

RDFa

How and Why

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22 January 2010

A Web of Information

- The current Web represents information using
 - natural language
 - graphics, multimedia, page layout
- Humans can process this easily
 - can deduce facts from partial information
 - can create mental associations
 - can deal with a variety of media
 - (see [Web accessibility guidelines](#))


Data in HTML Documents

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

article discussion edit this page history

Tokyo

From Wikipedia, the free encyclopedia

This article is about the Japanese prefecture. For other uses, see Tokyo (disambiguation).

Tokyo (東京 Tōkyō^[*]), officially **Tokyo Metropolis** (東京都 Tōkyō-to^[*]),^[2] is one of the 47 prefectures of Japan and is located on the eastern side of the main island Honshū. Tokyo's government also administers the twenty-three *special wards* of Tokyo, each governed as a city, that cover the area that was once the city of Tokyo in the eastern part of the prefecture.

The population of the special wards is over 8 million people, with the total population of the prefecture exceeding 12 million. The prefecture is the center of the Greater Tokyo Area, the world's most populous metropolitan area with 35 to 39 million people (depending on definition) and the world's largest metropolitan economy with a GDP of US\$1.479 trillion at purchasing power parity in 2008.^[3]

Tokyo was described by Saskia Sassen as one of the three "command centers" for the world economy, along with London and New York City.^[4] This city is considered an alpha+ world city, listed by the GaWC's 2008 inventory^[5] and ranked fourth among global cities by *Foreign Policy*'s 2008 Global Cities Index. In 2009 Tokyo was named the world's most expensive city for expatriate employees, according to the Mercer and Economist Intelligence Unit cost-of-living surveys^[6] and named the third Most Liveable City and the World's Most Liveable Megalopolis by the magazine *Monocle*.^[7]

Tokyo is the seat of the Japanese government and the Imperial Palace, and the home of the Japanese Imperial Family.

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Etymology

Tokyo was originally known as *Edo*, meaning estuary.^[8] Its name was changed to Tokyo (トウキョウ tōkyō: tō (east) + kyō (capital)) when it became the imperial capital in 1868.^[8] During the early Meiji period, the city was also called "Tōkei", an alternative pronunciation for the same Chinese characters representing "Tokyo". Some surviving official English documents use the spelling "Tokeri";^[8] however, this pronunciation is now obsolete.^[10]

Tokyo Metropolis

Japanese: **東京都**
Tōkyō-to



Coordinates: 35°42′21″N 139°42′54″E﻿ / ﻿35.70583°N 139.71472°E﻿ / 35.70583; 139.71472

Capital	Shinjuku
Region	Kantō
Island	Honshū
Governor	Shintarō Ishihara
Area (rank)	2,187.08 km² (45th)
- % water	1.0%
Population (January 1, 2009)	
- Population	12,790,000 ^[1] (8,653,000 in special wards) (1st)
- Density	5,847 /km²
Districts	1
Municipalities	62
ISO 3166-2	JP-13
Website	metro.tokyo.jp (English)
Prefectural Symbols	
- Flower	Somei-Yoshino cherry blossom
- Tree	Ginkgo tree (<i>Ginkgo biloba</i>)
- Bird	Black-headed Gull (<i>Larus ridibundus</i>)
- Fish	

Data Exposed with Markup

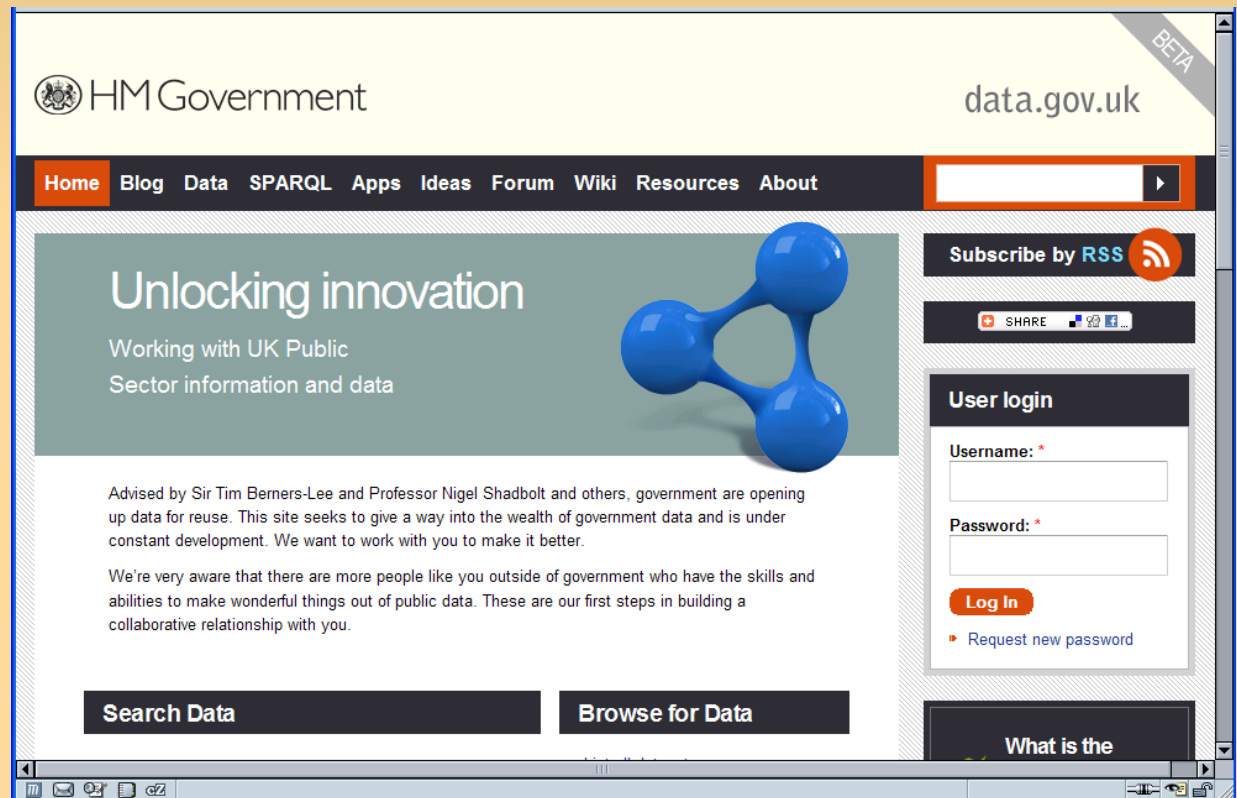
- microformats <http://microformats.org/>
- 9+ sets of terms and relations (formats):
hCalendar, hCard, rel-license, rel-nofollow, rel-tag, VoteLinks, XFN, XMDP, XOXO
- each of the formats has a custom interpreter
- semi-formal community agreement process for creating new formats (terms and relations)
- extensible only through community agreement

Special-purpose “smart” portals

- Various types of “portals” are created (for a journal on-line, for a specific area of knowledge, for specific communities, etc)
- The portals may:
 - integrate many data sources
 - may have access to specialized domain knowledge
- Goal is to provide a better local access, search on the integrated data, reveal new relationships among the data

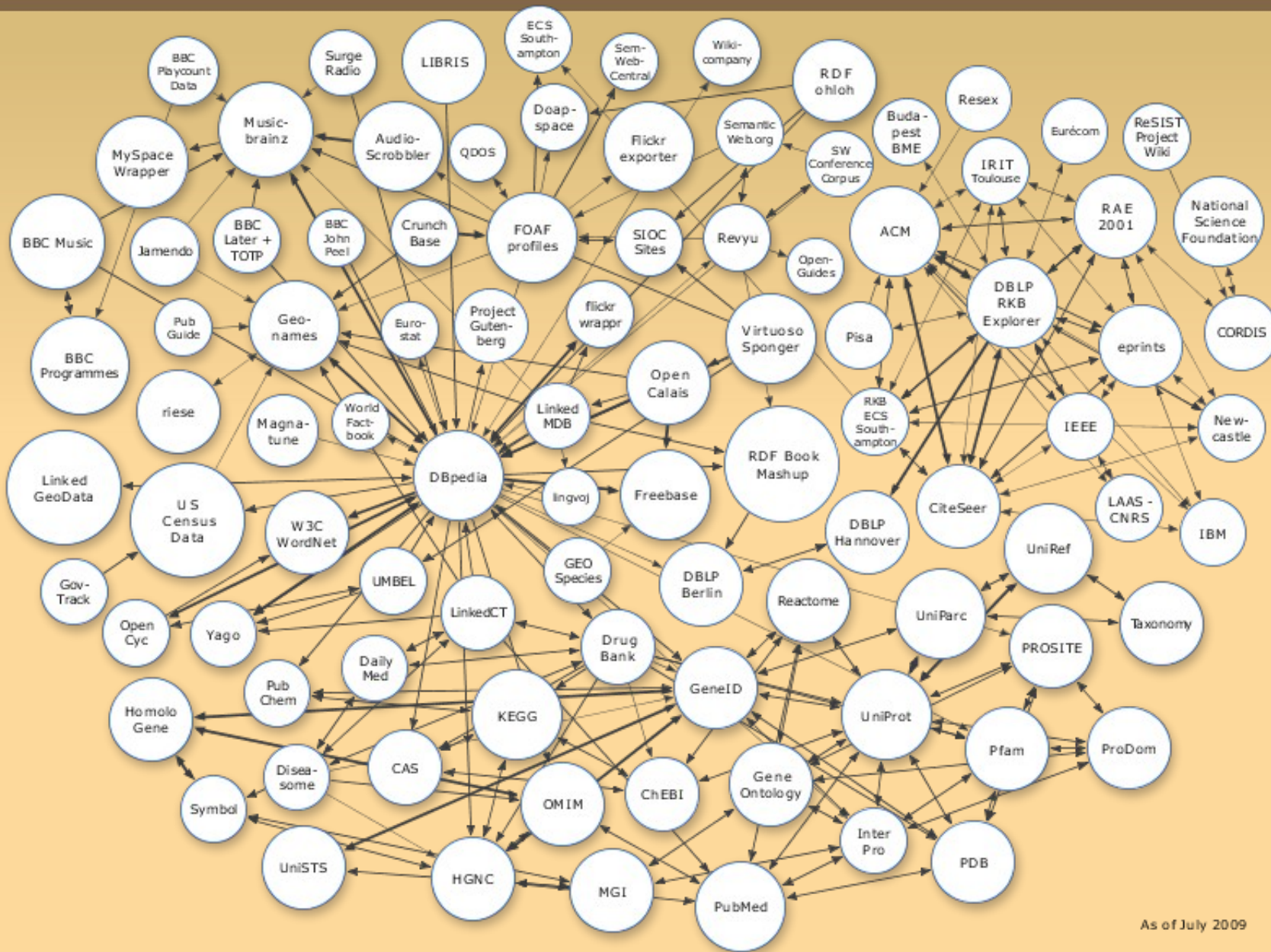
A Web of Linked Data

- Encourage *all* data to be published in machine-useable formats
- *Any* data
- see, e.g. *data.gov.uk*



The screenshot shows the data.gov.uk website interface. At the top left is the HM Government logo. The top right corner features the text "data.gov.uk" and a "BETA" badge. A navigation bar includes links for Home, Blog, Data, SPARQL, Apps, Ideas, Forum, Wiki, Resources, and About. A search bar is located on the right side of the navigation bar. Below the navigation bar is a main content area with a header "Unlocking innovation" and a sub-header "Working with UK Public Sector information and data". To the right of this header is a blue molecular structure graphic. Below the header is a paragraph of text: "Advised by Sir Tim Berners-Lee and Professor Nigel Shadbolt and others, government are opening up data for reuse. This site seeks to give a way into the wealth of government data and is under constant development. We want to work with you to make it better." Below this is another paragraph: "We're very aware that there are more people like you outside of government who have the skills and abilities to make wonderful things out of public data. These are our first steps in building a collaborative relationship with you." At the bottom of the main content area are two buttons: "Search Data" and "Browse for Data". On the right side of the page, there is a "Subscribe by RSS" button, a "SHARE" button with social media icons, a "User login" section with fields for "Username: *" and "Password: *" and a "Log In" button, and a "Request new password" link. At the bottom right, there is a "What is the" section.

The LOD “cloud”, July 2009



As of July 2009

credit: Richard Cyganiak, *LOD cloud*

Extensible Structured Data

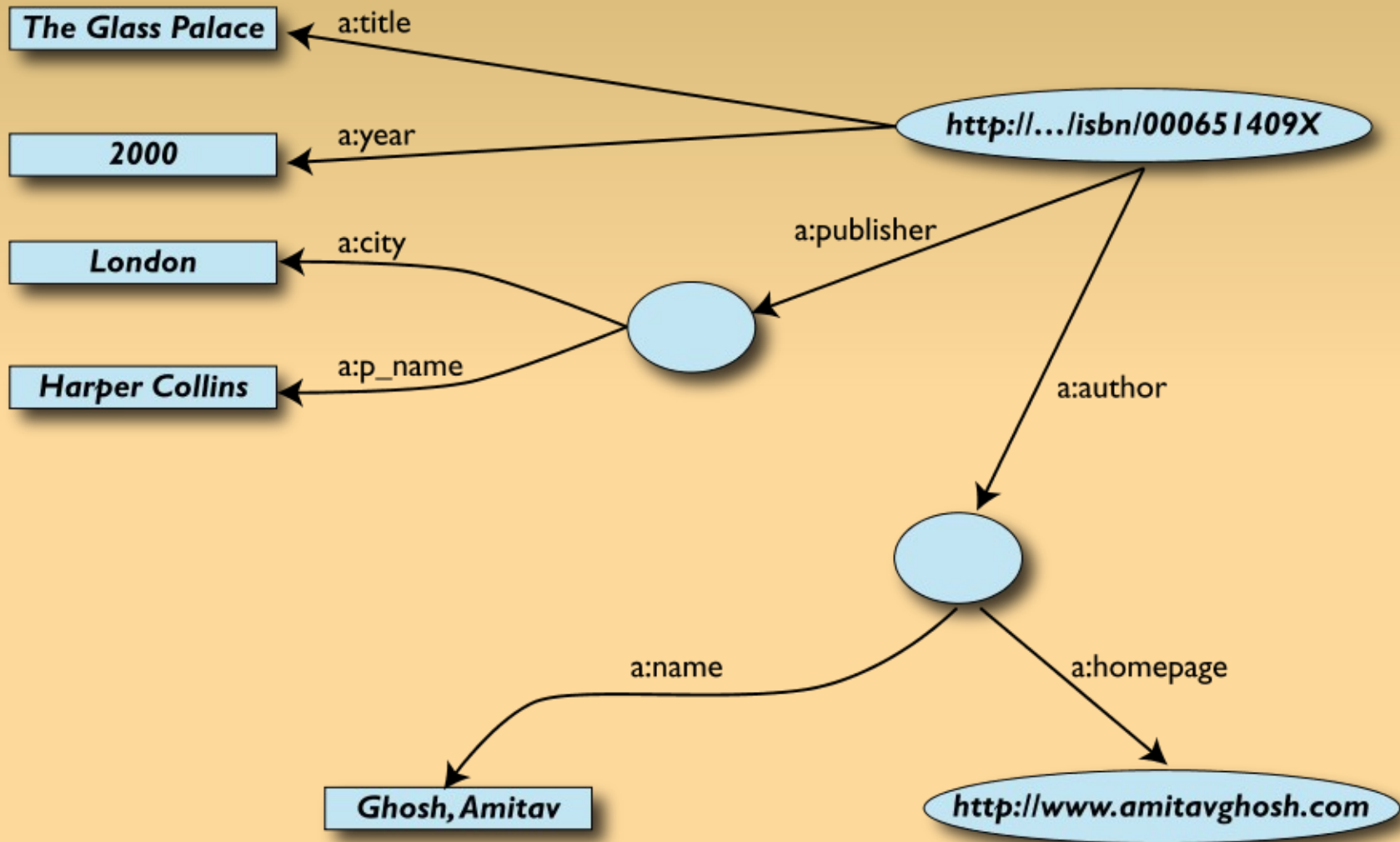
- *RDF* - Resource Description Framework
3 syntaxes: RDF/XML, RDFa, RDF/N3*
- A data modeling framework that takes full advantage of the Web
- Self-describing data
- Objects, terms, and relations are all identified using URIs
- Publish *any* data by publishing definitions of your terms and relations

* only RDF/XML and RDFa are W3C Recommendations at this time

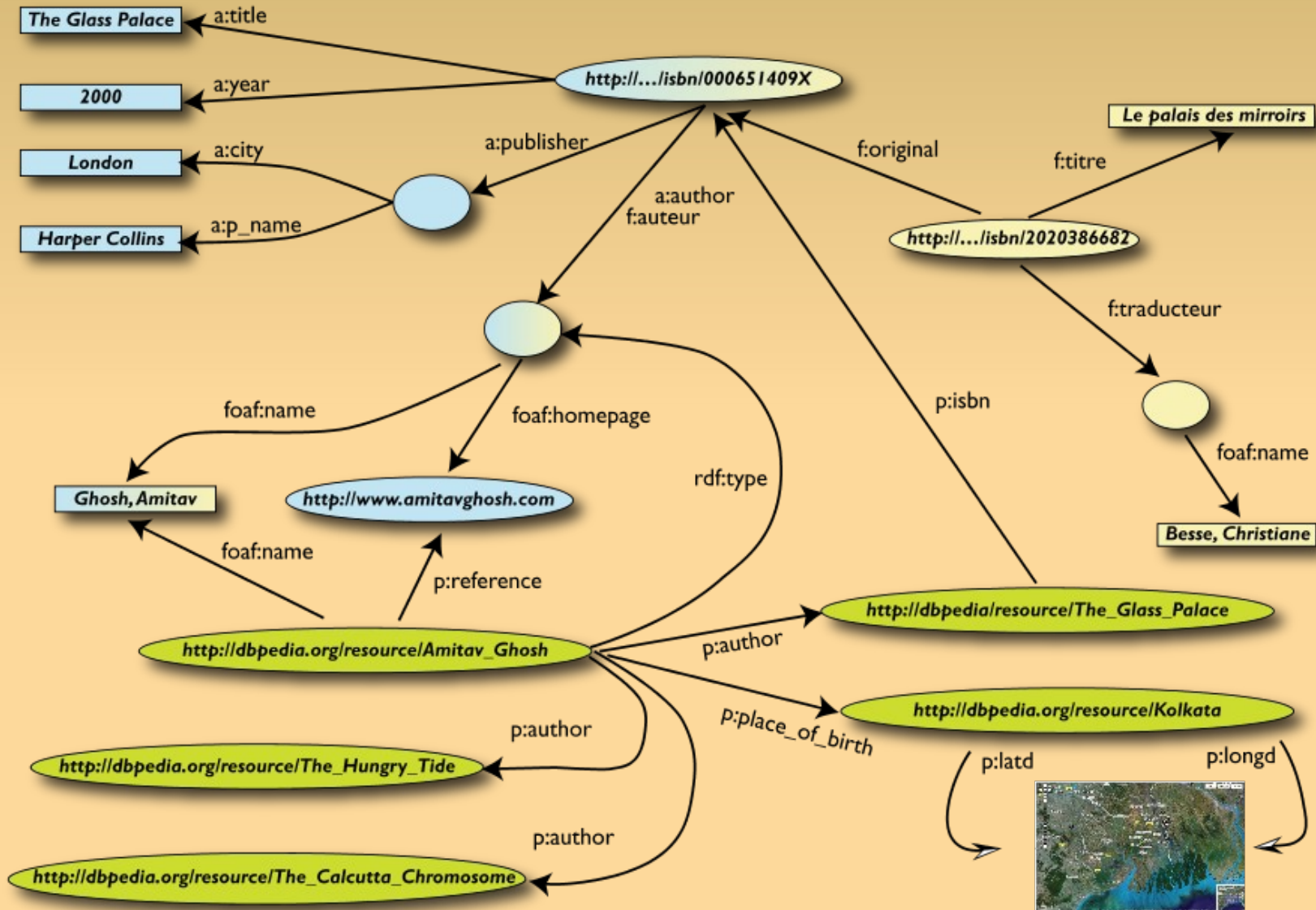
Semantic Web data integration

1. Map the various data onto an abstract data representation
 - make the data independent of its internal representation
2. Merge the resulting representations
3. Make queries on the whole
 - queries that could not have been done on the individual data sets

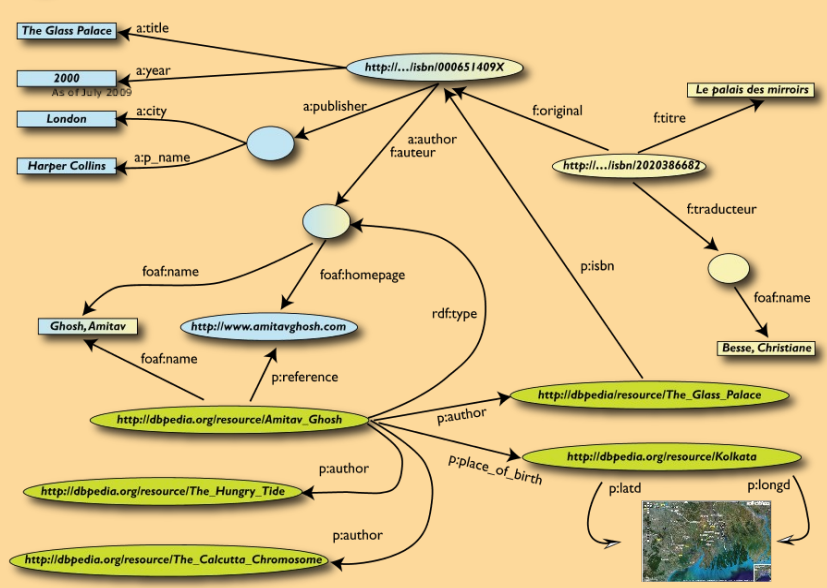
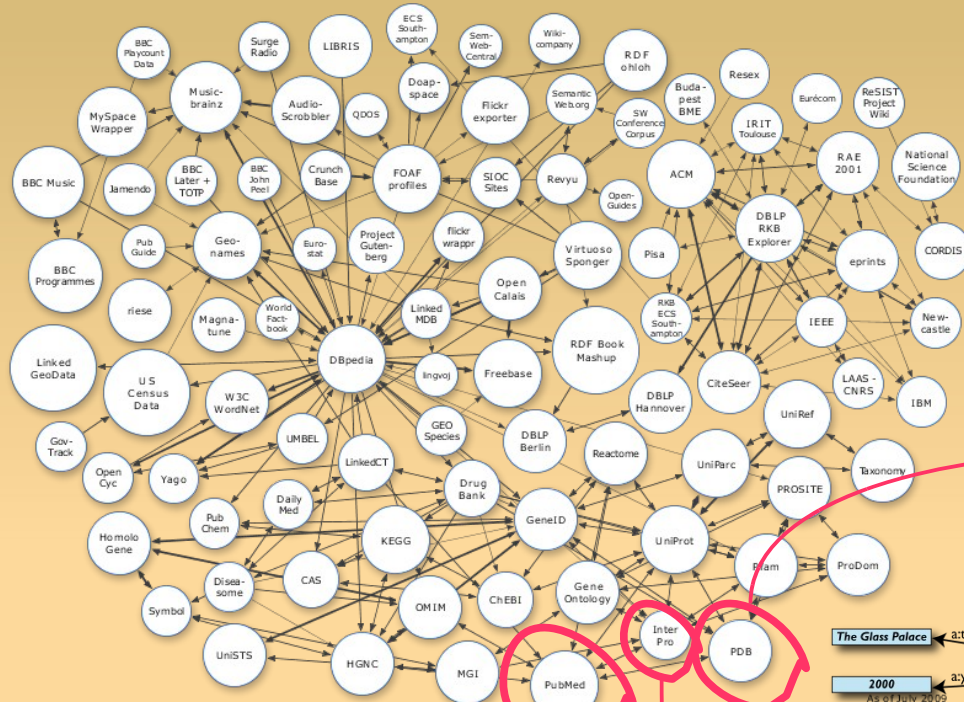
Expose your data as a set of *relations*



Merge data sources by matching URIs



LOD cloud: One big merged graph



Why RDF and RDFa?

- Allow any data to be published
- Data provider can define new terms and relations as necessary
- Standard representation format for all data requiring only one interpreter

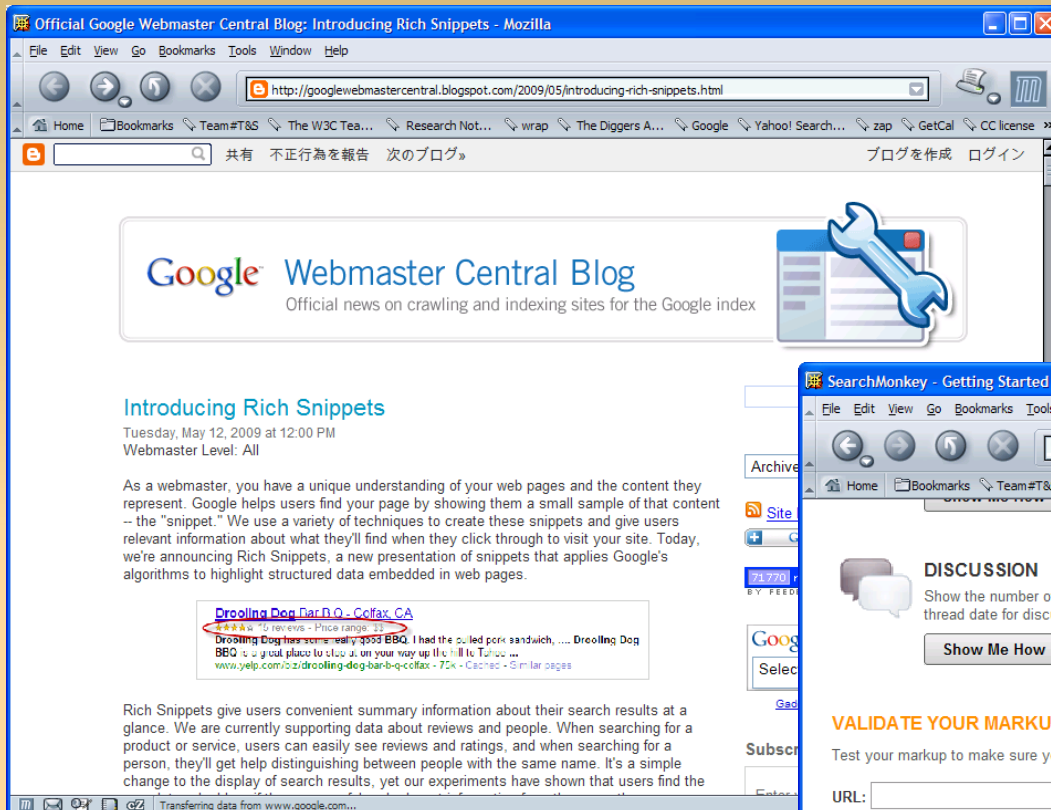
An RDF vocabulary example: SKOS

- Simple Knowledge Organization System
<http://www.w3.org/TR/skos-reference>
- A vocabulary for declaring term taxonomies
broader, narrower
- A vocabulary for declaring human-readable labels *in multiple languages* for each term

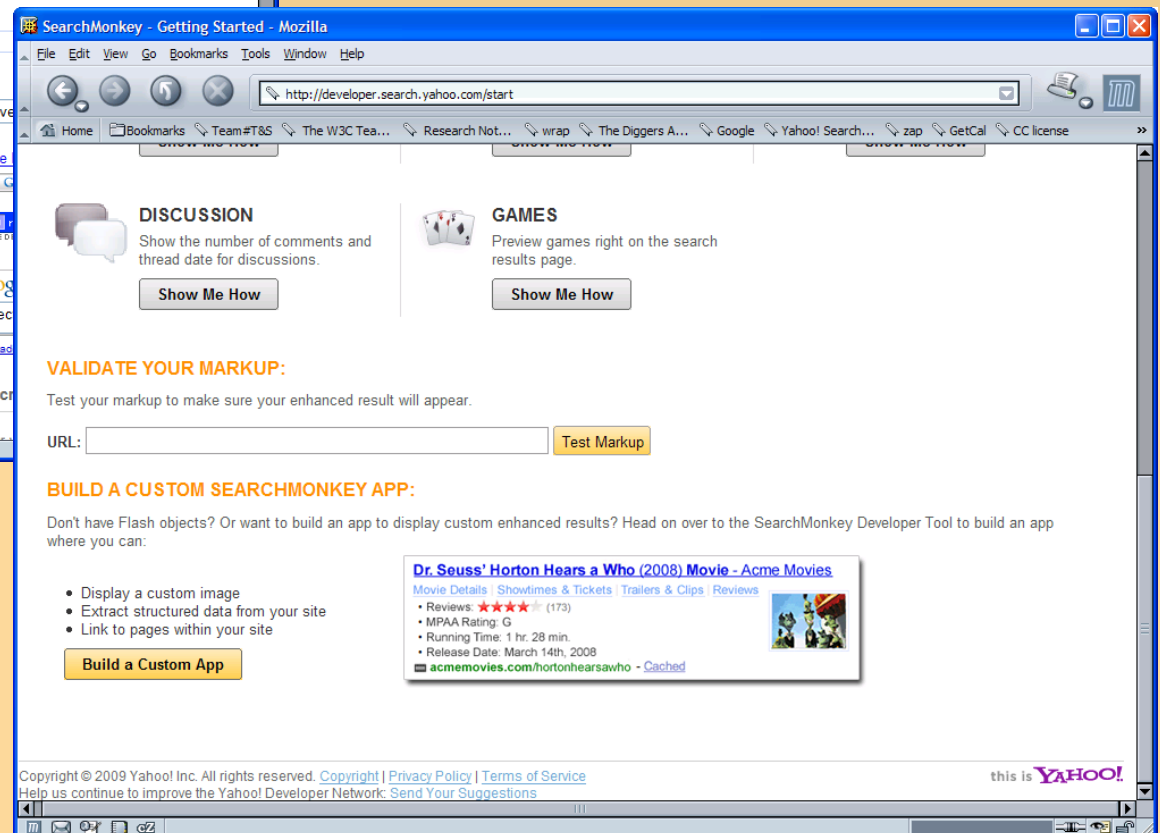
```
skos:prefLabel " 東 "@ja-Hani ;  
skos:prefLabel " ひがし "@ja-Hira ;  
skos:altLabel " あずま "@ja-Hira ;  
skos:prefLabel " ヒガシ "@ja-Kana ;  
skos:altLabel " アズマ "@ja-Kana ;  
skos:prefLabel "higashi"@ja-Latn ;  
skos:altLabel "azuma"@ja-Latn .
```


RDFa usage example: Enhanced Search Results

Google *rich snippets*



Yahoo! *SearchMonkey*



RDFa Data Publishing examples

Bitmunk: Browse - Mozilla

http://bitmunk.com/browse

Join Log In Forgot Password? Search

bitmunk music plugin help connect

Browse Media Catalog

Search Catalog

Search through all of Bitmunk's catalog

Bitmunk Recommends

Enter your favorite artist and Bitmunk will recommend some great indie music

Browse Audio Genres

Avant Garde	Blues
Classical	Country
Easy Listening	Electronic
Folk	Hip-Hop/Rap
Jazz	Kids/Family
Latin	Metal/Punk
New Age	Pop
Reggae	Rock
Spiritual	Spoken Word

Bitmunk Favorites - Albums

Where Tradition Meets Tomorrow Trading Snakeoil for Wolfickets Girls and Boys From My Mind Yours

Holiday & Seasonal Music

Click here to find

Bitmunk Top Sellers - Albums

Decisions Based On Information slow the rain No Wake Open Contact

Personal Edition Use Bitmunk Personal Edition software to resell the content. Look for "Marketplace Resale" on participating albums and

Bitmunk:
digital media commerce

Data Re-use - Mozilla

http://www.london-gazette.co.uk/reuse

Friday, January 22, 2010

The London Gazette

Change edition: Edinburgh / Belfast

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Home / Data Re-use

Re-using Gazette data

In the 21st century the key objective of the London, Edinburgh and Belfast Gazettes is to provide official information for use and re-use by electronic systems.

Although still printed, the Gazettes are no longer restricted by their physical format and significant investment is being made to create the best mechanism for publishing official and regulatory information in linked data formats. A good example of data which is well re-used is the insolvency data which has been published in the Gazettes which for many years been at the heart of the financial and corporate credit industries.

By continually improving the forms in which data is available the Gazettes are proving themselves to be unmatched platforms for government information publishing. This is demonstrated through a [treatment of integrated pollution prevention and control notices](#) from the London Gazette. It is possible to use information within the notices to analyse the impact of different elements including legislative clauses, the geography and timings of applications. To view the demonstration it is necessary to use [Flash](#) (downloadable for free). Click on a random notice from the stack on the right and if you then cannot view a tab on the left hand side of the screen labelled "Map" then please speak with your system administrator.

Electronic data is now available through the following mechanisms:

- PDF from the [website](#)
- XML/XHTML through the [Browse Notices](#) facility
- PDF by [email/FTP](#)
- Microsoft Excel, CSV by [email/FTP](#)
- XML delivery by [email/FTP](#)
- XML/RDFa via [Atom feed](#) (see [downloads below](#))

London Gazette:
official and regulatory information re-use

The RDFa HTML5 Challenge

- RDF uses URIs to identify objects, terms and relationships
- RDF/XML uses XML namespaces to shorten these URIs to acceptable XML element and attribute names
- RDFa (XHTML) also uses XML namespaces to shorten these URIs for compactness (and ease of authoring)
- Not yet consensus on namespace mechanisms for HTML5

RDFa Working Group

- Proposed Working Group to address RDFa use inside HTML5
- W3C Advisory Committee Call for Review:
Semantic Web Activity Proposal; RDFa Working Group
- Call for Review ends 26 January

Many Real Semantic Web Examples

- RPI Data-gov wiki

http://data-gov.tw.rpi.edu/wiki/The_Data-gov_Wiki

- Contributed Case Studies and Use Cases

<http://www.w3.org/2001/sw/sweo/public/UseCases/>

- Collection of more examples

<http://www.w3.org/People/Ivan/>

- Semantic Web Challenge

<http://challenge.semanticweb.org/>

Acknowledgements

- These slides are available on:
<http://www.w3.org/2010/Talks/0122-RDFa-rrs>
- Thanks to Ivan Herman,
W3C Semantic Web Activity Lead
- And the Semantic Web community
<http://www.w3.org/2001/sw/>
<http://www.w3.org/standards/semanticweb/>