畢業, -1948 中國文化大學史學研究所兼任教授, - 中華文化復興推行委員會學術出版促進委員會委員, 1981- 國立中央圖書館(第六任)館長, 19770331-19890801 國立政治大學任教, 1989- 國立臺灣大學兼任教授, - 國立臺灣師範大學圖書館館長, 1970-1977 國立臺灣師範大學社會教育學系名譽教授, - 國立臺灣師範大學社會教育學系講師, 副教授, 教授, 兼任教授, 系主任, 1960-1977 漢學研究中心主任, 19870505-19890801 漢學研究資料及服務中心(後改稱漢學研究中心)主任, 19810601-19870505 羅馬教廷「聖思維爵士勳位勳章」 梵諦岡, 198703- 美國俄亥俄大學名譽法學博士, 1988- 美國范德比大學(Vanderbilt University)畢保德教育學院(George Peabody College)圖書館學碩士學位畢業, -1959 美國華人圖書館員協會(CALA)「1987年傑出服務獎」, 1987- 美國資訊科學學會臺灣分會第三屆會長, 1973-1974 考試院典試委員, 1972- 臺灣省立師範學院圖書館出版組主任, - 臺灣省立師範學院圖書館館長, 1955-1959 行政院三等功績獎章, 1987- 行政院文化建設委員會語文圖書委員會召集人, 1982- 行政院文化建設委員會語文圖書委員會委員, 1982- 行政院最優人員榮譽, 1983- 輔仁大學兼任教授, -</p>
資料來源	<p>中國名人傳記中心編輯委員會編 中華民國現代名人錄, 臺北市: 中國名人傳記中心, 民80:面79. (BRN:100037601); ; 中國圖書館學會出版委員會主編 圖書館人物誌, 臺北市: 中國圖書館學會, 民92.-v.1面157-165. (BRN:101510102); ;</p>
VIAF	13796192
LC 美國國家圖書館	n86110280

NCL Linked Data Service – Catalog (Result List)

國家圖書館鏈結資源

書目搜尋

主題編目資源搜尋

系統功能(請先登入)

書目查詢

使用查詢功能時，請鍵入完整或部分的查詢詞，可以使用雙引號「"」或配合布林邏輯運算符號AND、OR或NOT使用。

請輸入查詢詞：

查詢

魯迅藏外國版畫全集 =The Complete foreign prints in the collection of Lu Xun	937	9787535667946
艾神 =God Ai	574.1	9789881644213
金秀賢的全盛時代 =Kim Saa Hyun	783.28	9789869127806
現在未來式 =Now on the run	857.7	9789869014021
魅力城市 :七大世界創意之都的智慧與人文力量 = The allure of cities : the wisdom and humanity of seven UNESCO creative cities	719	9789571361055
約會小折紙 =Date a origami	947.41	9789863259558
大心印 :蓮生活佛講六祖壇經 = The great mind seal : an annotated platform sutra of the sixth patriarch by living Buddha Lian-sheng	226.62	9789866564819 (全套 :)
楊上峰作品創作理念 :屈/從的張力 = Sculpture by Yang, Shang-feng 2012	930.233	9789868182868
New GRE字彙聖經 =New GRE vocabulary bible	805.1896	9789869078702
勇者遭到背叛之後 =After that of the betrayed hero	861.57	9789863313441
英雄之心 =Hero hearts	947.41	9789863313915
夫妻甜蜜物語精選集 :新婚夫妻的性愛寶典 = The one and only step up love story sweet collection	947.41	9789863109198
再生的思考昇華 =Re. union	861.57	9789863109921

NCL Linked Data Service – Bibliographic Information

國家圖書館鏈結資源

主題詞表

權威控制

系統功能(請先登入)

書名	魯迅藏外國版畫全集 =The Complete foreign prints in the collection of Lu Xun
作者	
ISBN	9787535667946
出版項	長沙市:湖南美術出版社,2014.02
標題	版畫
分類	937



案例二：電影鏈結資料網

Overview

- ▶ Demo how to act as an linked data consumer by integrating information from several linked-data producers, including DBpedia, LinkedMDB, DBtune, and British Library
- ▶ The system is established by Drupal
- ▶ Evaluated by System Usability Scale (SUS) – 72

Data Sets

- ▶ Local DB – content from [IMDb](#)
 - ✿ Films, Directors, Actors
- ▶ Linked Data Sources
 - ✿ [Dbpedia](#) – core of LOD cloud
 - ✿ [LinkedMDB](#) – complementary movie data
 - ✿ [Dbtune](#) + MusicBrainz – Movie OST (Original Soundtrack)
 - ✿ British Library – bibliographic information

Movie-Related Metadata Terms in DBpedia

Metadata Terms	URI
rdfs:label	http://www.w3.org/2000/01/rdf-schema#
dbpedia-owl:abstract	http://dbpedia.org/ontology/abstract
dbpedia-owl:director	http://dbpedia.org/ontology/director
dbpedia-owl:producer	http://dbpedia.org/ontology/producer
dbpedia-owl:cinematography	http://dbpedia.org/ontology/cinematography
dbpedia-owl:country	http://dbpedia.org/ontology/country
dbpedia-owl:distributor	http://dbpedia.org/ontology/distributor
dbpedia-owl:editing	http://dbpedia.org/ontology/editing
dbpedia-owl:gross	http://dbpedia.org/ontology/gross
dbpedia-owl:musicComposer	http://dbpedia.org/ontology/musicComposer
dbpedia-owl:runtime	http://dbpedia.org/ontology/runtime
dbpedia-owl:starring	http://dbpedia.org/ontology/starring
dbpedia-owl:thumbnail	http://dbpedia.org/ontology/thumbnail
dbpedia-owl:wikiPageID	http://dbpedia.org/ontology/wikiPageID
dbpedia-owl:writer	http://dbpedia.org/ontology/writer
rdf:type	http://www.w3.org/1999/02/22-rdf-syntax-ns#
rdfs:comment	http://www.w3.org/2000/01/rdf-schema#
foaf:name	http://xmlns.com/foaf/0.1/
foaf:primaryTopic	http://xmlns.com/foaf/0.1/

Metadata Terms in LinkedMDB

Metadata Terms	URI
rdfs:label	http://www.w3.org/2000/01/rdf-schema#
dc:title	http://purl.org/dc/terms/title
dc:date	http://purl.org/dc/terms/date
movie:actor	http://data.linkedmdb.org/resource/movie/actor
movie:cinematographer	http://data.linkedmdb.org/resource/movie/cinematographer
movie:director	http://data.linkedmdb.org/resource/movie/director
movie:editor	http://data.linkedmdb.org/resource/movie/editor
movie:film_cut	http://data.linkedmdb.org/resource/movie/film_cut
movie:film_of_distributor	http://data.linkedmdb.org/resource/movie/film_of_distributor
movie:filmid	http://data.linkedmdb.org/resource/movie/filmid
movie:initial_release_date	http://data.linkedmdb.org/resource/movie/initial_release_date
movie:music_contributor	http://data.linkedmdb.org/resource/movie/music_contributor
foaf:made	http://xmlns.com/foaf/0.1/made
foaf:page	http://xmlns.com/foaf/0.1/page

Metadata Terms in DBtune

Metedata Terms	URI
rdfs:label	http://www.w3.org/2000/01/rdf-schema#
dc:title	http://purl.org/dc/terms/date
mo:amazon_asin	http://purl.org/ontology/mo/amazon_asin
mo:musicbrainz	http://purl.org/ontology/mo/musicbrainz
mo:image	http://purl.org/ontology/mo/image

URI Design

Node	URI
Film	<code>http://140.122.104.69:8080/movie/{contenttype}/{moviename}</code>
Director	<code>http://140.122.104.69:8080/movie/{contenttype}/{directorname}</code>
Actor	<code>http://140.122.104.69:8080/movie/{contenttype}/{actorname}</code>

http://140.122.104.69:8080/movie/film/Guardians_of_the_Galaxy

http://140.122.104.69:8080/movie/director/James_Gunn

http://140.122.104.69:8080/movie/actor/Chris_Pratt

Mapping between Drupal Fields and Metadata Terms

Content Type	Field	Metadata Terms
Film	field_f_title	rdfs:label
	field_f_director	dbpedia-owl:director
	field_f_starring	dbpedia-owl:starring
	field_f_country	dbpedia-owl:country
	field_f_language	dbpedia-owl:language
	field_f_genre	dbpedia-owl:genre
Director	field_d_title	rdfs:label
Actor	field_a_title	rdfs:label

Link Film/Director Fields with Other Data Sources

Field	Metadata Terms	Data Source
field_f_abstract	dbpedia-owl:abstract	DBpedia
field_f_homepage	dbpedia-owl:homepage	DBpedia
field_f_runtime	movie:runtime	LinkedMDB
field_f_release_date	movie:release_date	LinkedMDB
field_f_pages	foaf:page	LinkedMDB
field_f_book	dc:title	British Library
field_f_isbn	bibo:isbn10 bibo:isbn13	British Library British Library
field_f_amazon	mo:amazon_asin	DBtune
field_f_musicbrainz	mo:musicbrainz	DBtune
field_f_picture	dbpedia-owl:thumbnail	DBpedia
field_d_birthdate	dbpedia-owl:birthDate	DBpedia
field_d_birthplace	dbpedia-owl:birthPlace	DBpedia
field_d_nationality	dbpedia-owl:nationality	DBpedia
field_d_residence	dbpedia-owl:residence	DBpedia
field_d_abstract	dbpedia-owl:abstract	DBpedia
field_d_picture	dbpedia-owl:thumbnail	DBpedia

SPARQL Query for Movie Data

DBpedia dataset!

PREFIX rdf:<<http://www.w3.org/1999/02/22-rdf-syntax-ns#>>

PREFIX dbpedia-owl:<<http://dbpedia.org/ontology/>>

SELECTDISTINCT ?dbp ?d_homepage ?d_title ?d_abstract ?d_image

WHERE {

?dbp rdf:type dbpedia-owl:Film;

rdfs:label "{name}";

rdfs:label ?d_title.

OPTIONAL {?dbp foaf:homepage ?d_homepage}

OPTIONAL {?dbp dbpedia-owl:abstract ?d_abstract}

OPTIONAL {?dbp dbpedia-owl:thumbnail ?d_image}

}

LinkedMDB dataset!

PREFIX rdfs: <<http://www.w3.org/2000/01/rdf-schema#>>

PREFIX movie: <<http://data.linkedmdb.org/resource/movie/>>

SELECT DISTINCT ?linkedmdb ?mdb_title ? mdb_release_date ?mdb_runtime

WHERE {

?linkedmdb rdfs:label "{name}";

rdfs:label mdb_title;

OPTIONAL {?linkedmdbmovie:initial_release_date ? mdb_release_date}

OPTIONAL {?linkedmdbmovie:runtime ? mdb_runtime}

}

SPARQL EndPoints

Data Sources	SPARQL Endpoint
DBpedia	http://dbpedia.org/sparql
LinkedMDB	http://data.linkedmdb.org/sparql
British Library	http://bnb.data.bl.uk/sparql
DBtune	http://dbtune.org/musicbrainz/sparql

Linked Movie Data System

Linked Movie Data

Film

Director

Actor

Apply

Lost Girls

[Read more](#)

Un pistolero implacable

[Read more](#)

Cracking the Da Vinci Code

[Read more](#)

Future Memory

[Read more](#)

Chex Quest 2

[Read more](#)

This Is Why I Hop

[Read more](#)

Victori: The Truth Just Can't Be One Thing

[Read more](#)

Brother

[Read more](#)

Teach

[Read more](#)

Epitaph of a Royal Gourmet

[Read more](#)

Archiri

[Read more](#)

Five Finger Fillet

[Read more](#)

Forrest Gump

Genre: Drama Romance
Director: Robert Zemeckis
Language: English
Country: USA
Starring:



Release Date: 1994

Pages

- <http://www.freebase.com/view/guid/9202a8e04000641f80000000005320c>

Books

Forrest Gump / John Escott

ISBN10:0140816127

pages:43p.

Forrest Gump / Winston Groom

ISBN10:0552996092

pages:238p.



Soundtrack

- track
- track
- track
- track

Joe Abby	Rob Adams	Todd Adamson	Joe Alaskey
Markus Alexander	Sam Anderson	Neil Armstrong	Pete Auster
Peter Bannon	Kenneth Bevington	Geoffrey Blake	Jim Boeke
Charles Boswell	Jack Bowden	Grady Bowman	Arthur Bremer
Stephen Bridgewater	David Brisbin	Greg Brown	Michael Burgess
Clint Calvert	Dick Cavett	Troy Christian	Dick Clark
John Connally	Richard D'Alessandro	Jim Damron	Ed Davis
Kevin Davis	Steve DeRelian	Paulie DiCocco	Peter Dobson
Ryan Duncan	James Ent	Don Fischer	Michael Flannery

Forrest Gump is a 1994 American epic romantic dramedy film based on the 1986 novel of the same name by Winston Groom. The film was directed by Robert Zemeckis and starred Tom Hanks, Robin Wright, Gary Sinise and Sally Field. The story depicts several decades in the life of Forrest Gump, a naïve and slow-witted yet athletically prodigious native of Alabama who witnesses, and in some cases influences, some of the defining events of the latter half of the 20th century in the United States; more specifically, the period between Forrest's birth in 1944 and 1982. The film differs substantially from Winston Groom's novel on which it is based, including Gump's personality and several events that were depicted. Filming took place in late 1993, mainly in Georgia, North Carolina, and South Carolina. Extensive visual effects were used to incorporate the protagonist into archived footage and to develop other scenes. A comprehensive soundtrack was featured in the film, using music intended to pinpoint specific time periods portrayed on screen. Its commercial release made it a top-selling soundtrack, selling over 12 million copies worldwide. Released in the United States on July 6, 1994, Forrest Gump received critical acclaim and became a commercial success as the top grossing film in North America released that year, being the first major success for Paramount Pictures since the studio's sale to Viacom earlier in the year. The film earned over \$677 million worldwide during its theatrical run. The film won the Academy Awards for Best Picture, Best Director for Robert Zemeckis, Best Actor for Tom Hanks, Best Adapted Screenplay, Best Visual Effects and Best Film Editing. It also garnered multiple other awards and nominations, including Golden Globe Awards, People's Choice Awards and Young Artist Awards, among others. Since the film's release, varying interpretations have been made of the film's protagonist and its political symbolism. In 1996, a themed restaurant, Bubba Gump Shrimp Company, opened based on the film, and has since expanded to multiple locations worldwide. The scene of Gump running across the country is often referred to when real-life people attempt the feat. In 2011, the Library of Congress selected Forrest Gump for preservation in the United States National Film Registry as being "culturally, historically, or aesthetically significant".



Tom Hanks

Birth Date: 1956-07-09+02:00

Birth Place: http://dbpedia.org/resource/Concord,_California

Birth Date: Los Angeles

Thomas „Tom “ Jeffrey Hanks (* 9. Juli 1956 in Concord, Kalifornien) ist ein US-amerikanischer Schauspieler, Regisseur, Filmproduzent sowie Synchronsprecher vieler amerikanischer Film- und Fernsehproduktionen. Er gehört zu den profiliertesten Charakterdarstellern Hollywoods und wurde zweimal in Folge mit dem Oscar als bester Hauptdarsteller ausgezeichnet – für seine Hauptrollen in den Filmen Philadelphia (1993) und Forrest Gump (1994).

Thomas Jeffrey "Tom" Hanks (born July 9, 1956) is an American actor, producer, writer, and director. Hanks is best known for his roles in Big, A League of Their Own, Sleepless in Seattle, Forrest Gump, Apollo 13, Saving Private Ryan, You've Got Mail, The Green Mile, Cast Away, The Da Vinci Code, Captain Phillips, and Saving Mr. Banks, as well as the animated films The Polar Express and the Toy Story series. Hanks has earned and been nominated for numerous awards during his career, including winning a Golden Globe for Best Actor and an Academy Award for Best Actor for his role in Philadelphia and a Golden Globe, an Academy Award, a Screen Actors Guild Award, and a People's Choice Award for Best Actor for his role in Forrest Gump, and earning the Stanley Kubrick Britannia Award for Excellence in Film from the BAFTAs in 2004. Hanks is also known for his collaboration with film director Steven Spielberg on Saving Private Ryan, Catch Me If You Can, and The Terminal, as well as the 2001 mini-series Band of Brothers, which launched Hanks also as a successful director, producer and writer. In 2010, Spielberg and Hanks were executive producers on the HBO mini-series The Pacific (a companion piece to Band of Brothers). As of 2012, Hanks' films have grossed over \$4.2 billion at the United States box office alone, and over \$8.5 billion worldwide making him one of the highest-grossing actors in film history.

Thomas Jeffrey Hanks (Concord, 9 luglio 1956) è un attore, regista, sceneggiatore, e produttore cinematografico statunitense. La sua carriera ha avuto inizio negli anni ottanta quando, interpretando la serie Henry e Kip (Bosom Buddies), cominciò a essere conosciuto; da allora ha recitato in numerosi film ottenendo un grande successo di critica e di pubblico. Nel corso della sua carriera ha ricevuto 5 nomination agli Oscar, 7 ai Golden Globe, 4 ai BAFTA, 6 agli Screen Actors Guild Awards e 8 agli Emmy. È l'attuale Primo Vicepresidente dell'Academy, la società che ogni anno assegna il premio Oscar.

Thomas Jeffrey Hanks (Concord, 9 de julio de 1956) es un actor y productor estadounidense más conocido como Tom Hanks. Ganador del Óscar y del Globo de Oro, Hanks es uno de los actores (junto a Luise Rainer, Spencer Tracy y Katharine Hepburn) que han ganado dos Óscar consecutivos como Mejor actuación principal y el único intérprete masculino que lo haya hecho en la segunda mitad del siglo XX. Por su protagonismo en Ángeles y demonios (2009) se convirtió en el segundo actor mejor pagado tras ingresar cincuenta millones de dólares. La taquilla lograda por sus películas en Estados Unidos supera los 4.500 millones de dólares.

توماس جيفري "توم" هانكس (ولد في 9 يوليو 1956) هو ممثل، ومخرج، وممثل صوت، وكاتب، ومنتج أمريكي حائز على جائزة الأوسكار مرتين وجائزة إيمي وأربعة جوائز الغولدن غلوب.

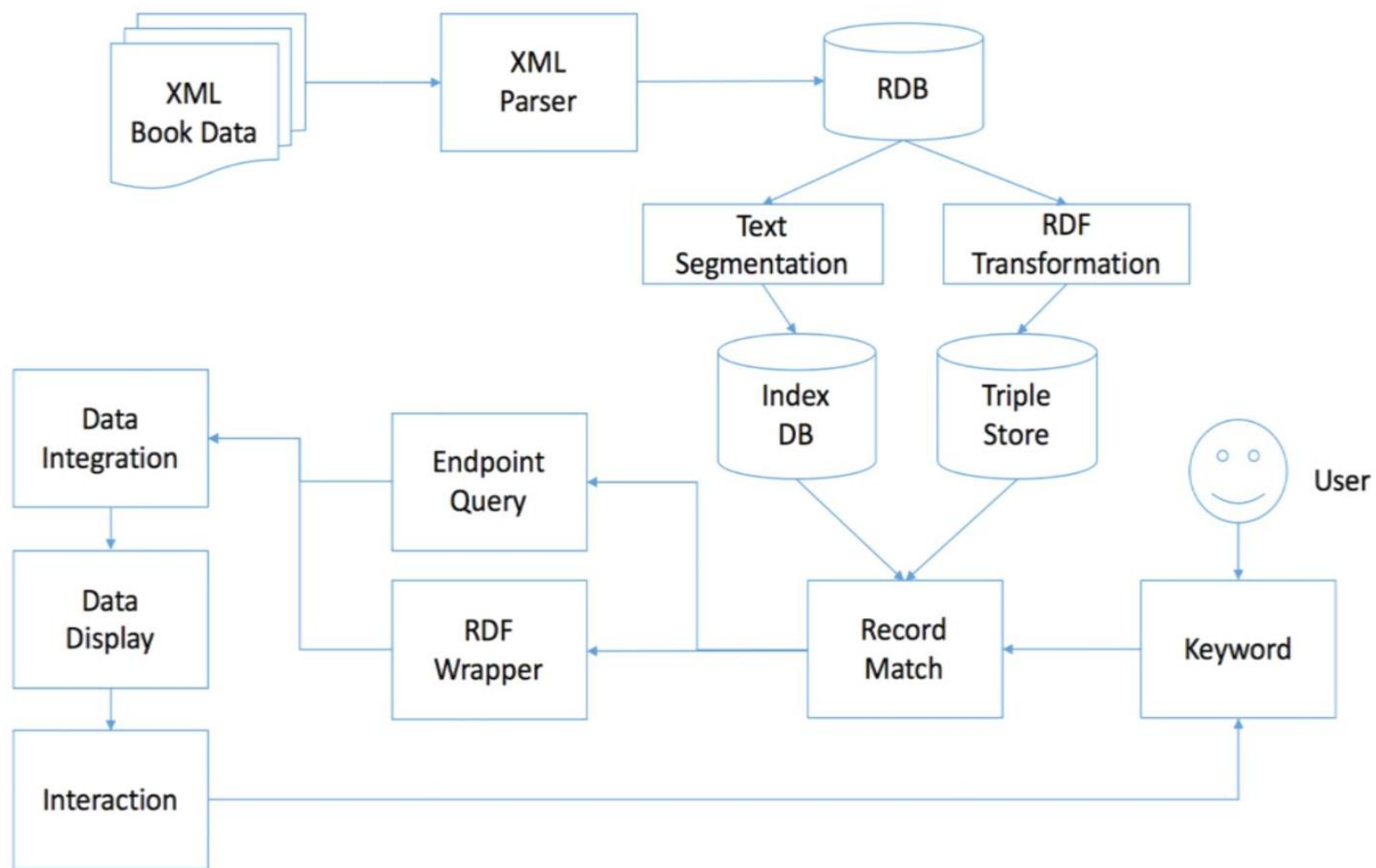
Movie

- [A Hero's Journey: The Making of Beowulf](#)
- [A Hologram for the King](#)
- [A League of Their Own](#)
- [A Timeless Call](#)
- [AFI Life Achievement Award: A Tribute to George Lucas](#)

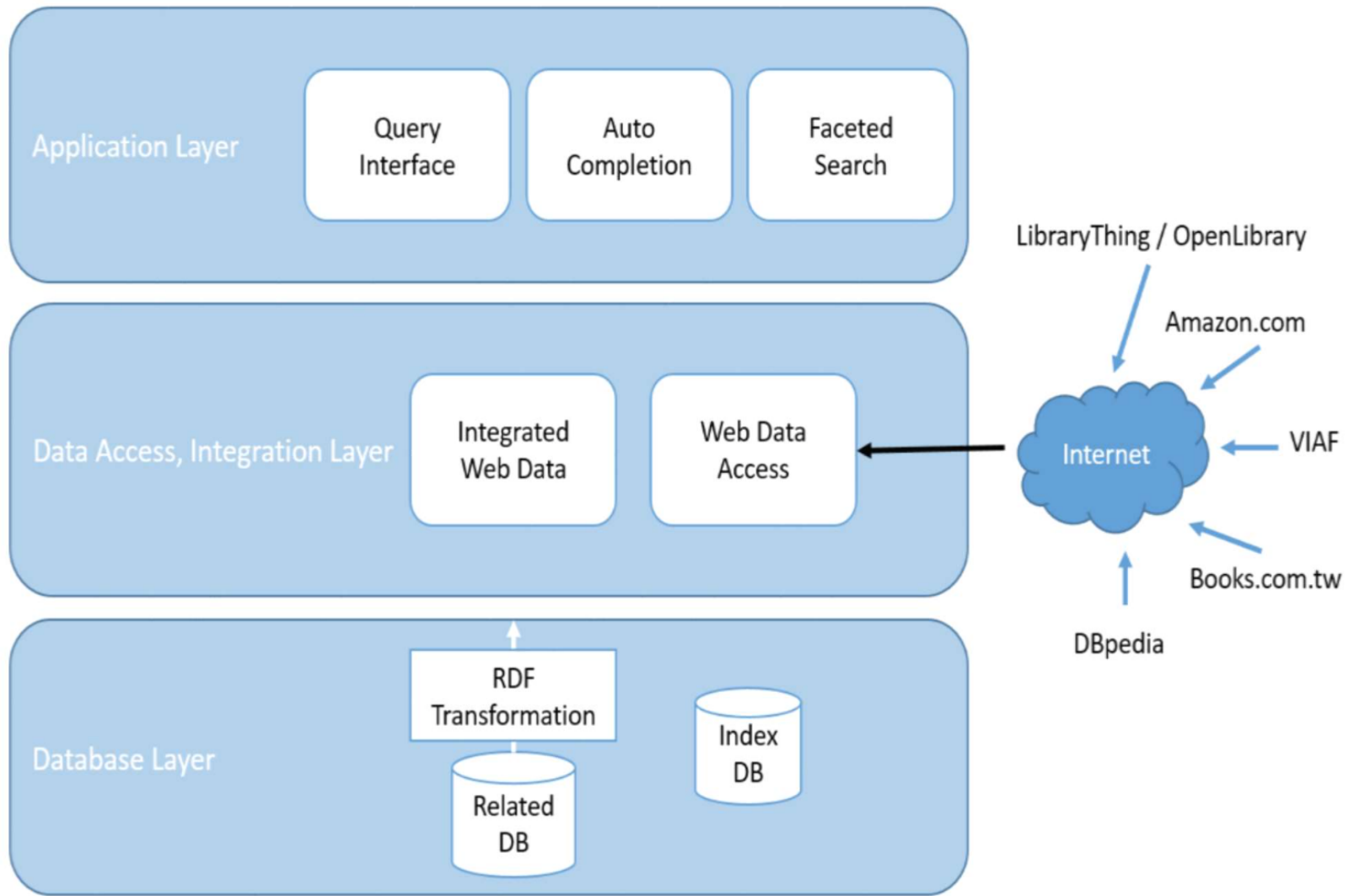


案例三：以鏈結資料豐富館藏查詢系統

系統運作流程圖



系統架構圖



作者檢索介面

館藏目錄系統

Title: Type in the book title...

Author: J. K. Rowling



J. K. Rowling

Joanne "Jo" Rowling, OBE FRSL (/ˈroʊlɪn/; born 31 July 1965), pen name J. K. Rowling and Robert Galbraith, is a British novelist best known as the author of the Harry Potter fantasy series. The books have gained worldwide attention, won multiple awards, and sold more than 400 million copies. They have become the best-selling book series in history and been the basis for a series of films which became the highest-grossing film series in history.

- 國籍：United Kingdom, Portugal
- 出生：1965-07-31

著作



[The Cuckoo's Calling](#)



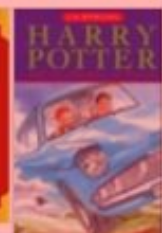
[The Silkworm](#)



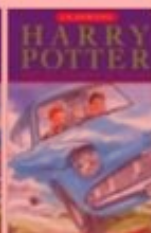
[Harry Potter and the Order of the Phoenix](#)



[Fantastic Beasts and Where to Find Them](#)



[Harry Potter and the Chamber of Secrets](#)



[Harry Potter](#)



[The Casual Vacancy](#)

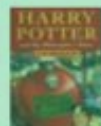


[Harry Potter and the Half-Blood Prince](#)



[Quidditch Through the Ages](#)

共有174筆紀錄



J. K. Rowling

[Harry Potter and the Sorcerer's Stone](#)

LOCAL

依年代篩選...

- 1983:1
- 1987:1
- 1989:3
- 1993:1
- 1997:1
- 1998:5



Book Cover
From LibraryThing

題名 Harry Potter and the Order of the Phoenix
 作者 Rowling, J. K.
 出版社 Bloomsbury
 出版年 2004
 註記 <http://140.122.104.78/opac/amazon/0747561079>
 ISBN-13 9780747561071
 ISBN-10 0747561079

LOCAL

書目紀錄下載：[RDF](#)||[JSON](#)

這部作品有被改編為電影，請參見[維基百科](#)

系列作品介紹

[Harry Potter and the Goblet of Fire](#)

DBpedia

--本作品--



[Harry Potter and the Half-Blood Prince](#)

LibraryThing

詳細資訊

作品介紹

作者介紹

媒體類型：Paperback

頁數：768 pages

高：19.812 cm

長：12.9032 cm

寬：4.0894 cm

ISBN：0747561079

AMAZON

說明：Biography J K (Joanne Kathleen) Rowling was born in the summer of 1965 at Yate General Hospital in England and grew up in Chepstow, Gwent where she went to Wyedean Comprehensive. Jo left Chepstow for Exeter University, where she earned a French and Classics degree, and where her course included one year in Paris. As a postgraduate she moved to London to work at Amnesty International, doing research into human rights abuses in Francophone Africa. She started writing the Harry Potter series during a Manchester to London King's Cross train journey, and during the next five years, outlined the plots for each book and began writing the first novel. Jo then moved to northern Portugal, where she taught English as a foreign language. She married in October 1992 and gave birth to her daughter Jessica in 1993. When her marriage ended, she returned to the UK to live in Edinburgh, where "Harry Potter & the Philosopher's Stone" was eventually completed and in 1996 she received an offer of publication.

amazon.com

Customer Reviews

Average Customer Review

★★★★★ (7,540 customer reviews)

7,540 Reviews

評價：
5 star 71%
4 star 16%

Conclusion and Issues

- ▶ Linked Data is a set of best practices to realize Semantic Web
- ▶ Linked Data improves the access, discovery, and integration of Web data by using open standards
- ▶ Linked Data → Linked Open Data → Big Data

Conclusion and Issues (Cont.)

- ▶ Why is Linked Data important for libraries?
 - ✿ People can more easily find library resources on the Web
 - ✿ More creative applications based on library metadata
 - ✿ Opportunities for cataloging efficiency and innovation
- ▶ Issues
 - ✿ Where to find relevant datasets
 - ✿ How to build links automatically
 - ✿ Killer applications
 - ✿ Quality