

# Schema.org in Two Parts: From Use to Extension

## Part 1: Fit for a Bibliographic Purpose

**Richard Wallis**

Evangelist and Founder

Data Liberate

[richard.wallis@dataliberate.com](mailto:richard.wallis@dataliberate.com)

@rjw



schema.org

# Data Liberate



# Data Liberate

Independent Consultant, Evangelist & Founder  
Data Liberate





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Chair of:

- Schema Bib Extend W3C Community Group
  - Schema.org for bibliographic data
  - bib.schema.org



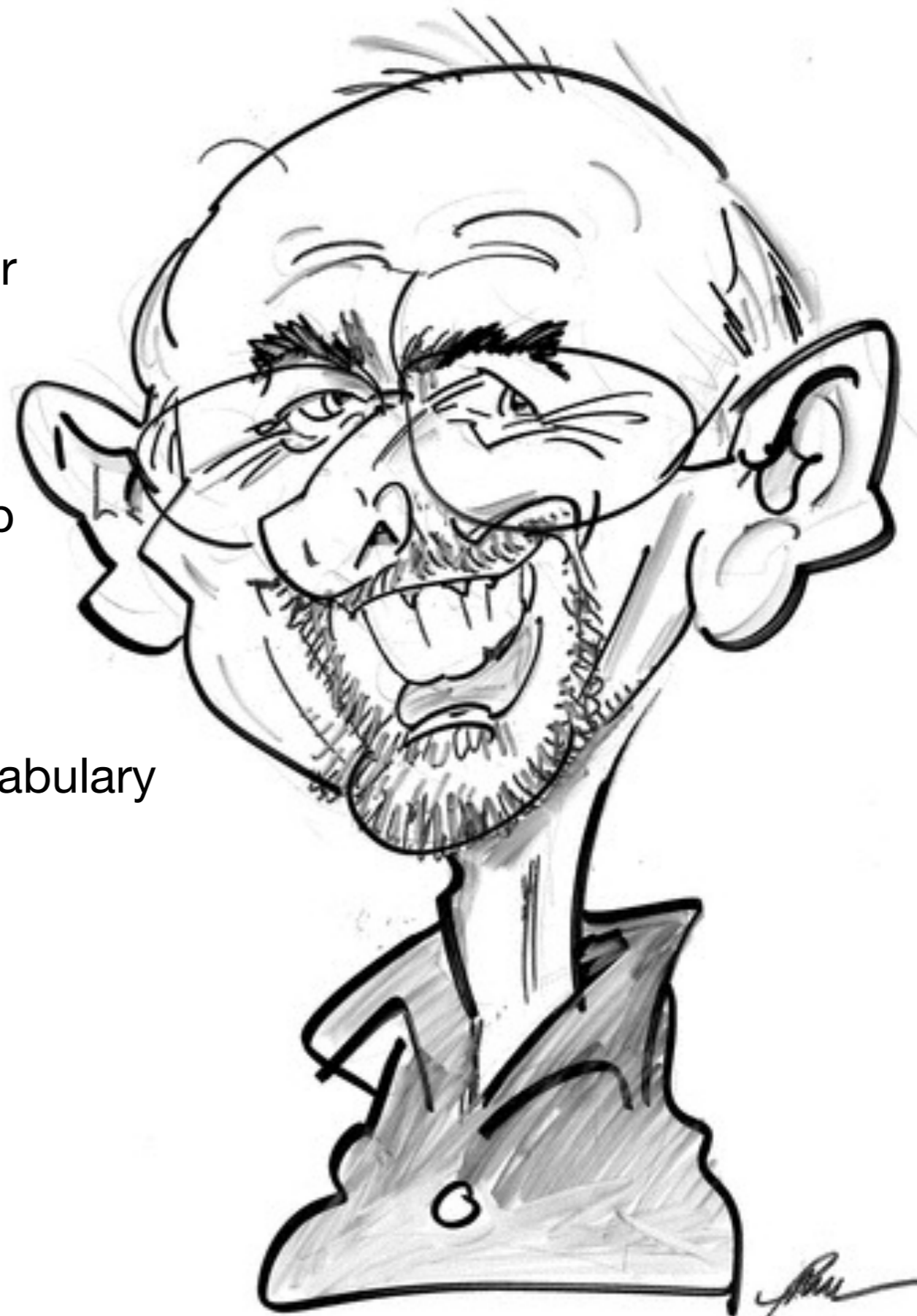


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- BiblioGraph.net
  - Bibliographic Schema.org extension vocabulary

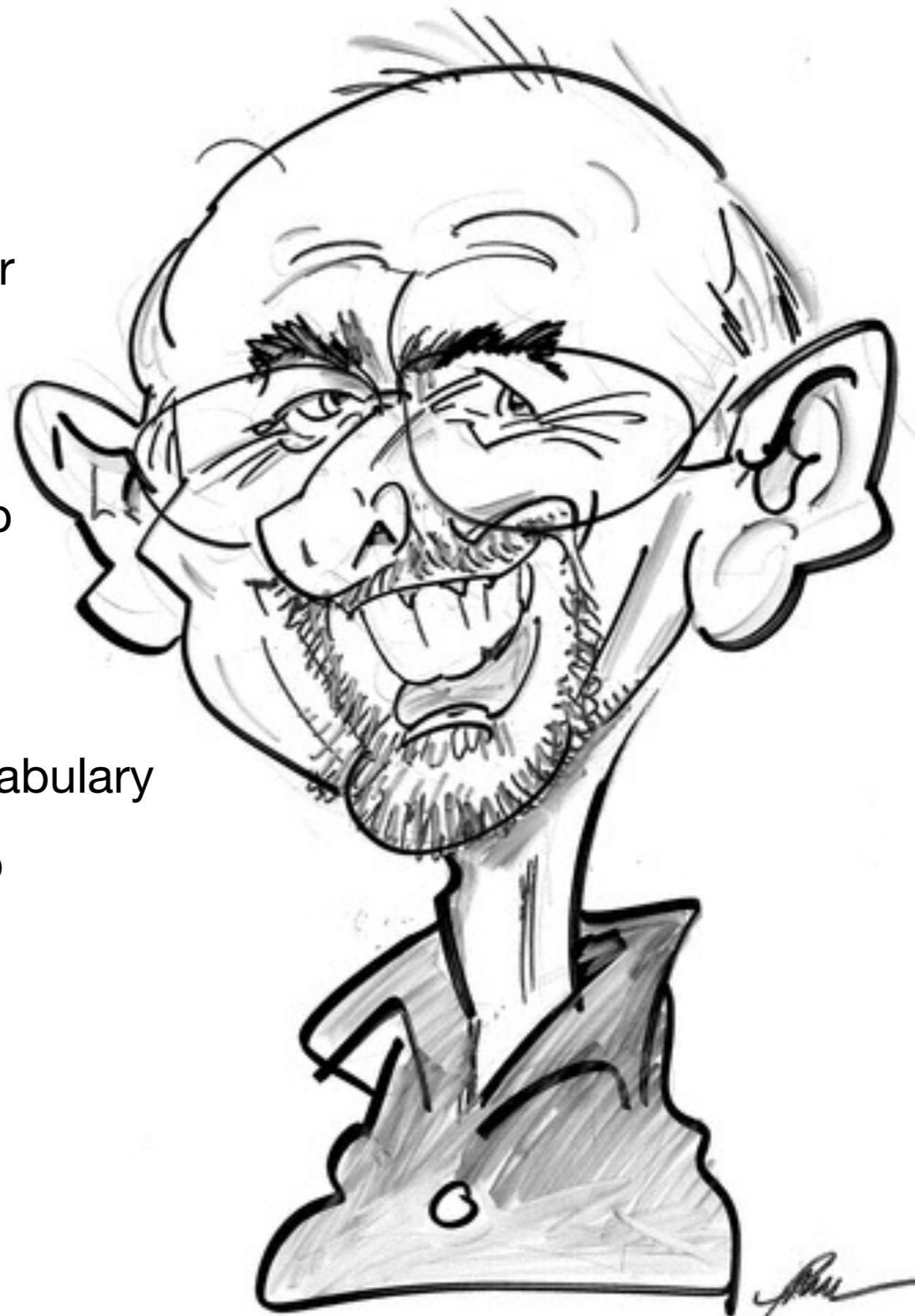


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- Schema Architypes W3C Community Group
  - Schema.org for archives data
  - [archives.schema.org](http://archives.schema.org) ?





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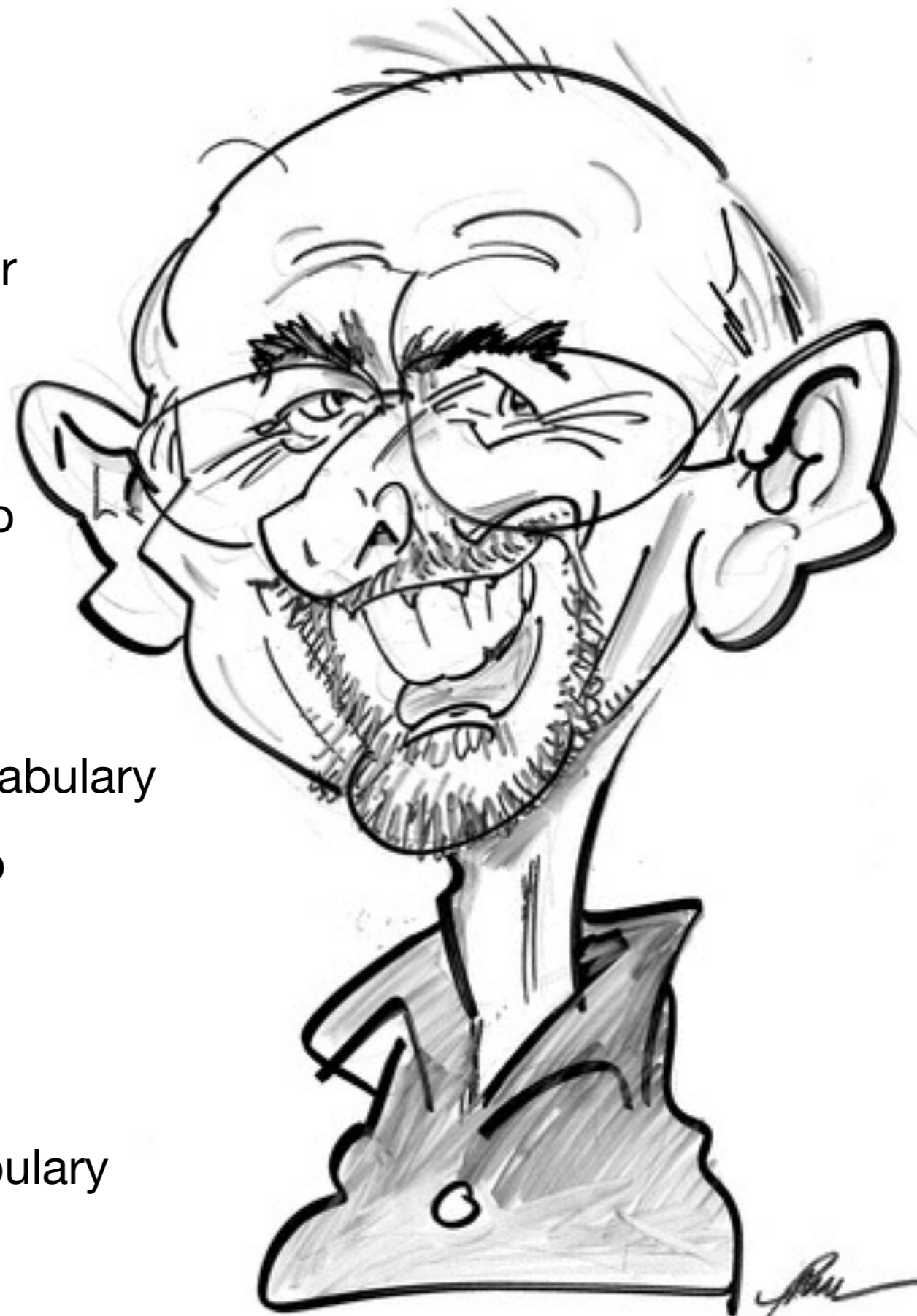
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Currently Working With:

- Google – on the Schema.org site and vocabulary





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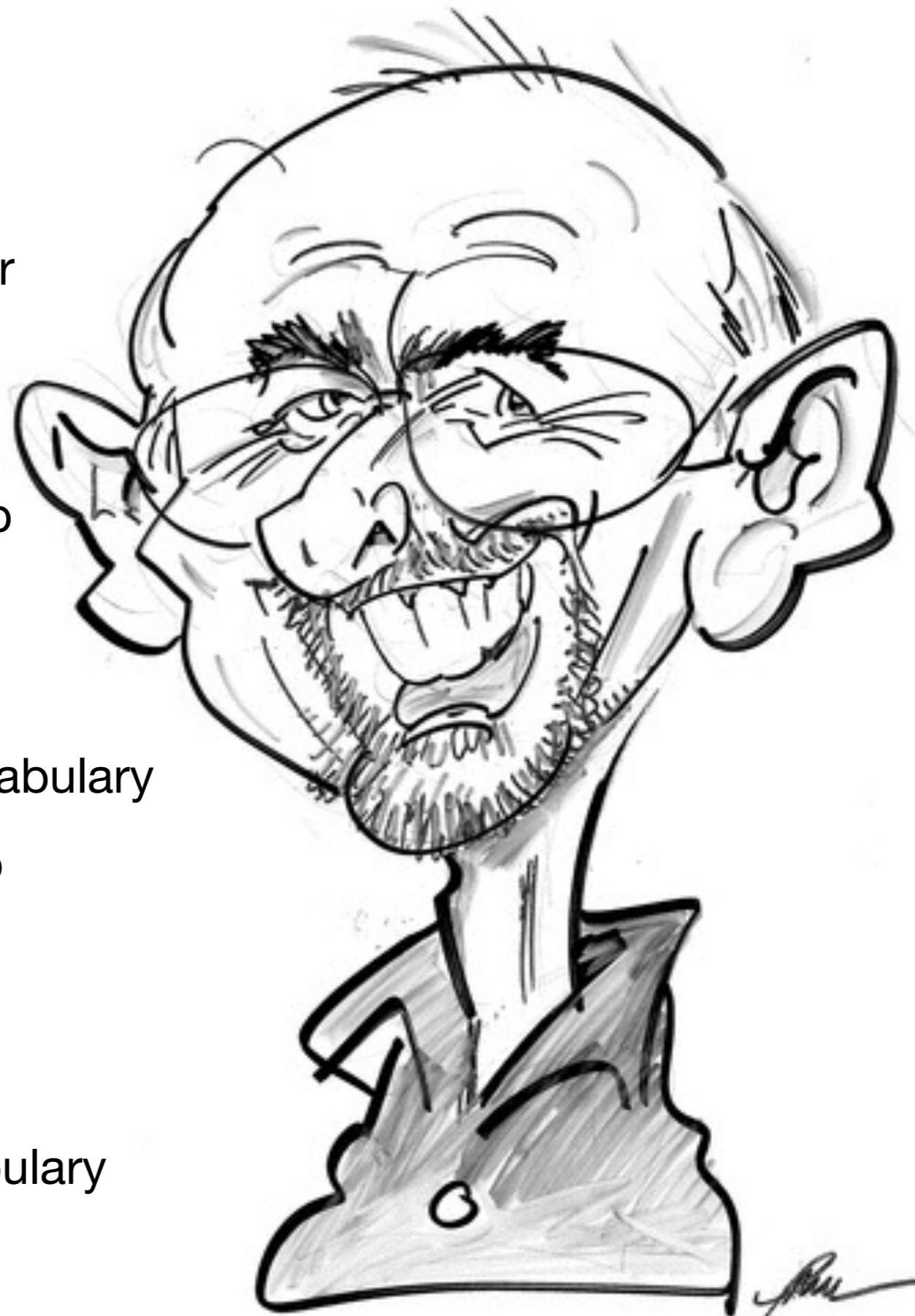
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- OCLC - Global library cooperative
- FIBO – Financial Industry Business Ontology



**schema.org**





# Introducing schema.org: Search engines come together for a richer web

Posted: Thursday, June 02, 2011

G+1 79 [Twitter] [Facebook]

Webmaster Level: All

Today we're announcing [schema.org](#), a new initiative from Google, Bing and Yahoo! to create and support a common set of schemas for structured data markup on web pages. Schema.org aims to be a one stop resource for webmasters looking to add markup to their pages to help search engines better understand their websites.

At Google, we've supported structured markup for a couple years now. We introduced [rich snippets](#) in 2009 to better represent search results describing [people](#) or containing [reviews](#). We've since expanded to new kinds of rich snippets, including [products](#), [events](#), [recipes](#), and more.

### [Salad - Thai Green Mango Salad Recipe](#)



★★★★★ 5 reviews - Total cook time: 20 mins  
You asked for a one-page printable version of my step-by-step Green Mango Salad recipe, so here it is! This salad will blow you away with its ...  
[thaifood.about.com/od/thaisnacks/r/greenmangosalad.htm](#) -  
[Cached](#) - [Similar](#)

*Example of a rich snippet: a search result enhanced by structured markup. In this case, the rich snippet contains a picture, reviews, and cook time for the recipe.*

Adoption by the webmaster community has grown rapidly, and today we're able to show rich snippets in search results more than ten times as often as when we started two years ago.

We want to continue making the open web richer and more useful. We know that it takes time and effort to add this markup to your pages, and adding markup is much harder if every search engine asks for data in a different way. That's why we've come together with other search engines to support a common set of schemas, just as we came together to support a common standard for [Sitemaps](#) in 2006. With [schema.org](#), site owners can improve how their sites appear in search results not only on Google, but on Bing, Yahoo! and potentially other search engines as well in the future.

Now let's discuss some of the details of [schema.org](#) relevant to you as a webmaster:







# Introducing schema.org: Search engines come together for a richer web

Posted: Thursday, June 02, 2011

Webmaster Level: All

Today we're announcing a common set of schemas for webmasters to use.



1) Schema.org contains a lot of new markup types. We've added more than 100 new types as well as ported over all of the existing rich snippets types. If you've looked at adding rich snippets markup before but none of the existing types were relevant for your site, it's worth taking another look. Here are a few popular 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](#)

Or, view a full list of all schema.org types.

The new markup types may be used for future rich snippets formats as well as other types of improvements to help people find your content more easily when searching. In this case, the rich snippet contains a name for the recipe. rapidly, and today we're able to show rich snippets in search results more easily when we started two years ago. We know that it takes time and effort to add this and adding markup is much harder if every search engine asks for data in a different way. We've come together with other search engines to support a common set of schemas, just as we came together to support a common standard for Sitemaps in 2006. With schema.org, site owners can improve how their content appears in search results not only on Google, but on Bing, Yahoo! and potentially other search engines as well in the future.

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2011  
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2

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79  

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**Salad - Thai Green Mango Salad Recipe**



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Cached - Similar

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# Schema.org

[schema.org](https://schema.org)

Introducing Schema.org

Data Liberate

# Schema.org

- A [Linked Data] vocabulary



[schema.org](http://schema.org)



# Schema.org

- A [Linked Data] vocabulary
- RDF (triples)



[schema.org](http://schema.org)

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- A [Linked Data] vocabulary
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- URIs / string values



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[schema.org](http://schema.org)

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schema.org

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  - Microdata, RDFa, JSON-LD



schema.org



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- *RangeIncludes* / *DomainIncludes*
- Three serialisations
  - Microdata, RDFa, JSON-LD
- A web vocabulary to describe stuff!



[schema.org](https://schema.org)

# Knowledge Graph



## Official Blog

Insights from Googlers into our products, technology, and the Google culture

### Introducing the Knowledge Graph: things, not strings

May 16, 2012

*Cross-posted on the [Inside Search Blog](#)*

Search is a lot about discovery—the basic human need to learn and broaden your horizons. But searching still requires a lot of hard work by you, the user. So today I'm really excited to launch the Knowledge Graph, which will help you discover new information quickly and easily.

Take a query like [taj mahal]. For more than four decades, search has essentially been about matching keywords to queries. To a search engine the words [taj mahal] have been just that—two words.

But we all know that [taj mahal] has a much richer meaning. You might think of one of the world's most beautiful monuments, or a Grammy Award-winning musician, or possibly even a casino in Atlantic City, NJ. Or, depending on when you last ate, the

Search blog ...



Google

[google.com/+google](https://google.com/+google)

News and updates on Google's products, technology and more

[G+](#) **Follow** [+1](#)

+ 10,371,700

Labels

Archive





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**S. R. Ranganathan**  
Mathematician

Shiyali Ramamrita Ranganathan was a mathematician and librarian from India. His most notable contributions to the field were his five laws of library science and the development of the first major ... [Wikipedia](#)

**Born:** August 9, 1892, Sirkazhi, India  
**Died:** September 27, 1972, Bengaluru, India  
**Parents:** Ramamrita Ayyar, Seethalakshmi  
**Education:** Madras Christian College, University College London

**Books**

- Prolegomena to Library Classification 1937
- The Five Laws of Library Science 1931
- Library Book Selection 1952
- Classified Catalogue Code: With an Introduction 1958
- Documentation: Genesis and Development

**People also search for**

- Paul Otlet
- Melvil Dewey
- Velaga Venkatapadmaiah
- Suzanne Briet
- Michael Gorman



2012  
May  
16



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Insights from Googlers into our products, technology, and the Google culture

**Bart Simpson**  
Fictional Character  
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Wikipedia  
Played by: Nancy Cartwright  
Born: April 1, 1979  
Creator: Matt Groening  
Gender: Male

More images

People also search for  
Homer Simpson  
Marge Simpson  
Lisa Simpson  
Maggie Simpson  
Milhouse Van Houten

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### Knowledge Graph: things, not strings

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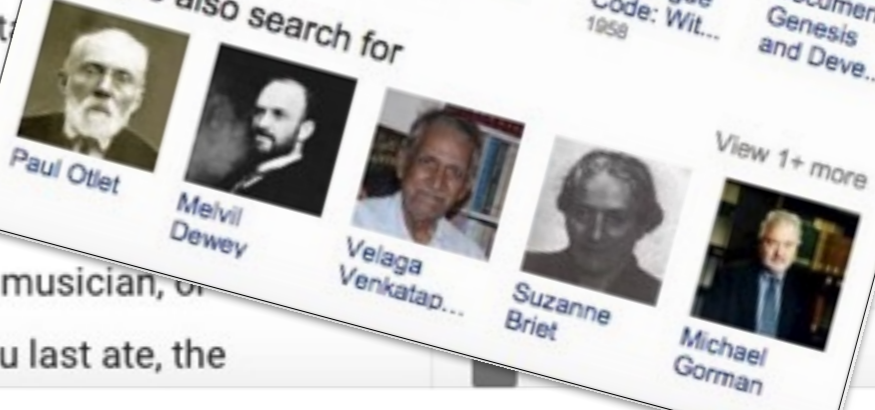
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#### Books



#### People also search for



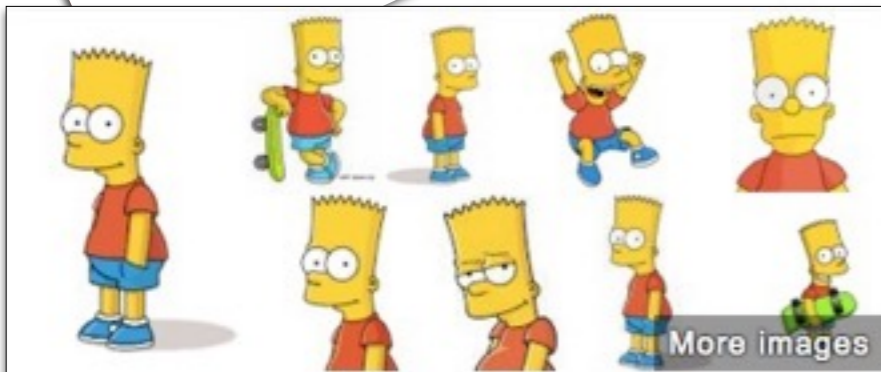


2012  
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Graph: things, not strings

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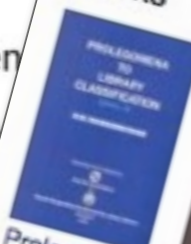
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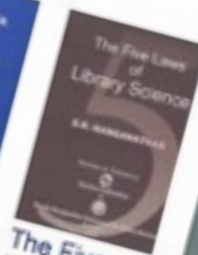
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#### Books



Prolegom...  
to Library  
Classifica...  
1937



The Five  
Laws of  
Library S...  
1931



Library  
Book  
Selection  
1952



Classified  
Catalogue  
Code: Wit...  
1958



Documen...  
Genesis  
and Deve...  
1958

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#### People also search for



Paul Otlet



Melvil  
Dewey



Velaga  
Venkatap...



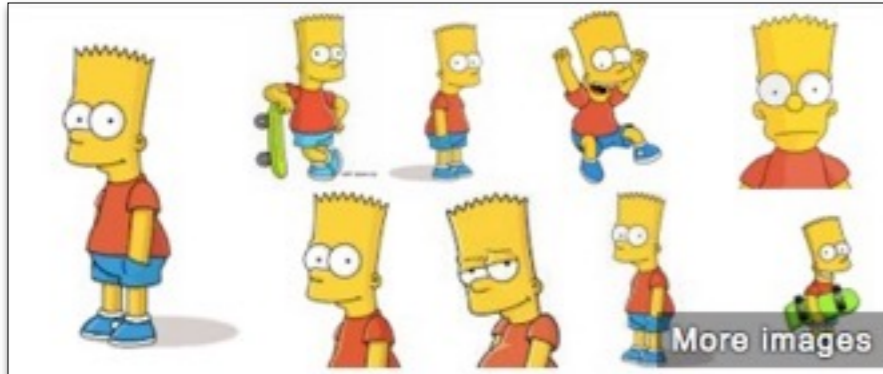
Suzanne  
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Homer Simpson



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## Nancy Cartwright

Voice actress · [nancycartwright.com](http://nancycartwright.com)

Nancy Jean Cartwright is an American voice actress, film and television actress, and comedienne. She is known for her long-running role as Bart Simpson on the animated television series The Simpsons. [Wikipedia](#)

**Born:** October 25, 1957 (age 58), Dayton, Ohio, United States

**Height:** 1.52 m

**Spouse:** Warren Murphy (m. 1988–2002)

**Children:** Jackson Murphy, Lucy Mae Murphy

**Parents:** Frank Cartwright, Miriam Cartwright

### Profiles



Twitter

### Movies and TV shows

[View 45+ more](#)



The Simpsons  
Since 1989



The Simpsons Movie  
2007



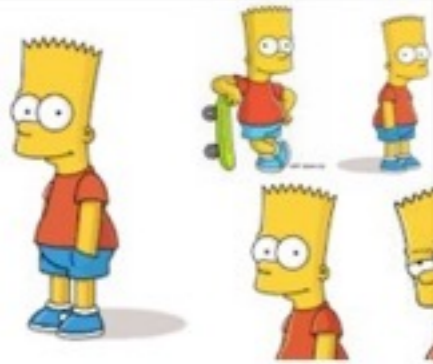
Rugrats  
1991 – 2004



Kim Possible  
2002 – 2007



The Tracey Ullman Show  
1987 – 1990



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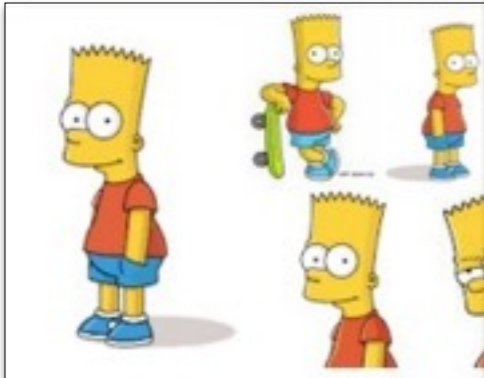


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The Simpsons  
Since 1989

The Simpsons Movie  
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Rugrats  
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Maggie Simpson

Milhouse Van Houten



## Dayton

City in Ohio

Dayton is the sixth largest city in the state of Ohio and is the county seat of Montgomery County. In the 2010 census, the population was 141,527; the Dayton metropolitan area had 841,502 residents, ... [Wikipedia](#)

**Area:** 147 km²

**Weather:** 11°C, Wind SW at 26 mph (42 km/h), 61% Humidity

**Local time:** Thursday 09:52

**Getting there:** 14 h 27 min flight, around £585. [View flights](#)

**Area codes:** Area code 937

**Population:** 143,355 (2013)

**Mayor:** Nan Whaley

### Events

Chris Janson	Tue 17 Nov
Keith Nelson Oddbody's	Fri 13 Nov
OHSAA Girls State Volleyball Tournament Wright State University Nutter Center	Thu 12 Nov

### Points of interest

[View 10+ more](#)



Carillon Historical Park

Dayton Aviation Heritage...

Dayton Art Institute

Boonshoft Museum of Discovery

SunWatch Indian Village

2002 – 2007

Show  
1987 – 1990





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#### Points of interest



Carillon Historical Park  
 Dayton Aviation Heritage...  
 Dayton Art Institute



### Dayton Aviation Heritage National Historical Park

National park in Ohio

Dayton Aviation Heritage National Historical Park is a United States National Historical Park in Dayton, Ohio, United States that commemorates three important historical figures—Wilbur Wright, Orville Wright, and Charles G. Knight. [Wikipedia](#)

**Address:** Dayton, OH 45424, United States  
**Area:** 35 ha  
**Established:** October 16, 1992  
**Management:** National Park Service

#### Reviews

4 Google reviews

[Write a review](#)

#### People also search for

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Huffman Prairie, Carillon Historical Park, Boonshoft Museum of Discovery, Paul Laurence Dunbar House, Woodland Cemetery and Arbor...

# Knowledge Graph



Bart Simpson

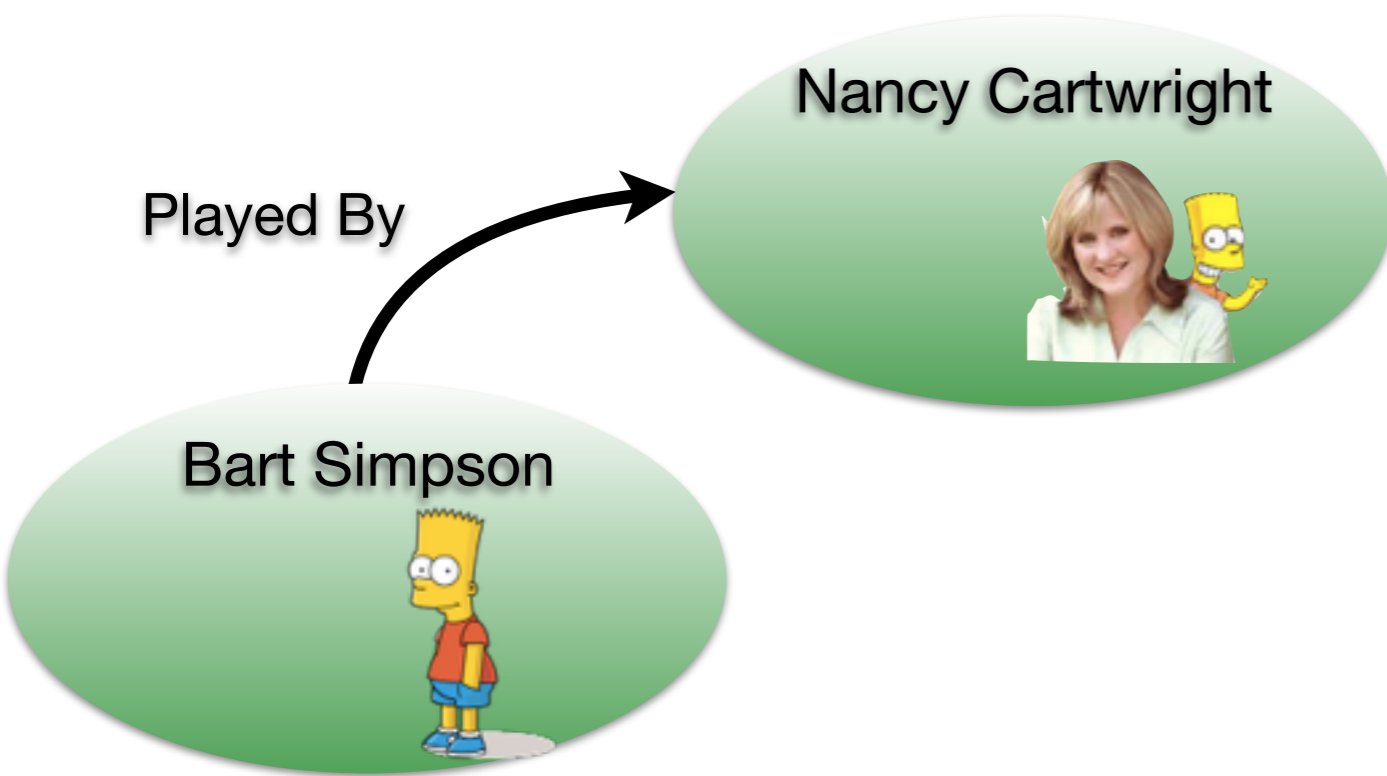


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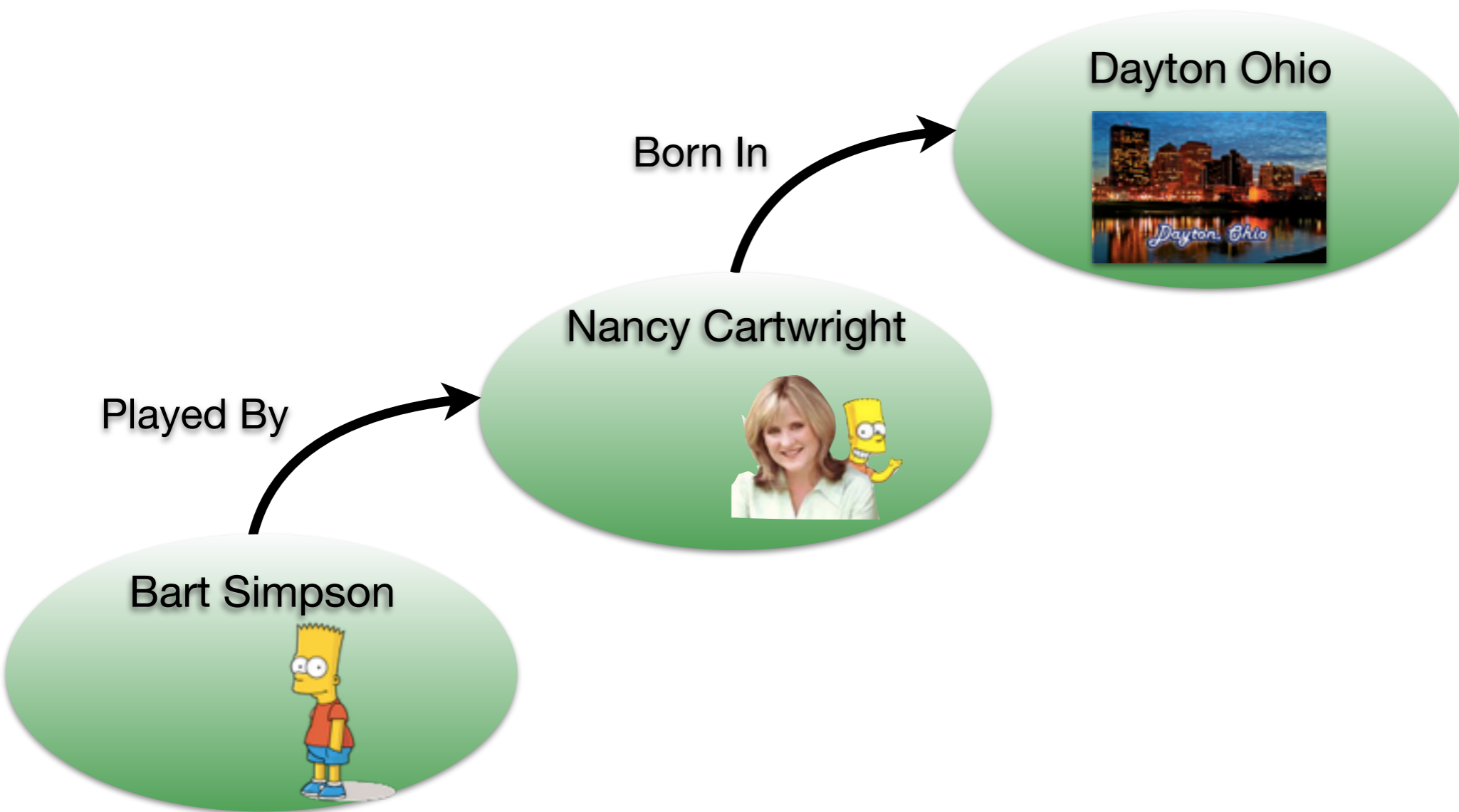
Related Entities in a Graph

Data Liberate

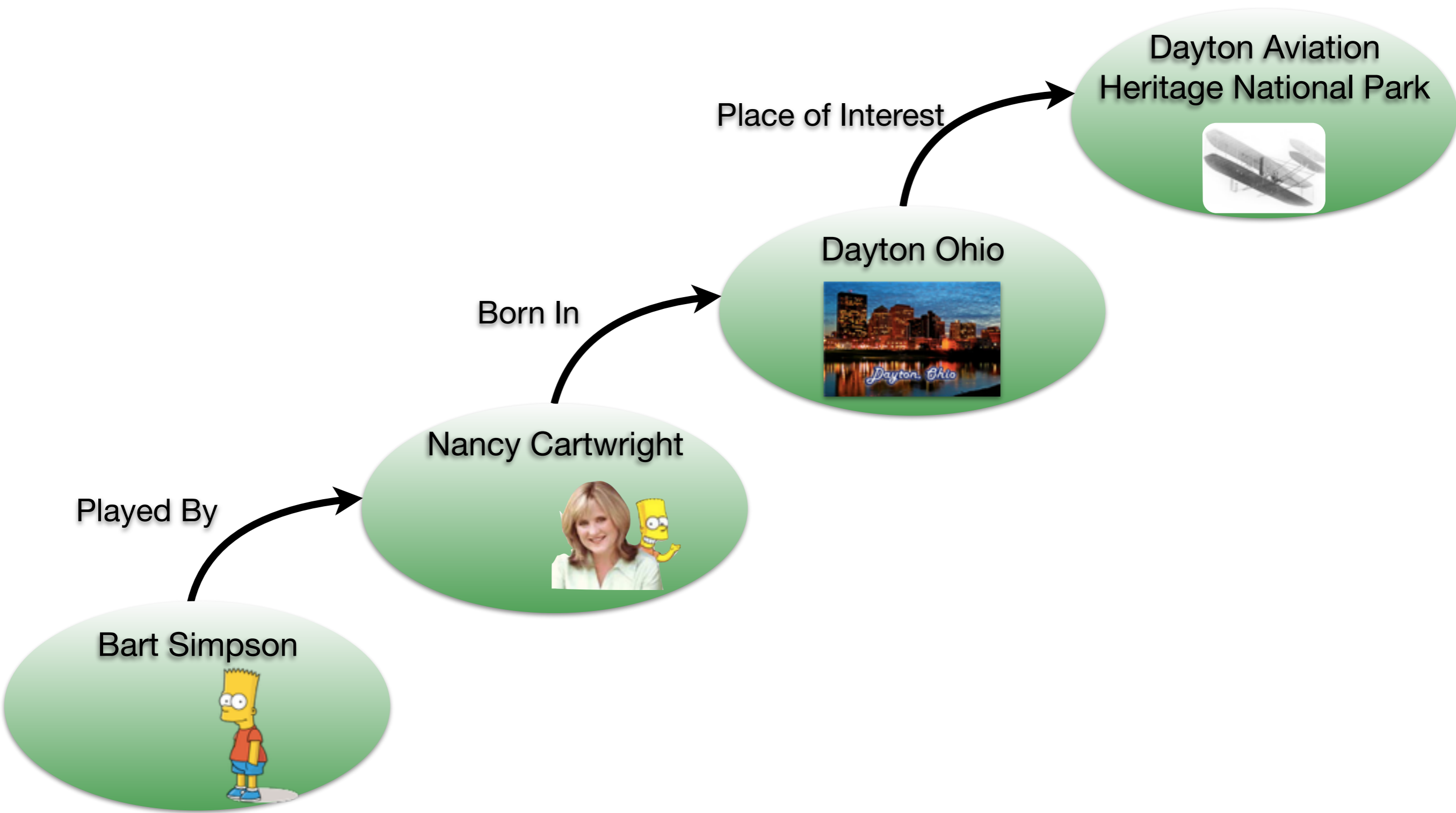




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Sources for the Graph





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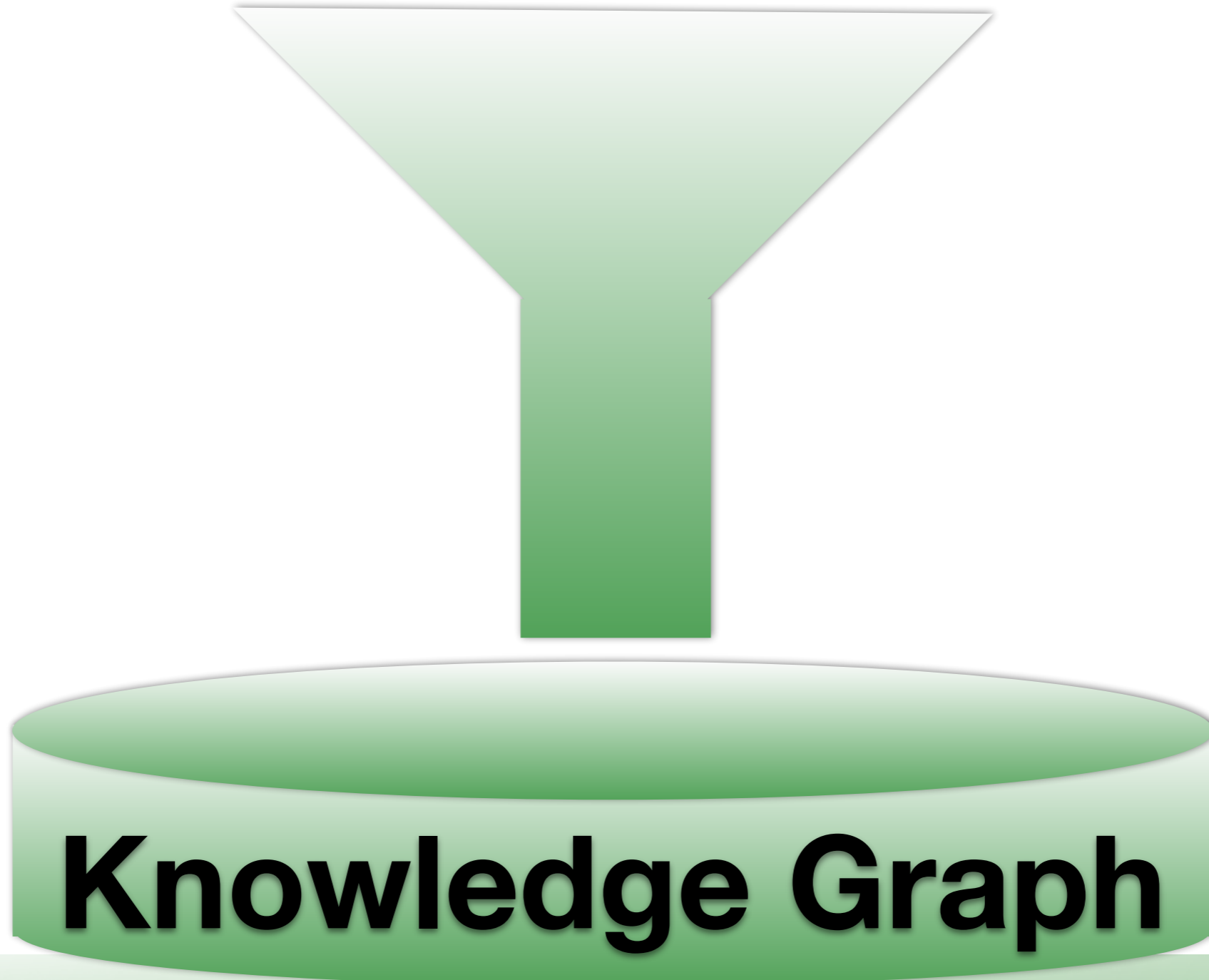


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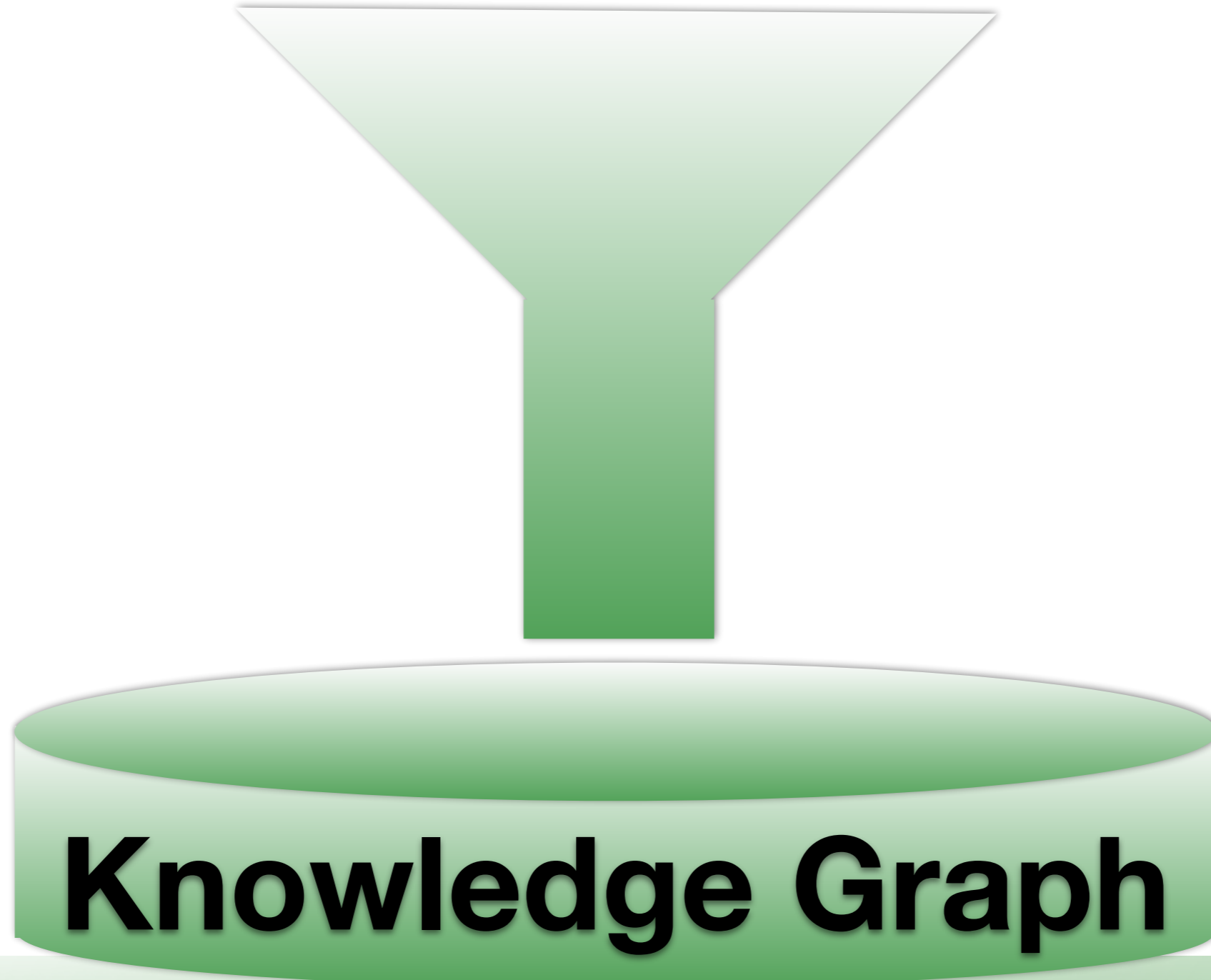
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**Knowledge Graph**



**Knowledge Graph**



# Knowledge Graph

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**Knowledge Panel**

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**Books**

Prolegomena to Library Classification... 1937  
The Five Laws of Library Science... 1931  
Library Book Selection... 1952  
Classified Catalogue Code: Wit... 1958  
Documents, Genesis and Development... 1958

**People also search for**

Paul Otlet  
Melvil Dewey  
Velaga Venkataswamy  
Suzanne Briet  
Michael Gorman

# Knowledge Graph

Powered by the Graph





Info Box

**Linux** (pronounced /ˈlɪnəks/ LIN-əks or, less frequently, /ˈlɪznəks/ LYN-əks) is a Unix-like and mostly POSIX-compliant computer operating system (OS) assembled under the model of free and open-source software development and distribution.



[Linux - Wikipedia, the free encyclopedia](https://en.wikipedia.org/wiki/Linux)  
<https://en.wikipedia.org/wiki/Linux>

More about Linux

**Knowledge Panel**

**S. R. Ranganathan**  
 Mathematician

Shiyali Ramamrita Ranganathan was a mathematician and librarian from India. His most notable contributions to the field were his five laws of library science and the development of the first major ... Wikipedia

**Born:** August 9, 1892, Sirkazhi, India  
**Died:** September 27, 1972, Bengaluru, India  
**Parents:** Ramamrita Ayyar, Seethalakshmi  
**Education:** Madras Christian College, University College London

**Books**

Prolegom... to Library Classifica... 1937  
 The Five Laws of Library S... 1931  
 Library Book Selection 1952  
 Classified Catalogue Code: Wit... 1958  
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8,848 m

K2 8,611 m

Mount Kilimanjaro 5,895 m

Denali 6,194 m

Linux (pronounced /ˈlɪnəks/ LIN-əks or, less frequently, /ˈlɪznəks/ LYN-əks) is a Unix-like and mostly POSIX-compliant computer operating system (OS) assembled under the model of free and open-source software development and distribution.



Linux - Wikipedia, the free encyclopedia  
https://en.wikipedia.org/wiki/Linux

More about Linux

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5 reviews · Total cook time: 20 mins

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- Data embedded in website html



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- Data embedded in website html
  - Microdata / RDFa / JSON-LD

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- Harvested during normal web crawls

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  - Microdata / RDFa / JSON-LD
- Harvested during normal web crawls
- Under control of the [site] publisher



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- In use on over 10 million domains

# schema.org

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- Broad vocabulary v2.2:



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A de facto vocabulary for  
structured data on the web

**schema.org**

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The logo for schema.org, featuring the text "schema.org" in a bold, white, sans-serif font. The text is centered within a dark red rectangular background that has a thin black border and a slight drop shadow effect.

... and for bibliographic data and libraries?





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## OCLC adds Linked Data to WorldCat.org

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**DUBLIN, Ohio, USA, 20 June 2012**—OCLC is taking the first step toward adding linked data to WorldCat by appending Schema.org descriptive mark-up to WorldCat.org pages. WorldCat.org now offers the largest set of linked bibliographic data on the Web. With the addition of Schema.org mark-up to all book, journal and other bibliographic resources in WorldCat.org, the entire publicly available version of WorldCat is now available for use by intelligent Web crawlers, like Google and Bing, that can make use of this metadata in search indexes and other applications.

Commercial developers that rely on Web-based services have been exploring ways to exploit the potential of linked data. The Schema.org initiative—launched in 2011 by Google, Bing and Yahoo! and later joined by Yandex—provides a core vocabulary for markup that helps search engines and other Web crawlers more directly make use of the underlying data that powers many online services.

OCLC is working with the Schema.org community to develop and add a set of vocabulary extensions to WorldCat data. Schema.org and library specific extensions will provide a valuable two-way bridge between the library community and the consumer Web. Schema.org is working with a number of other industries to provide similar sets of extensions for other specific use cases.





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OCLC add Schema.org to WorldCat

Data Liberate

## - Linked Data

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<<http://www.worldcat.org/oclc/52541937>>

<a href="#">library:holdingsCount</a>	"682"				
<a href="#">library:oclcnum</a>	"52541937"				
<a href="#">library:placeOfPublication</a>	<table border="1"><tr><td><a href="#">rdf:type</a></td><td><a href="#">schema:Place</a></td></tr><tr><td><a href="#">schema:name</a></td><td>"New York :"</td></tr></table>	<a href="#">rdf:type</a>	<a href="#">schema:Place</a>	<a href="#">schema:name</a>	"New York :"
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schema:about	<table border="1"><tr><td colspan="2"><a href="http://dewey.info/class/940/e22/">&lt;http://dewey.info/class/940/e22/&gt;</a></td></tr><tr><td>rdf:type</td><td><a href="#">skos:Concept</a></td></tr><tr><td>skos:inScheme</td><td><a href="http://dewey.info/scheme/e22/">&lt;http://dewey.info/scheme/e22/&gt;</a></td></tr></table>	<a href="http://dewey.info/class/940/e22/">&lt;http://dewey.info/class/940/e22/&gt;</a>		rdf:type	<a href="#">skos:Concept</a>	skos:inScheme	<a href="http://dewey.info/scheme/e22/">&lt;http://dewey.info/scheme/e22/&gt;</a>
<a href="http://dewey.info/class/940/e22/">&lt;http://dewey.info/class/940/e22/&gt;</a>							
rdf:type	<a href="#">skos:Concept</a>						
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<a href="http://dewey.info/class/940/e21/">&lt;http://dewey.info/class/940/e21/&gt;</a>							
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[More info about Linked Data](#)

# Schema.org for bibliographic description?

[<http://www.worldcat.org/oclc/52541937>](http://www.worldcat.org/oclc/52541937)

Surprisingly effective:

- Book type
- Article type
- Library type
- author property

library:holdingsCount	"682"				
library:oclcnum	"52541937"				
library:placeOfPublication	<table border="1"><tr><td>rdf:type</td><td><a href="#">schema:Place</a></td></tr><tr><td>schema:name</td><td>"New York :"</td></tr></table>	rdf:type	<a href="#">schema:Place</a>	schema:name	"New York :"
rdf:type	<a href="#">schema:Place</a>				
schema:name	"New York :"				
library:issueOf	<a href="#">schema:Book</a>				
library:author	<table border="1"><tr><td>rdf:type</td><td><a href="#">schema:Organization</a></td></tr><tr><td>schema:name</td><td>"World War (1914-1918)"</td></tr></table>	rdf:type	<a href="#">schema:Organization</a>	schema:name	"World War (1914-1918)"
rdf:type	<a href="#">schema:Organization</a>				
schema:name	"World War (1914-1918)"				
schema:about	<p><a href="http://dewey.info/class/940/e22/">&lt;http://dewey.info/class/940/e22/&gt;</a></p> <table border="1"><tr><td>rdf:type</td><td><a href="#">skos:Concept</a></td></tr><tr><td>skos:inScheme</td><td><a href="http://dewey.info/scheme/e22/">&lt;http://dewey.info/scheme/e22/&gt;</a></td></tr></table>	rdf:type	<a href="#">skos:Concept</a>	skos:inScheme	<a href="http://dewey.info/scheme/e22/">&lt;http://dewey.info/scheme/e22/&gt;</a>
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[More info about Linked Data](#)

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<a href="#">schema:name</a>	"New York :"
<a href="#">rdf:type</a>	<a href="#">schema:Book</a>
<a href="#">rdf:type</a>	<a href="#">schema:Organization</a>
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[More info about Linked Data](#)

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[More info about Linked Data](#)

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- about property
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Not available:

- title property

[library:holdingsCount](#)

"682"

[library:oclcnum](#)

"52541937"

[library:placeOfPublication](#)

[rdf:type](#)

[schema:Place](#)

[schema:name](#)

"New York :"

[library:genre](#)

[schema:Book](#)

[schema:author](#)

[rdf:type](#)

[schema:Organization](#)

[schema:name](#)

"World War (1914-1918)"

[schema:datePublished](#)

<http://dewey.info/class/940/e22/>

[schema:about](#)

[rdf:type](#)

[skos:Concept](#)

[skos:inScheme](#)

<http://dewey.info/scheme/e22/>

[schema:about](#)

<http://dewey.info/class/940/e21/>

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[skos:Concept](#)

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[schema:about](#)

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[schema:about](#)

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- title property
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- datePublished property
- Periodical

[schema:about](#)

<http://dewey.info/class/940/e21/>

[rdf:type](#)

[skos:Concept](#)

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[More info about Linked Data](#)

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- datePublished property
- about property
- genre property

Not available:

- title property
- creator property
- placeOfPublication
- datePublished property
- Periodical
- Thesis / Newspaper

<http://dewey.info/class/940/e21/>

[schema:about](#)

[rdf:type](#)

[skos:Concept](#)

[skos:inScheme](#)

<http://dewey.info/scheme/e21/>

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- No work relationships (FRBR)

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[schema:about](#)

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- Thesis / Newspaper
- No work relationships (FRBR)

Need for a 'Library' extension to Schema?



# Why bother?







Motivation for sharing data



# Why Catalog?



Motivation for sharing data

Data Liberate



# Why Catalog?

## *So we can find things*



Motivation for sharing data

Data Liberate



# Why Catalog?

*So we can find things*

# Why Share on the Web?



A man in a light-colored shirt and glasses is looking at a catalog drawer in a library. The drawer is filled with many small cards. The background shows other library shelves and signs with Chinese characters.

**Why Catalog?**

*So we can find things*

**Why Share on the Web?**

*So today's users  
can find our things*



# Where are our users?



Motivation for sharing data

Data Liberate



# Where are our users?



Motivation for sharing data

Data Liberate



# **Schema.org** for bibliographic description?



# Schema.org

for bibliographic description?

Where next?





# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library>







# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> *x*





# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> x
- Library centric vocabularies





# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> x
- Library centric vocabularies
  - Bibo, RDA, Dublin Core, etc.





# Library Linked Data

# Library Linked Data



British Library



German  
National  
Library



Spanish  
National  
Library



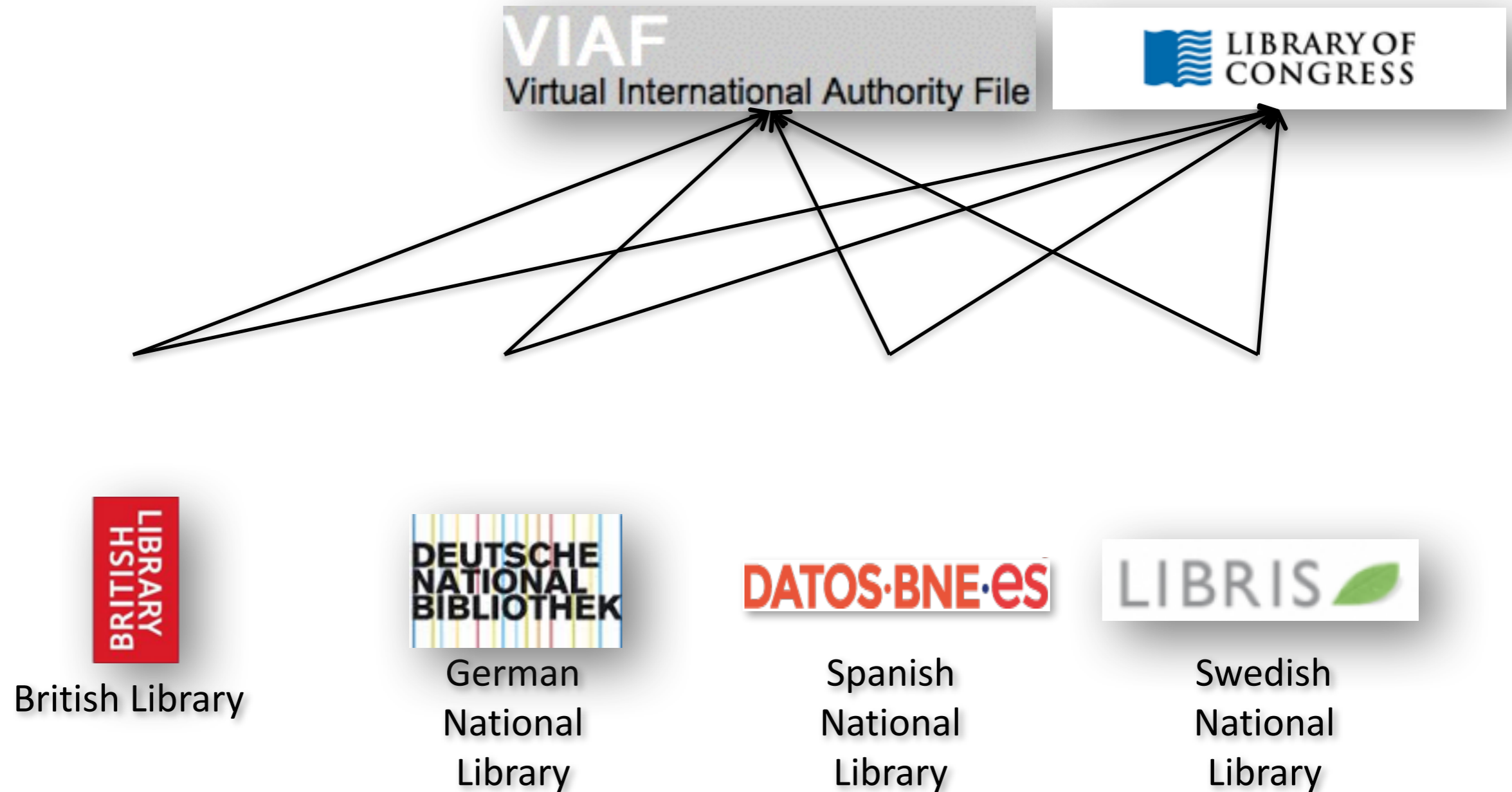
Swedish  
National  
Library

# Library Linked Data





# Library Linked Data



# Library Linked Data

**VIAF**  
Virtual International Authority File

 **LIBRARY OF CONGRESS**

  
British Library

  
German  
National  
Library

  
Spanish  
National  
Library

  
Swedish  
National  
Library

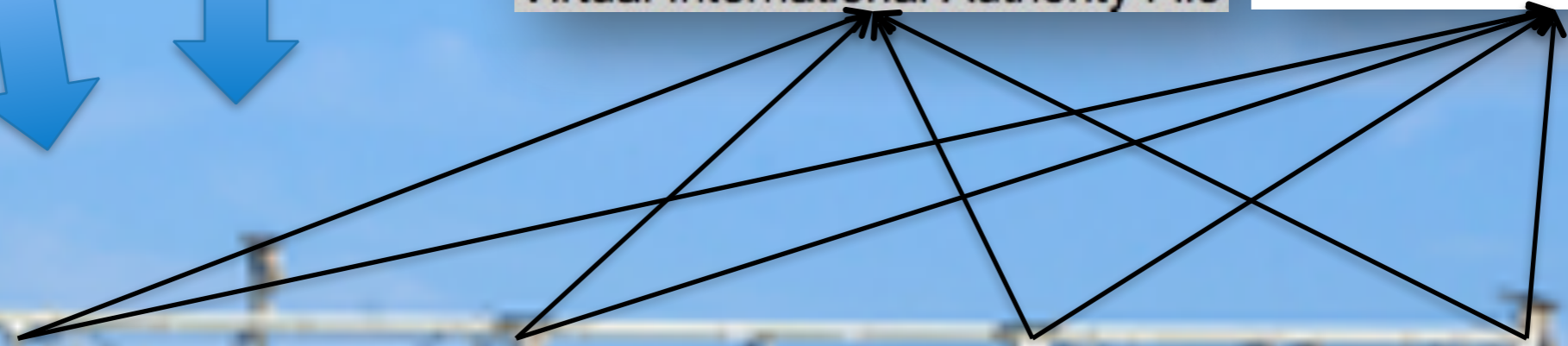
# Open Linked Data - Silos





**VIAF**  
Virtual International Authority File

 **LIBRARY OF CONGRESS**



**LIBRARY  
HSILIRB**

British Library

**DEUTSCHE  
NATIONAL  
BIBLIOTHEK**

German  
National  
Library

**DATOS·BNE·es**

Spanish  
National  
Library

**LIBRIS** 

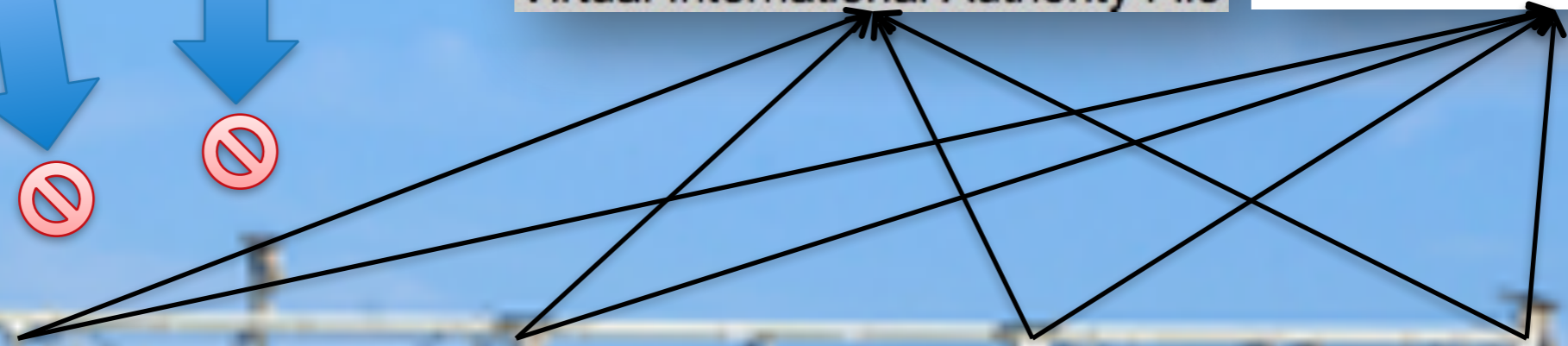
Swedish  
National  
Library

# Open Linked Data - Silos





**VIAF**  
Virtual International Authority File



British Library



German National Library



Spanish National Library



Swedish National Library

# Open Linked Data - Silos

Behind a vocabulary barrier





# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> x
- Library centric vocabularies
  - Bibo, RDA, Dublin Core, etc.





# Schema.org

## for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library>  $\times$
- Library centric vocabularies  $\times$ 
  - Bibo, RDA, Dublin Core, etc.







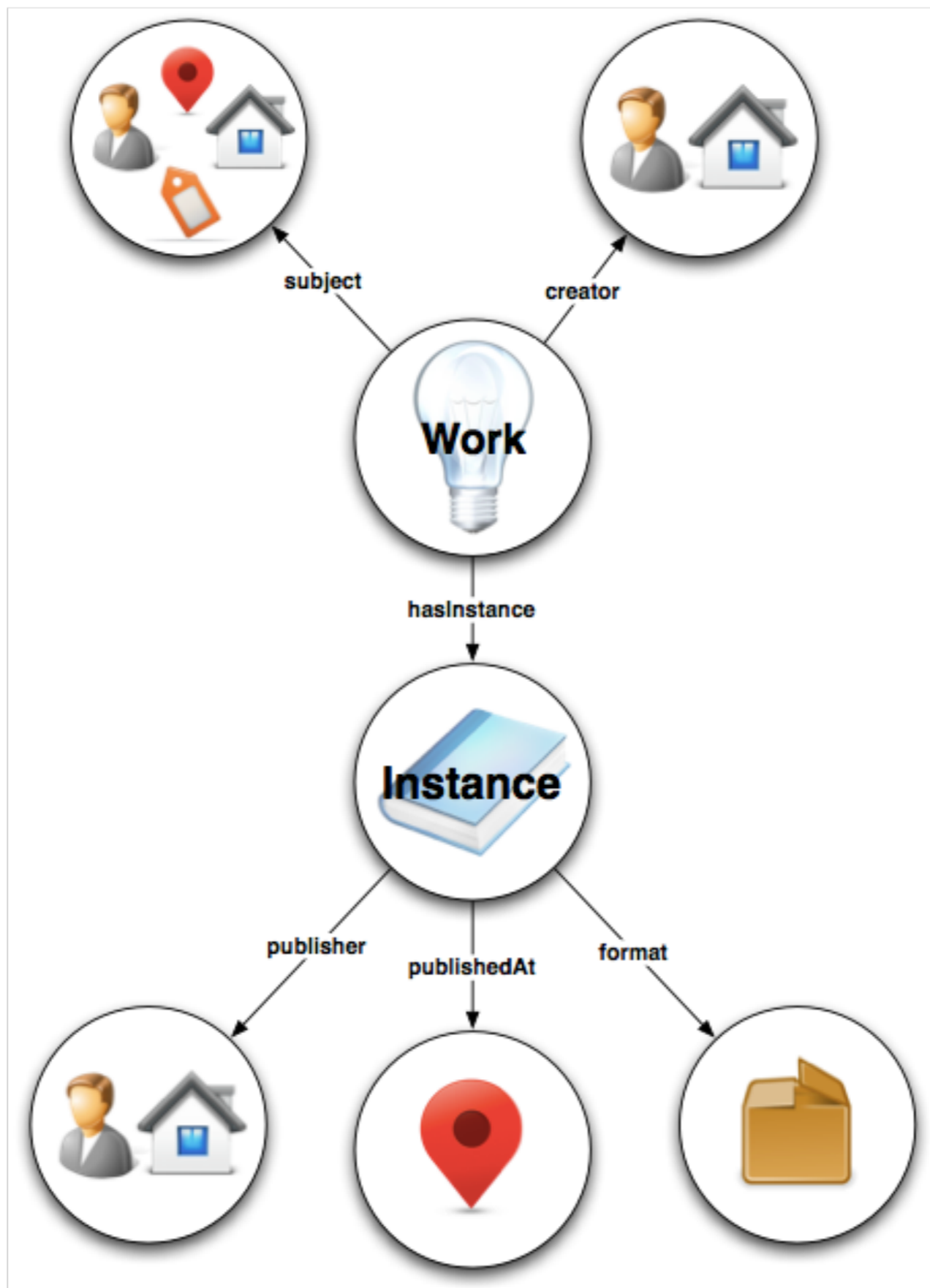
# Schema.org

for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library>  $\times$
- Library centric vocabularies  $\times$ 
  - Bibo, RDA, Dublin Core, etc.
- New library standard - (LoC BIBFRAME?)

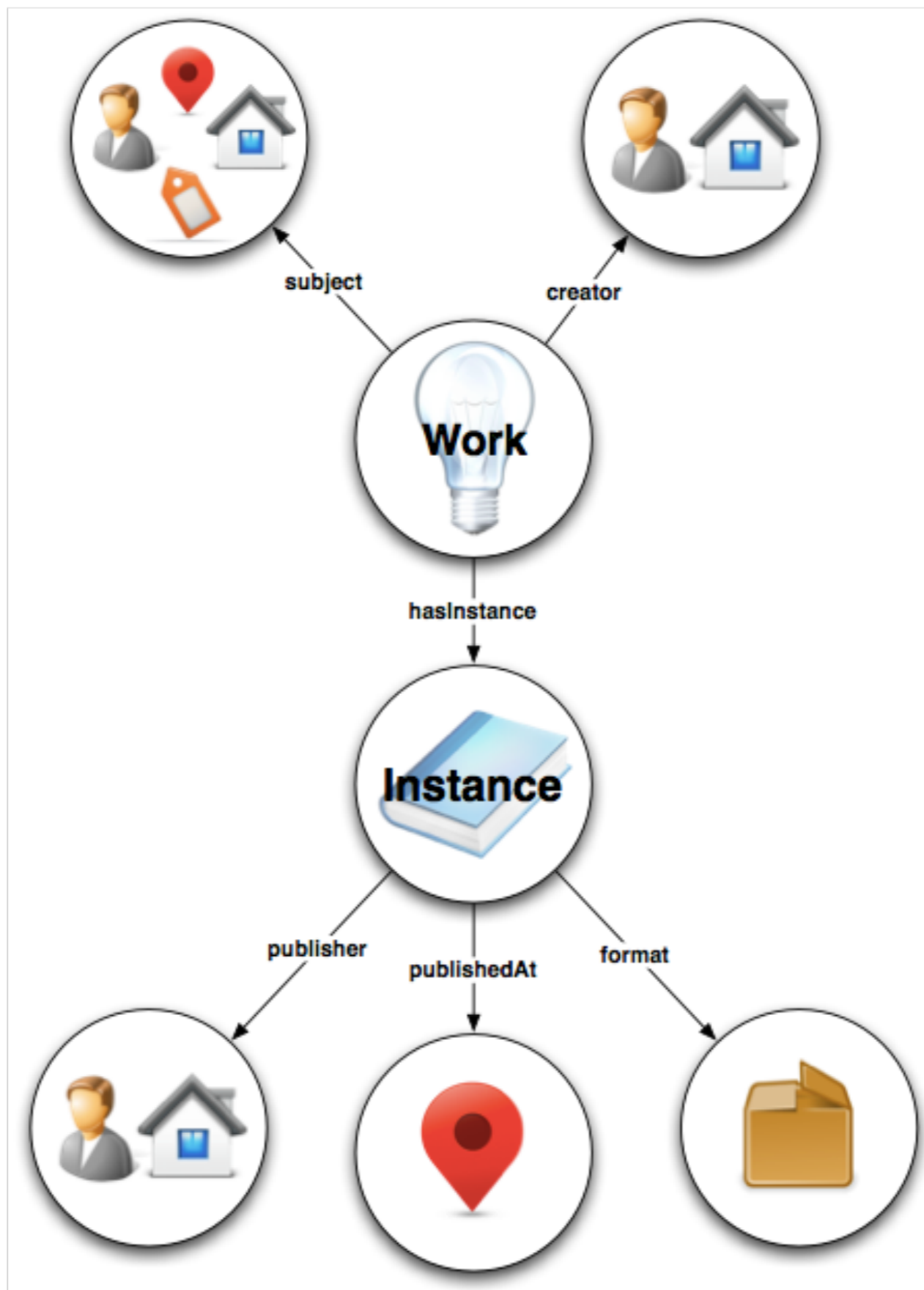






LIBRARY OF  
CONGRESS

bf:  
BIBFRAME







LIBRARY OF  
CONGRESS

bf:  
BIBFRAME

- Foundation for the future of **bibliographic** description

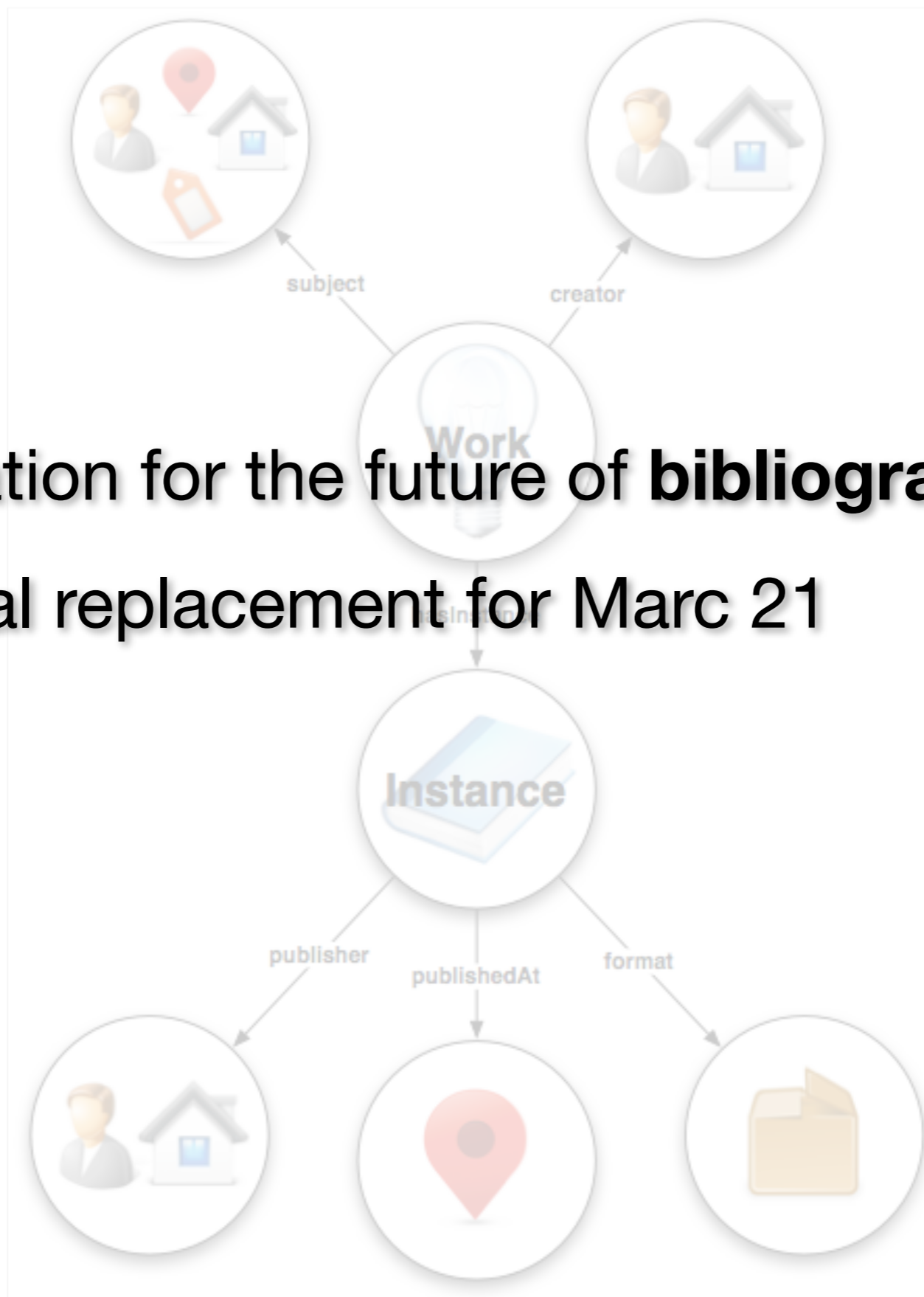




LIBRARY OF  
CONGRESS

bf:  
BIBFRAME

- Foundation for the future of **bibliographic** description
- Eventual replacement for Marc 21

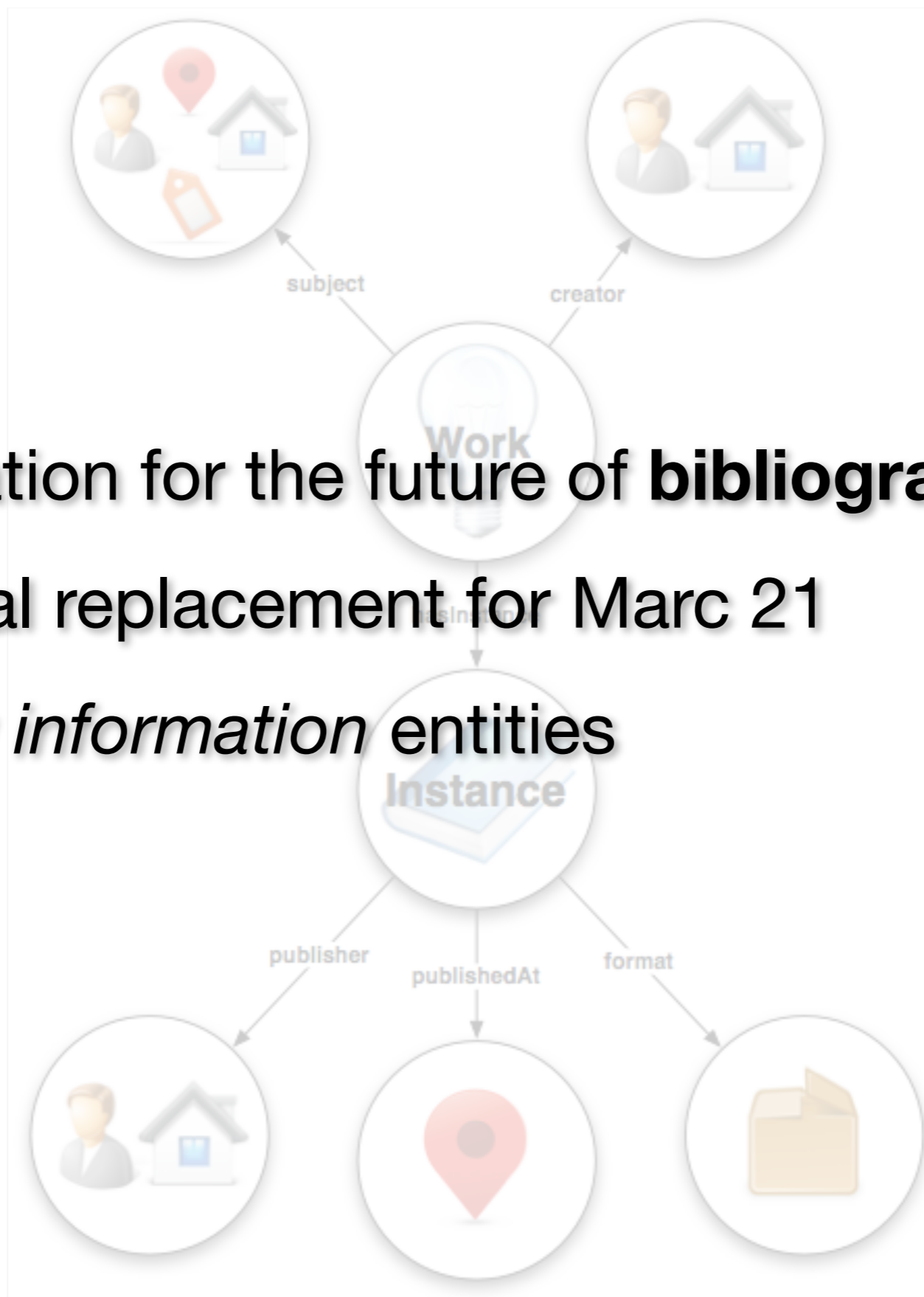




LIBRARY OF  
CONGRESS

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BIBFRAME

- Foundation for the future of **bibliographic** description
- Eventual replacement for Marc 21
- Identify *information* entities



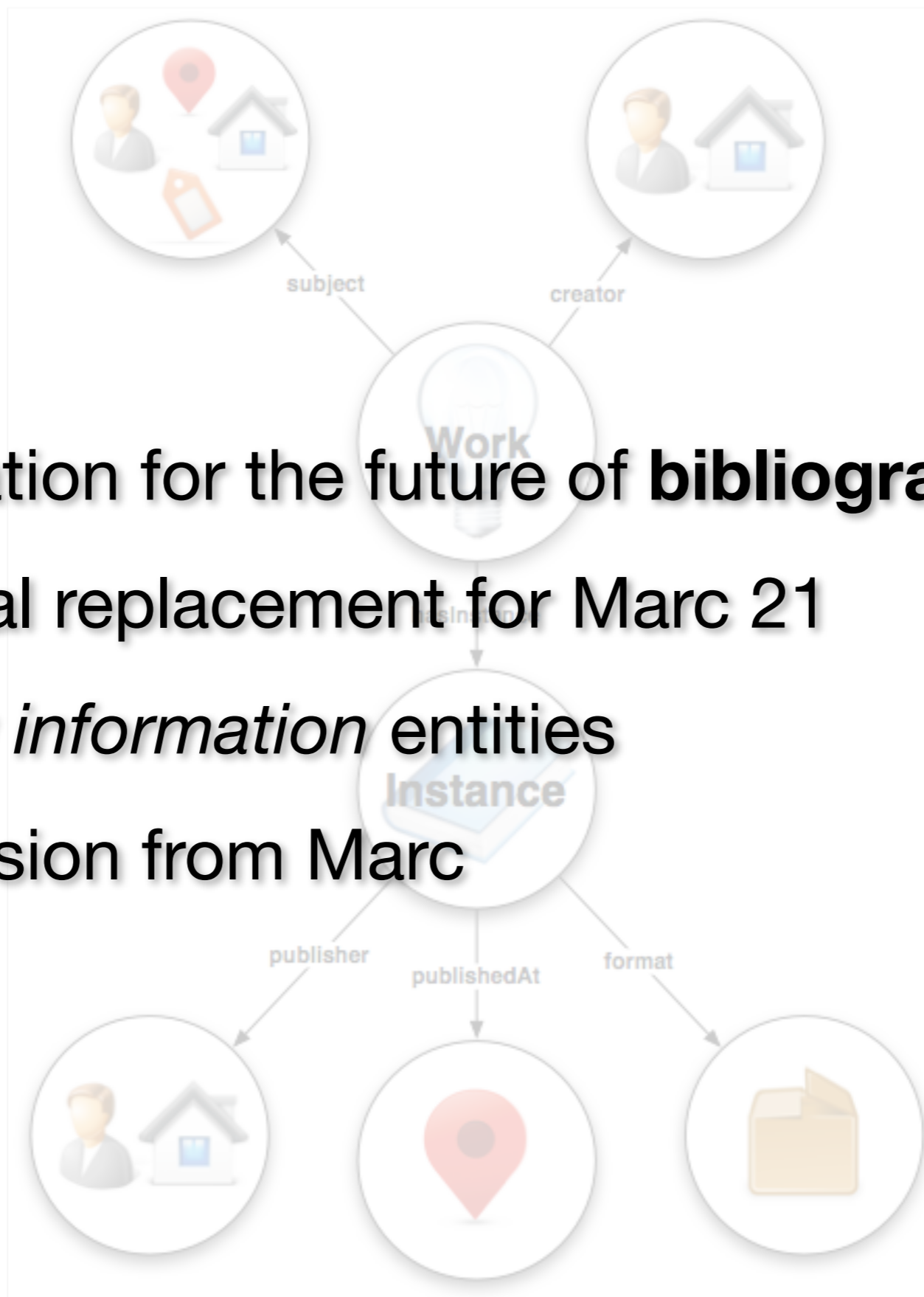




LIBRARY OF  
CONGRESS

bf:  
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- Conversion from Marc

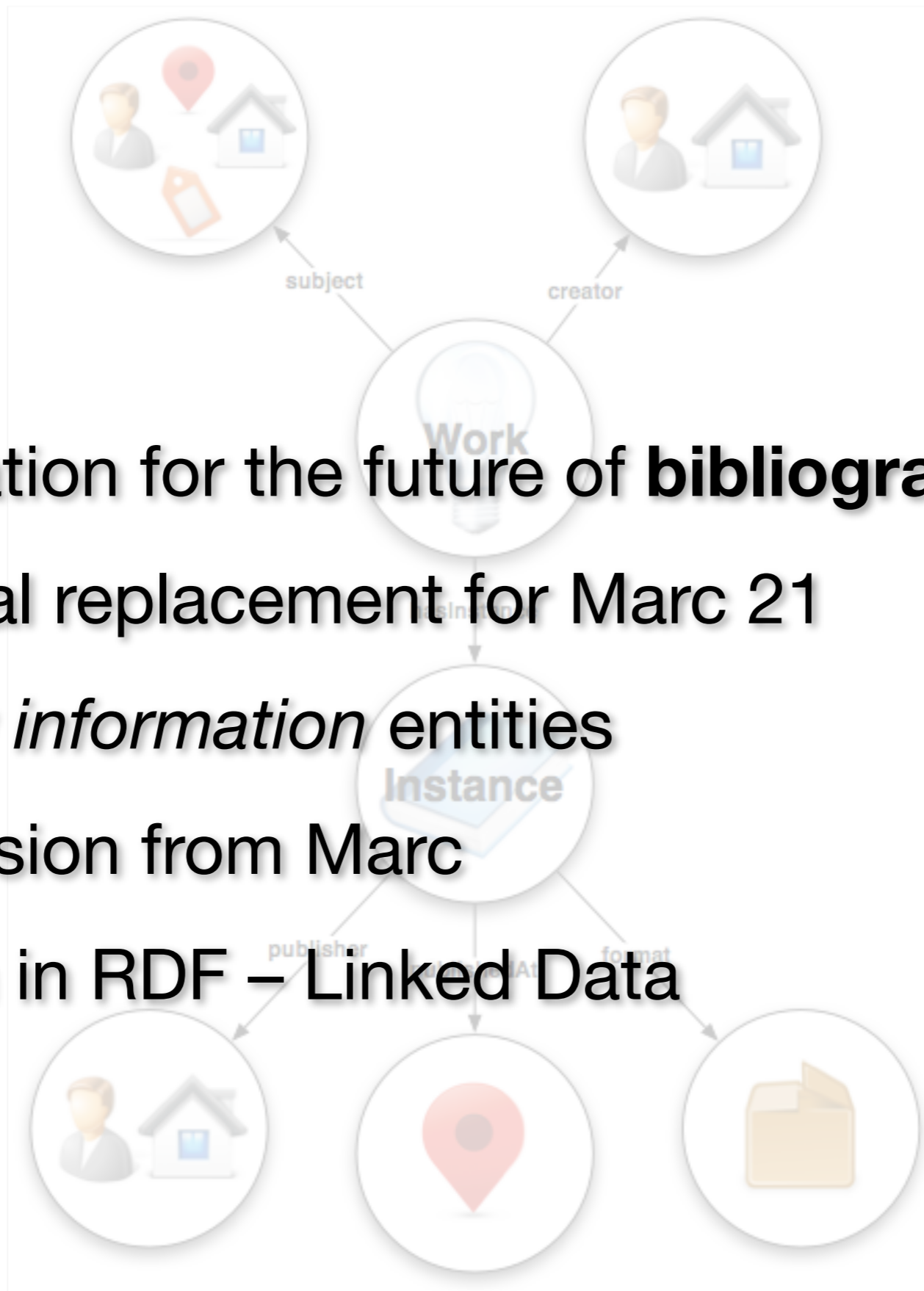




LIBRARY OF  
CONGRESS

bf:  
BIBFRAME

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- Eventual replacement for Marc 21
- Identify *information* entities
- Conversion from Marc
- Publish in RDF – **Linked Data**





# Schema.org

for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library>  $\times$
- Library centric vocabularies  $\times$ 
  - Bibo, RDA, Dublin Core, etc.
- New library standard - (LoC BIBFRAME?)







# Schema.org

for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> ~~x~~
- Library centric vocabularies ~~x~~
  - Bibo, RDA, Dublin Core, etc.
- New library standard - (LoC BIBFRAME?) ~~x~~





# Schema.org

for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> ~~x~~
- Library centric vocabularies ~~x~~
  - Bibo, RDA, Dublin Core, etc.
- New library standard - (LoC BIBFRAME?) ~~x~~
- Proposals for Schema.org enhancement





# Schema.org

for bibliographic description?

Where next?

- Localised extension - <http://purl.org/Library> ✗
- Library centric vocabularies ✗
  - Bibo, RDA, Dublin Core, etc.
- New library standard - (LoC BIBFRAME?) ✗
- Proposals for Schema.org enhancement ✓
  - How?





# Schema Bib Extend

W3C Community Group (SchemaBibEx)

# Schema Bib Extend

W3C Community Group (SchemaBibEx)



2012  
September

13

The screenshot shows the 'Schema Bib Extend Community Group' page on the W3C website. The page header includes 'W3C Community and Business Groups' and a search bar. The main content area features a title 'Schema Bib Extend Community Group' and a mission statement: 'The mission of this group is to discuss and prepare proposal(s) for extending Schema.org schemas for the improved representation of bibliographic information markup and sharing. The group will seek consensus around, and support for, proposal(s) to the W3C WebSchemas Group. This Community Group will not, itself, produce technical specifications.' Below this are sections for 'Reports' (with a note that no reports have been published) and 'News' (with an 'Add new post' link). An 'October Meeting' section shows a post by Richard Wallis, the group's chair, dated October 12, 2012. On the right side, there is a 'Get involved!' section with a 'JOIN THIS GROUP' button and a 'Participants' section displaying a grid of member avatars.

# Schema Bib Extend

## Working in a Community Group



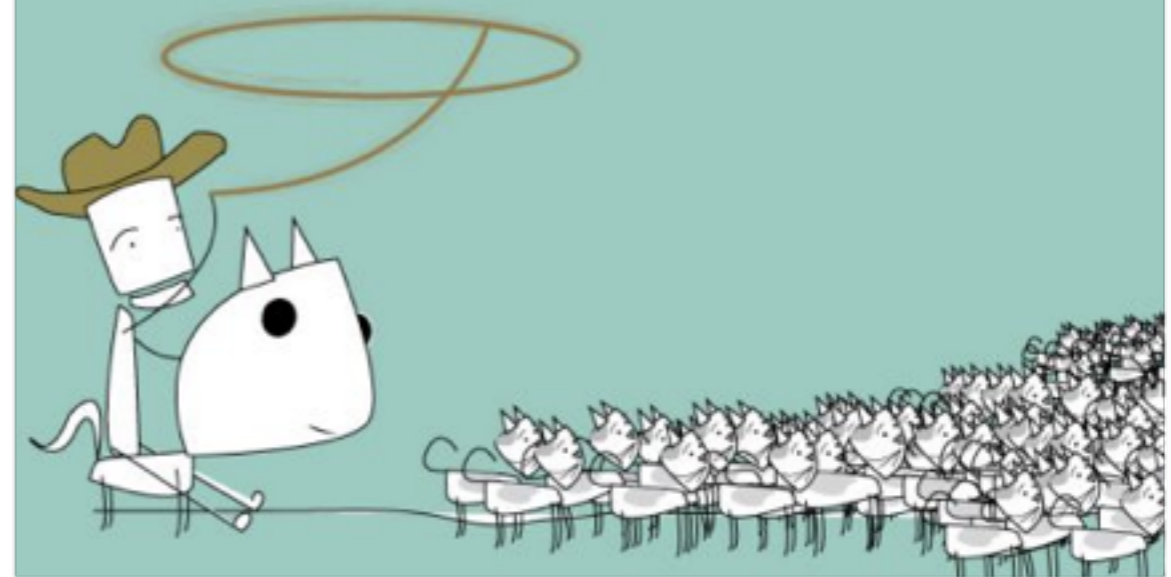


# Schema Bib Extend

## Working in a Community Group



it's like herding cats.

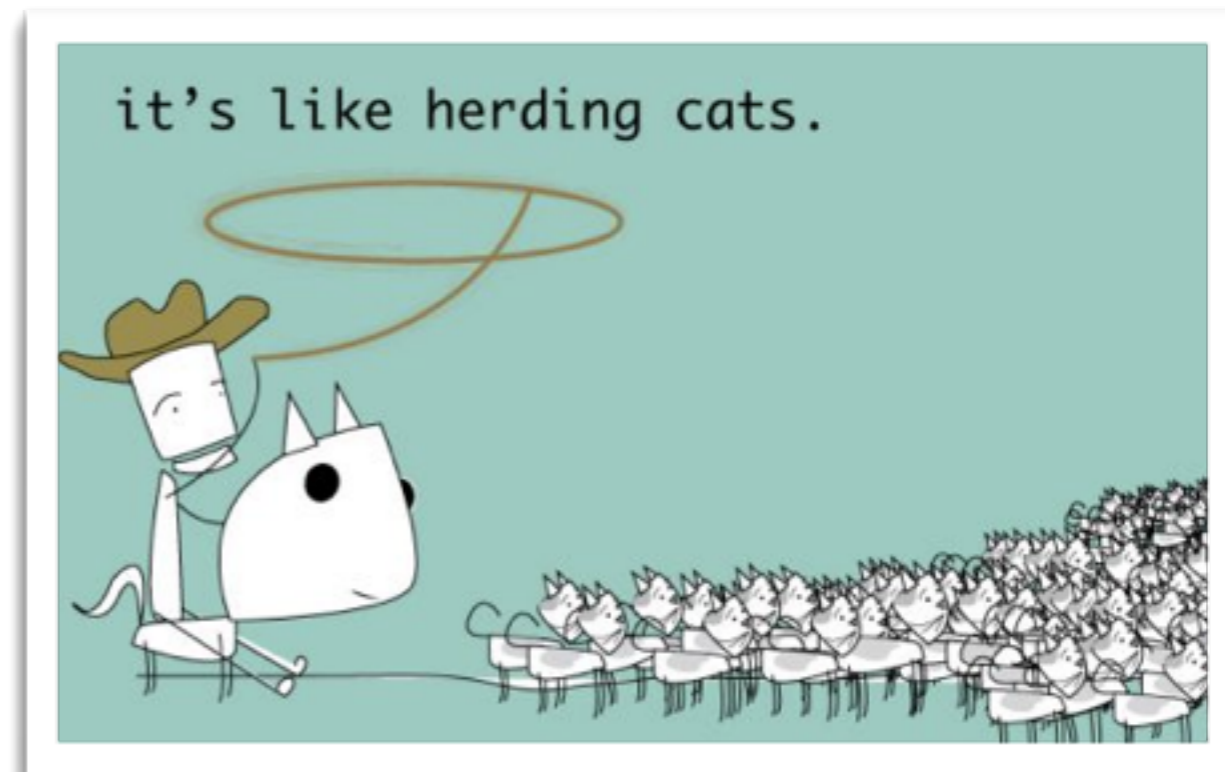


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus

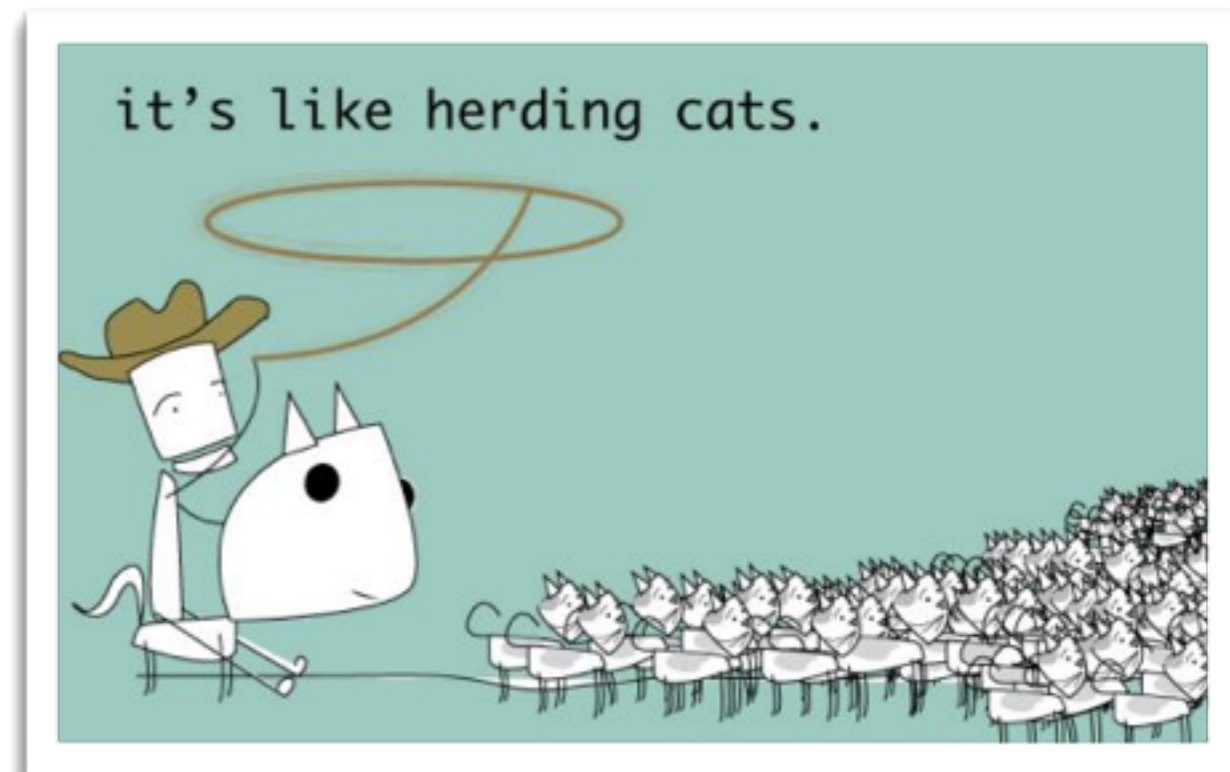


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus
- Silence equates to consent



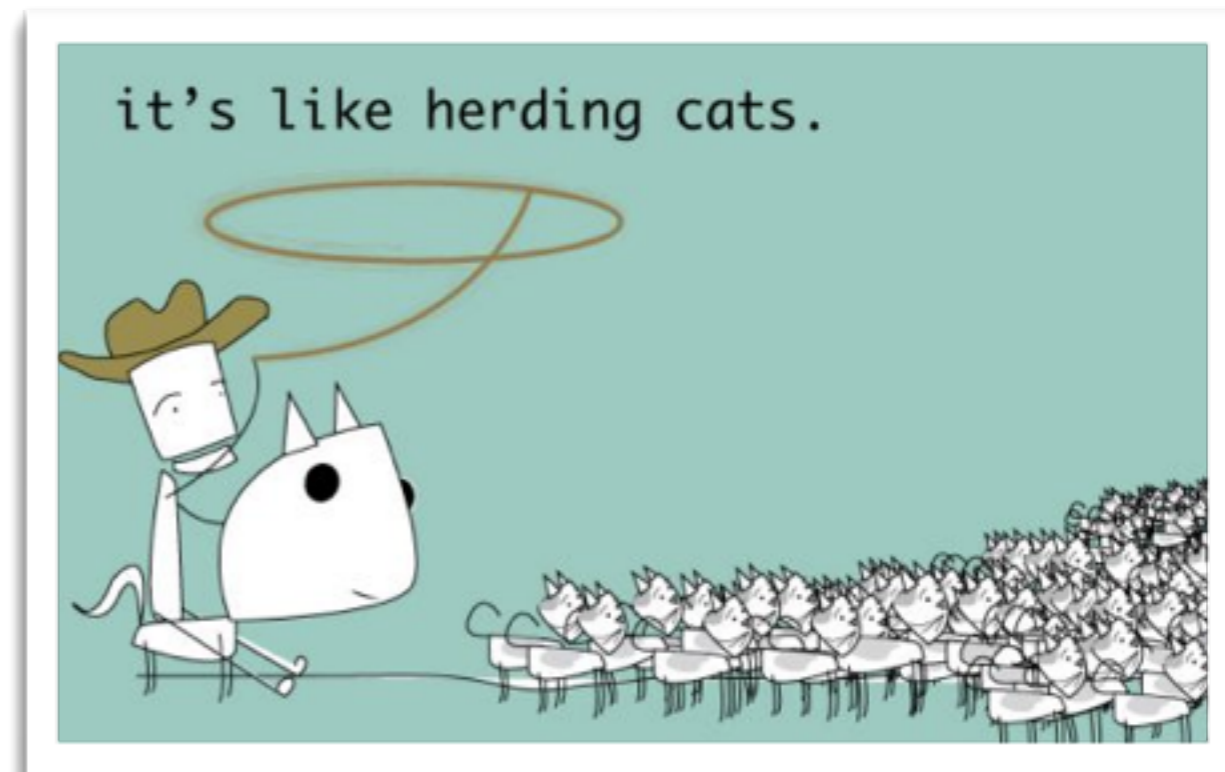


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus
- Silence equates to consent
- ‘Start’ by leaving your experience at the door

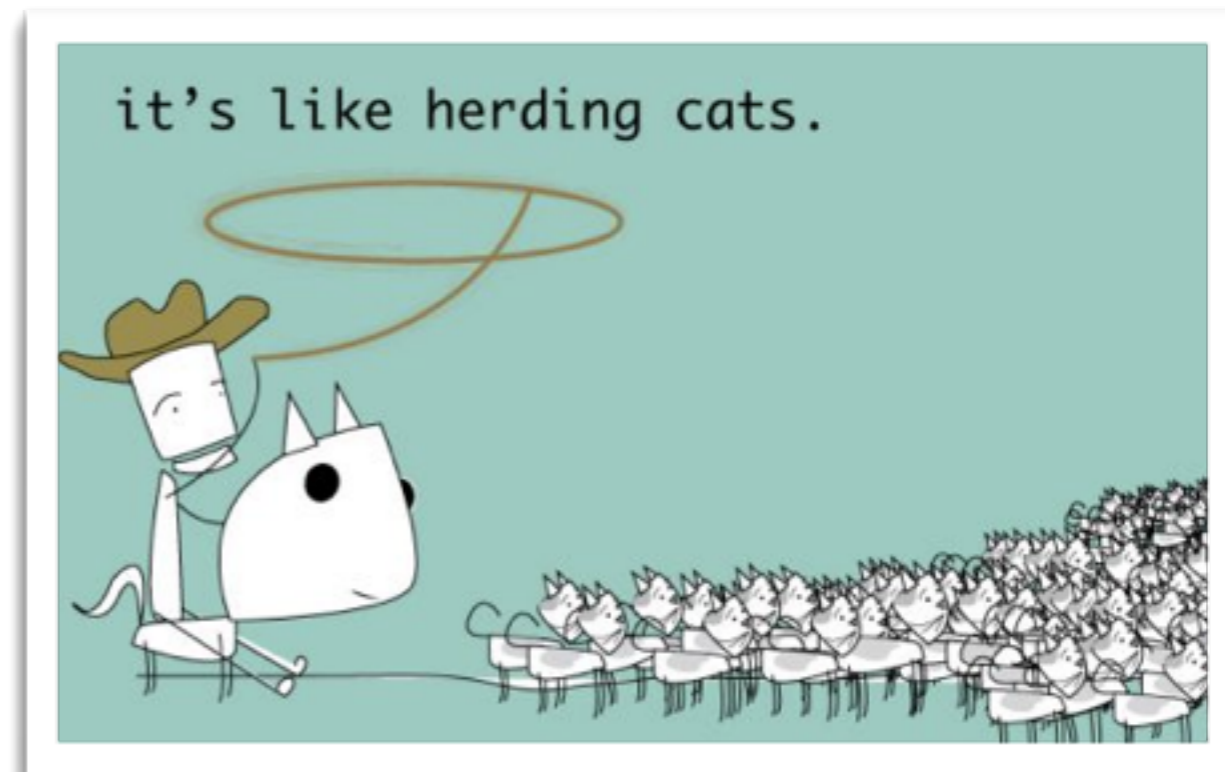


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus
- Silence equates to consent
- ‘Start’ by leaving your experience at the door
- What can we do with Schema.org - *as it is now*

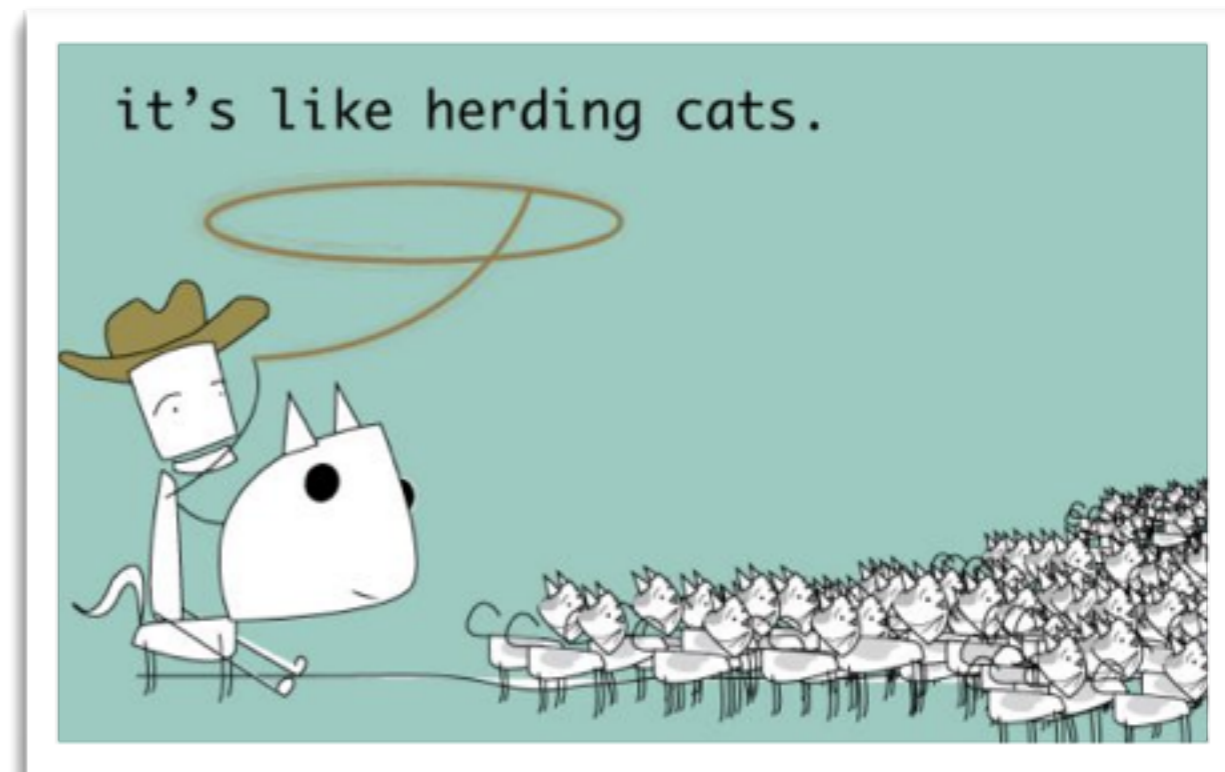


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus
- Silence equates to consent
- ‘Start’ by leaving your experience at the door
- What can we do with Schema.org - *as it is now*
- Then fill in the gaps



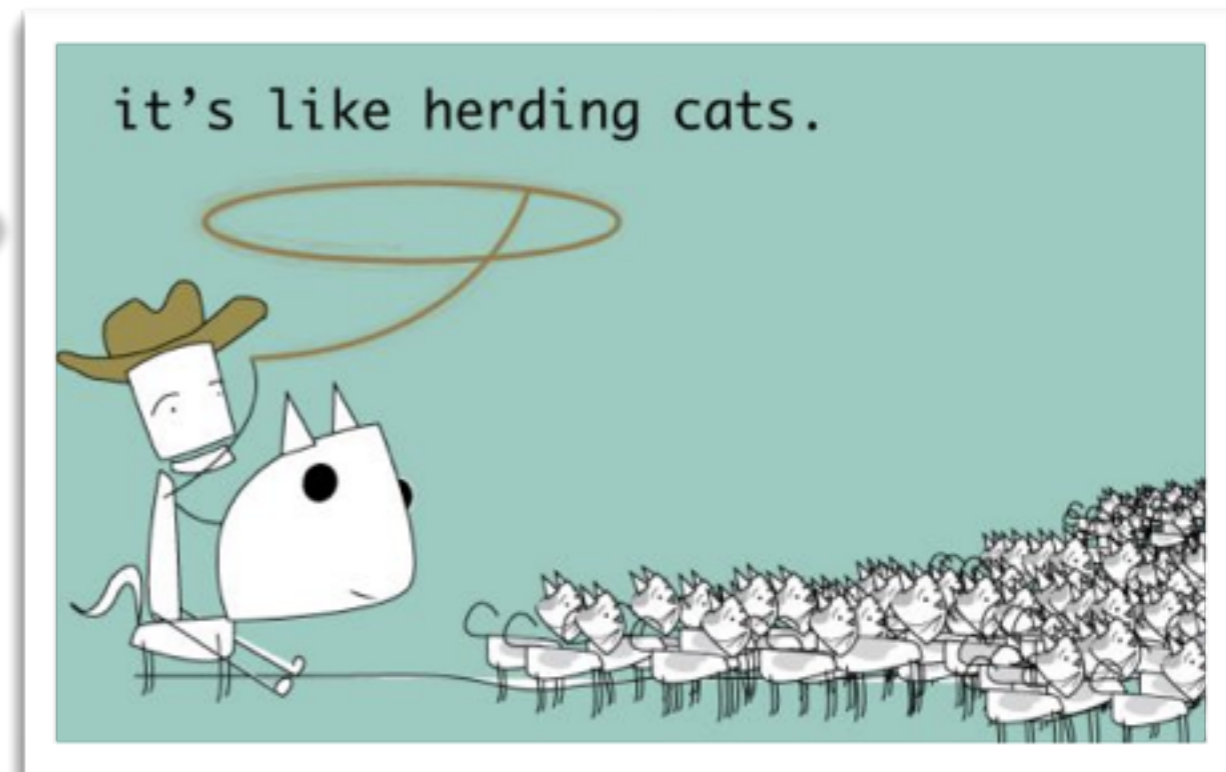


# Schema Bib Extend

## Working in a Community Group



- Working towards consensus
- Silence equates to consent
- ‘Start’ by leaving your experience at the door
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- Is this relevant to the Web?



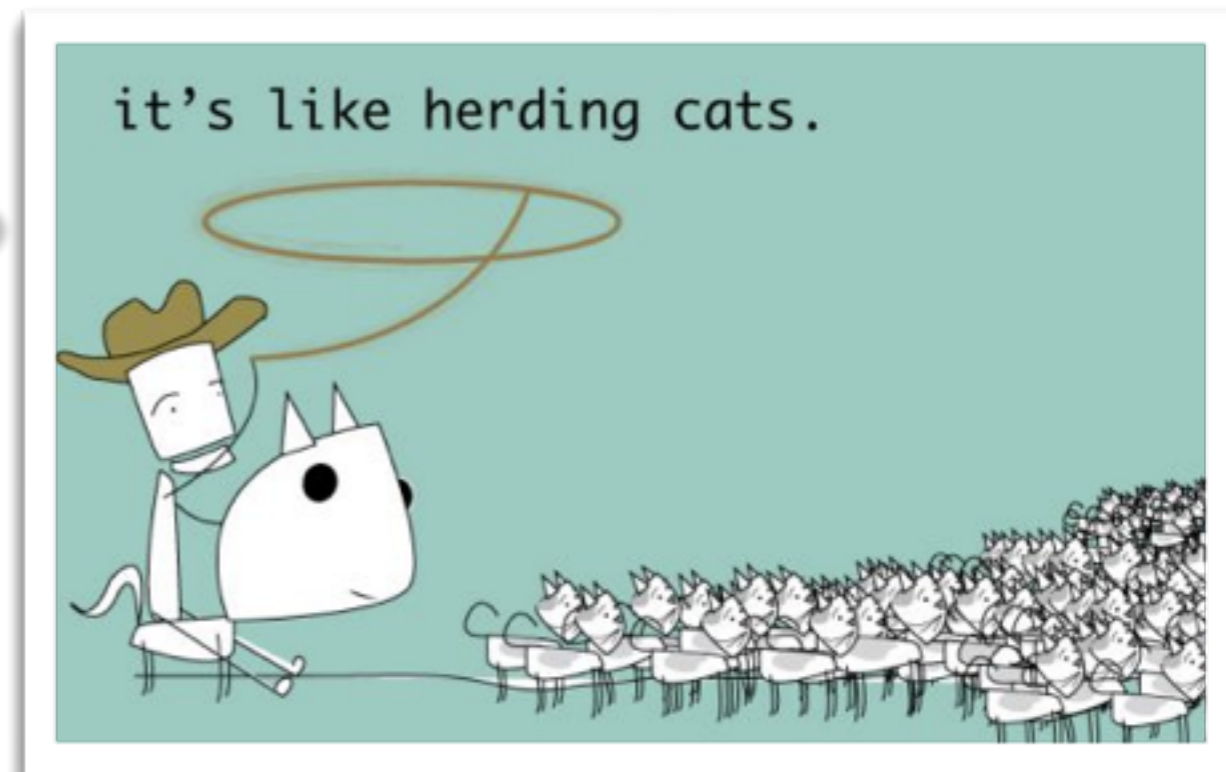
I ♥  
HERDING  
CATS

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I ♥  
HERDING  
CATS

# Schema Bib Extend - Two Years Work





# Schema Bib Extend - Two Years Work



## schema blog

Official blog for schema.org

TUESDAY, SEPTEMBER 2, 2014

### Schema.org Support for Bibliographic Relationships and Periodicals

[Guest post by Richard Wallis, OCLC & Dan Scott, Laurentian University]

With the addition of three new types, the latest version of [schema.org](http://schema.org) introduces support for describing the relationship between, [Articles](#) and the [Periodicals](#) in which they were published, along with potentially related [PublicationIssues](#) & [PublicationVolumes](#). For example:

- The article "The semantic web" was published in May 2001, in volume 284, issue 5 of *Scientific american* on pages 28 through 37.
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You can now also describe creative works that span multiple parts using the [hasPart](#) and [isPartOf](#) properties, and you can express relationships between a conceptual representation of a creative work and physical examples of that work using the [exampleOfWork](#) and [workExample](#) properties. For example:

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# Schema Bib Extend - Two Years Work



2014  
September

2

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- Periodical - PublicationIssue - PublicationVolume
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# Extending Schema.org

*Please may we have some more*

# Extending Schema.org

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- Continue proposing enhancements





# Extending Schema.org

*Please may we have some more*

- Continue proposing enhancements
  - Maybe too bibliographic/library focused



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-BiblioGraph.net



**BiblioGraph.net**

Home Schemas Releases Feedback

## Schema Structure

The schema described on this site have been assembled as an extension to the core types and properties defined by [Schema.org](#). The Editor of BiblioGraph.net will track changes to the published terms from Schema.org and update this site to reflect them.

When appropriate terms were not available in Schema.org, proposals from the [Schema Bib Extend W3C Community Group](#) were initially looked to for suitable options. Terms are added to the BiblioGraph.net namespace, with acknowledgement where appropriate of examples from other vocabularies such as Dublin Core, Bibo, etc., that provided inspiration. A goal is to keep the number of namespaces in BiblioGraph.net described data to a minimum with a preference for only two - schema: & bgr:

The terms on this site are defined in rdfa source files, which are directly accessible:

- Core Schema.org vocabulary: [/docs/schema\\_org\\_rdfa.html](#)
- BiblioGraph.net terms: [/bibliograph\\_net\\_rdfa.html](#)

## Browse the Schemas

[Starting at the top, one page per type](#)

[Full list of types](#)

### BiblioGraph.net types:

- [Agent](#)
- [Atlas](#)
- [BlurayDisc](#)



# **BiblioGraph.net**

Extending Schema.org

# BiblioGraph.net

## Extending Schema.org

2014  
August  
27

The screenshot shows the BiblioGraph.net website. At the top left is the logo "BiblioGraph.net". To its right is a search bar with the text "Google™ Custom Search" and a green "Search" button with a close icon. Below the logo are navigation tabs for "Home", "Schemas", "Releases", and "Feedback". The main heading is "Schema Structure". The text below explains that the schemas are extensions to Schema.org and that the site tracks changes from Schema.org. It also mentions that proposals from the "Schema Bib Extend W3C Community Group" were used when terms were not available in Schema.org. A goal is stated to keep the number of namespaces to a minimum, preferring "schema:" and "bgn:". A list of terms defined in rdfa source files is provided, including "Core Schema.org vocabulary" and "BiblioGraph.net terms". Below this is a section titled "Browse the Schemas" with links for "Starting at the top, one page per type" and "Full list of types". The "BiblioGraph.net types:" section lists "Agent", "Atlas", and "BlurayDisc".

**BiblioGraph.net**

Google™ Custom Search  x

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# BiblioGraph.net

## Extending Schema.org



- Created by OCLC for the community

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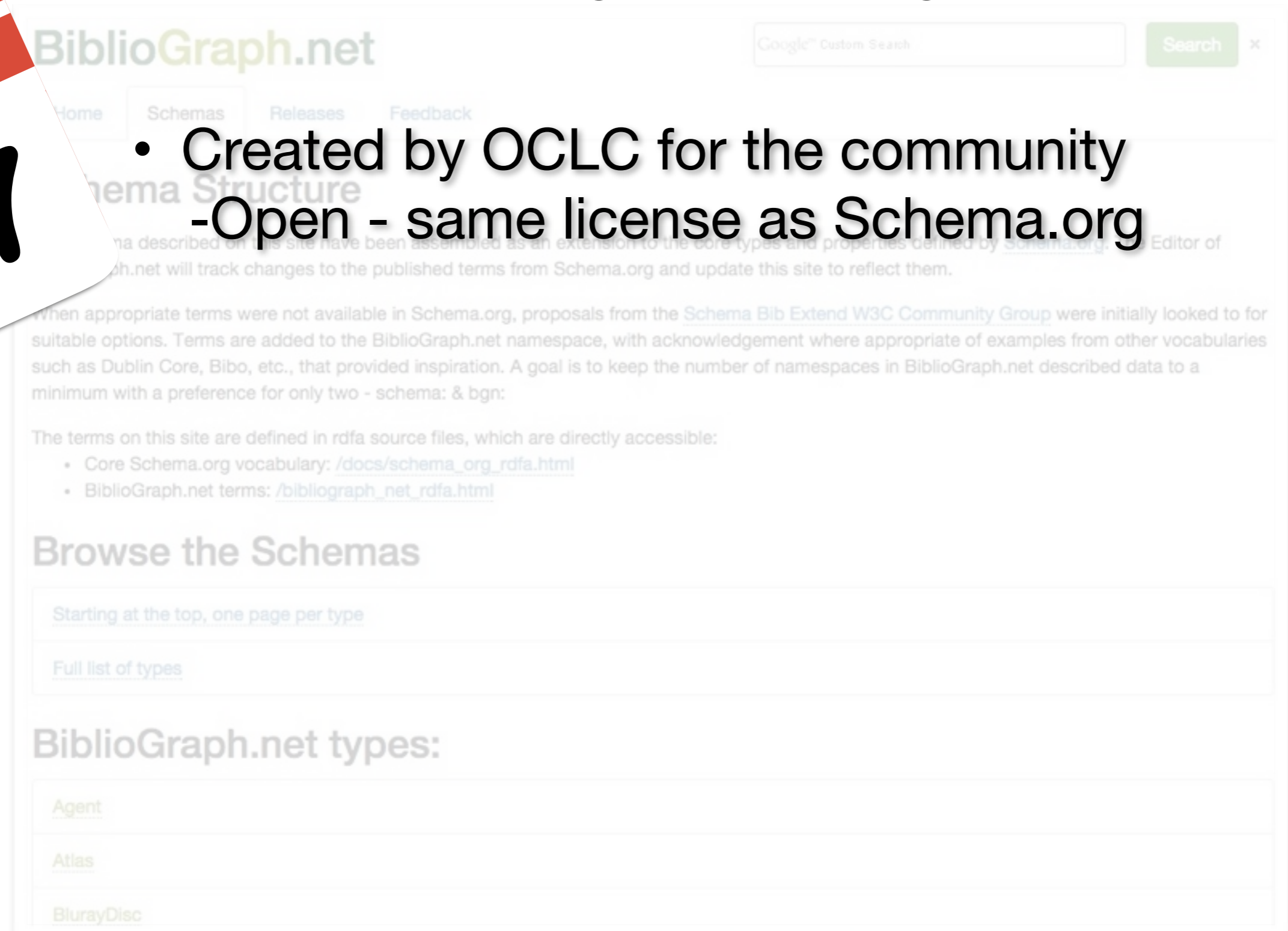


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# BiblioGraph.net

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2014  
August  
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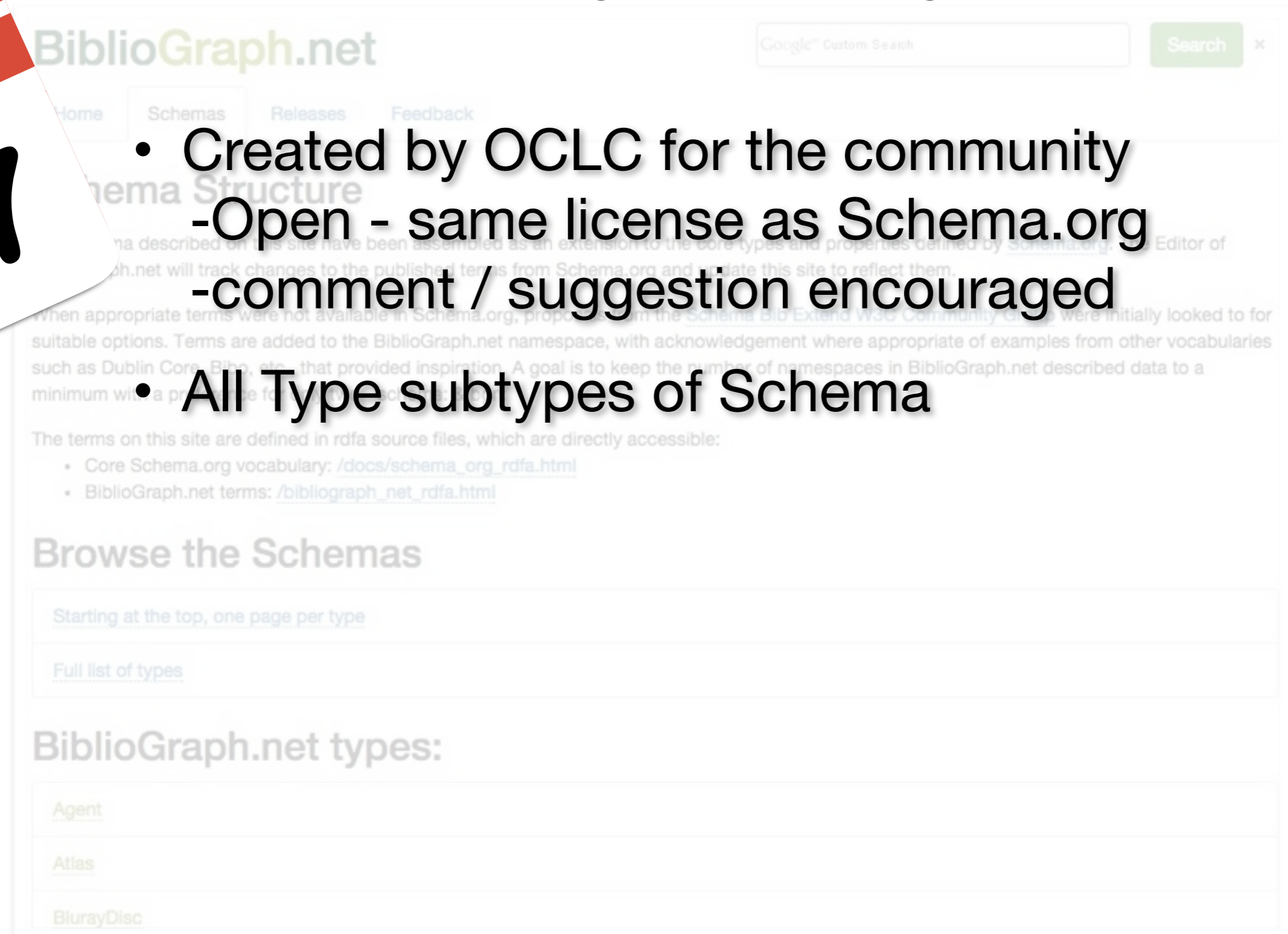
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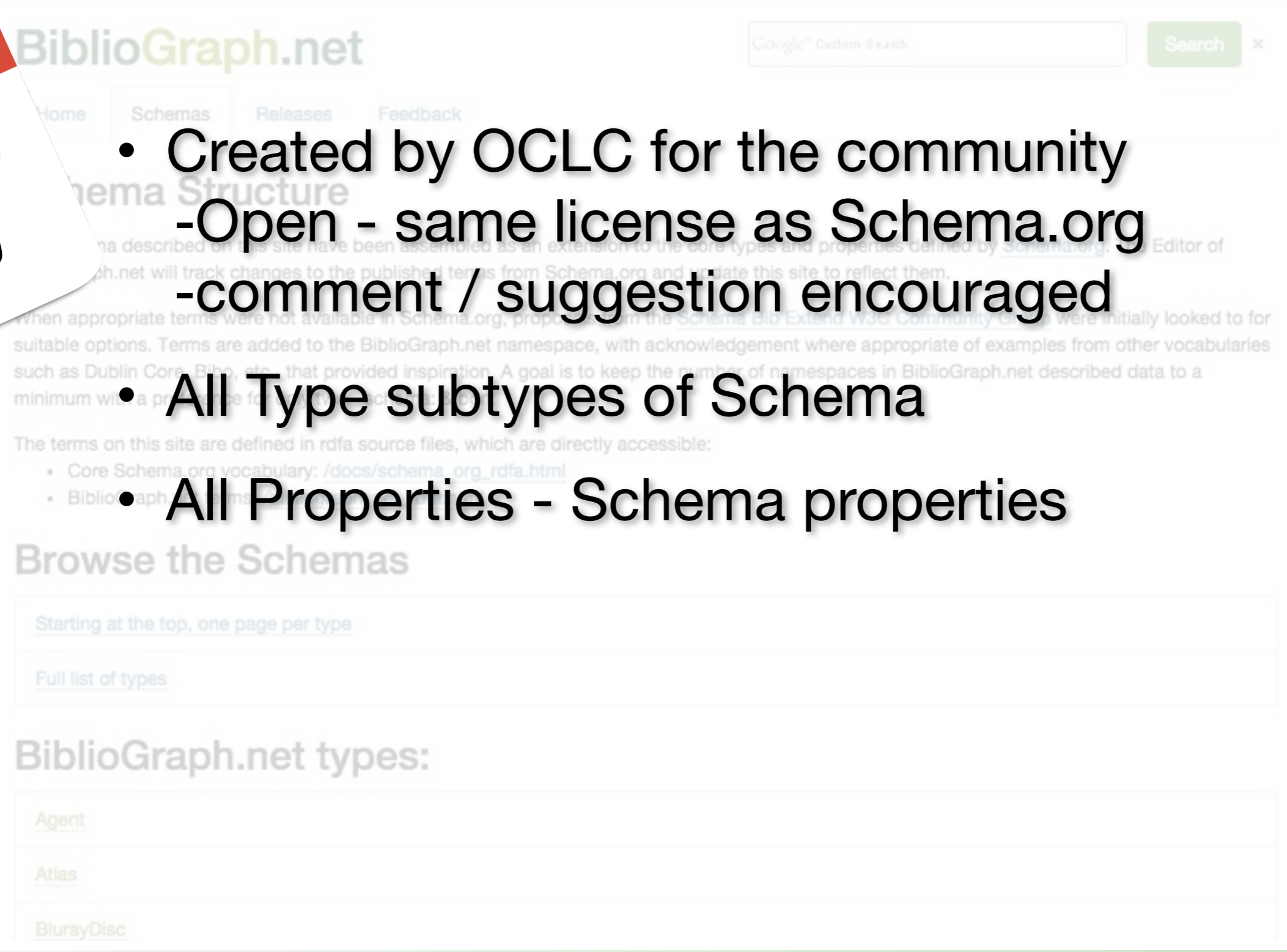
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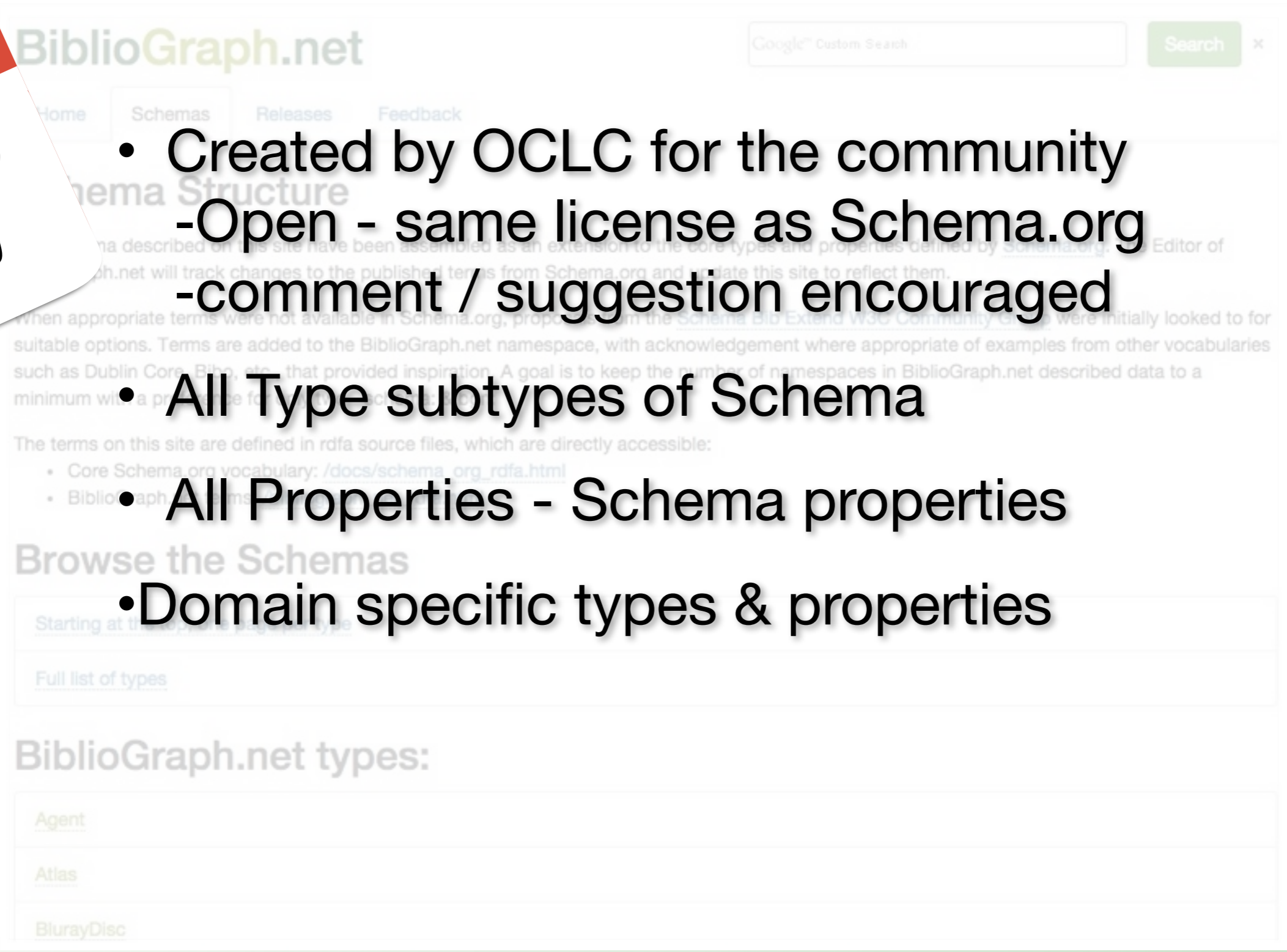
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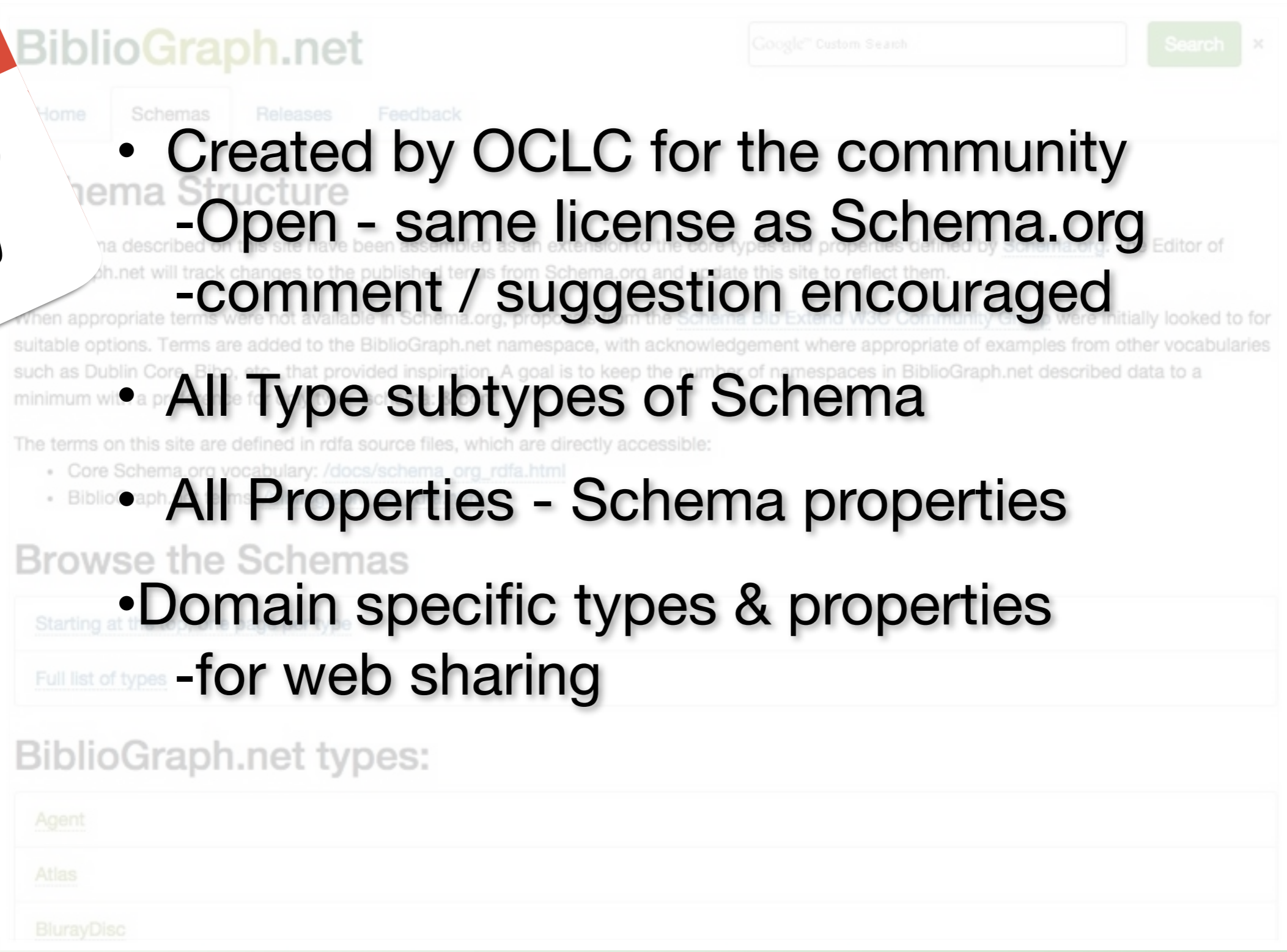
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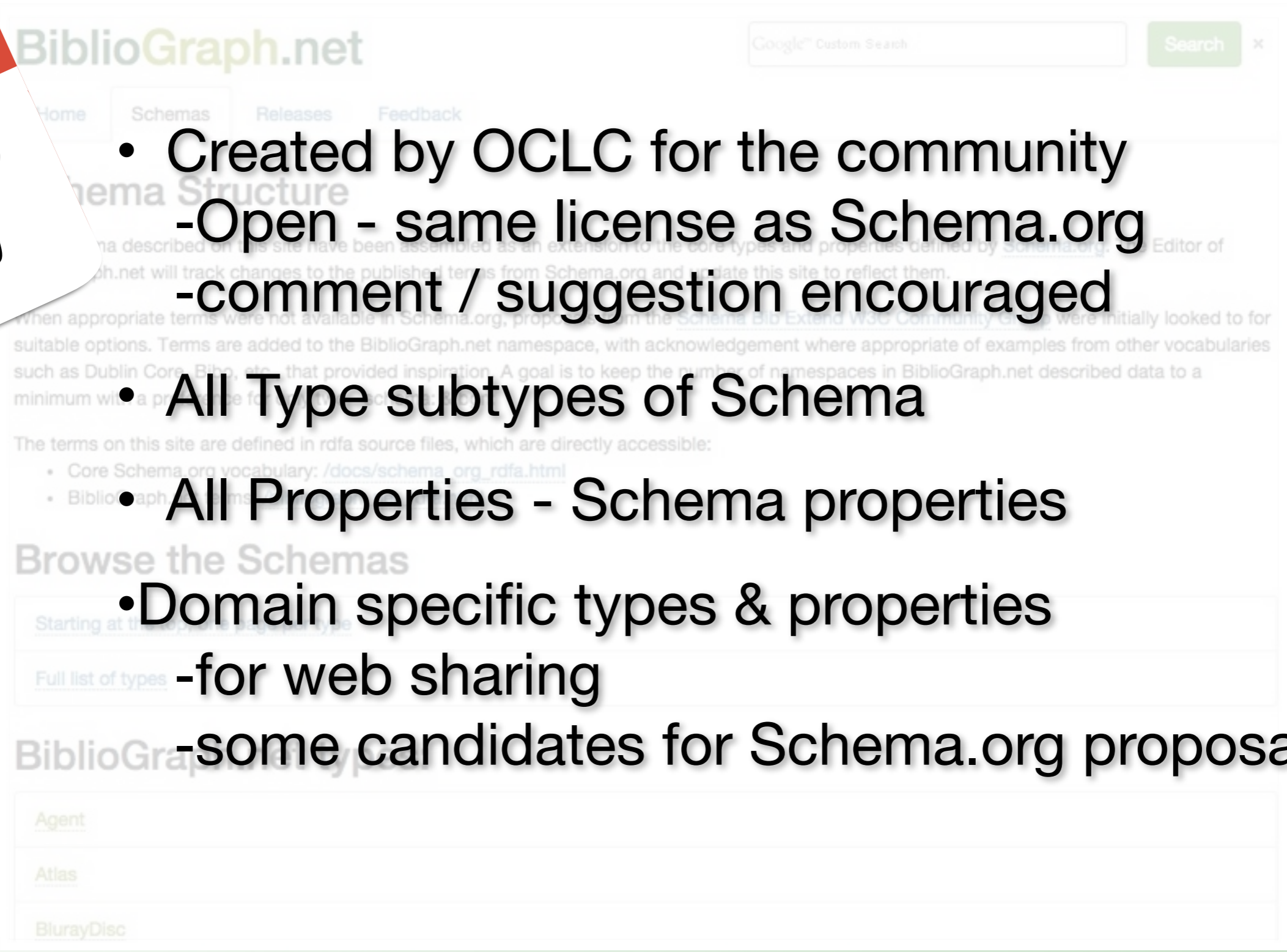


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  - some candidates for Schema.org proposals

# Schema.org 2.0

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## schema blog

Official blog for schema.org

WEDNESDAY, MAY 13, 2015

### Schema.org 2.0

We are pleased to announce the public release of Schema.org 2.0 which brings several significant changes and additions, not just to the vocabulary, but also to how we grow and manage it, from both technical and governance perspectives.

As [schema.org](http://schema.org) adoption has grown, a number of groups with more specialized vocabularies have expressed interest in extending [schema.org](http://schema.org) with their terms. Examples of this include real estate, product, finance, medical and bibliographic information. Even in something as common as human names, there are groups interested in creating the vocabulary for representing all the intricacies of names. Groups that have a special interest in one of these topics often need a level of specificity in the vocabulary and operational independence. We are introducing a new extension mechanism which we hope will enable these and many other groups to extend [schema.org](http://schema.org).

Over the years, Schema.org has taken steps towards becoming more open. Today, there is more community participation than ever before. The newly formed W3C Schema.org Community Group is now the main forum for schema collaboration, and provides the [public-schemaorg@w3.org](mailto:public-schemaorg@w3.org) mailing list for discussions. Schema.org issues are tracked on [GitHub](https://github.com). The day to day operations of Schema.org, including decisions regarding the schema, are handled by a newly formed steering group, which includes representatives of the sponsor companies, the W3C and some individuals who have



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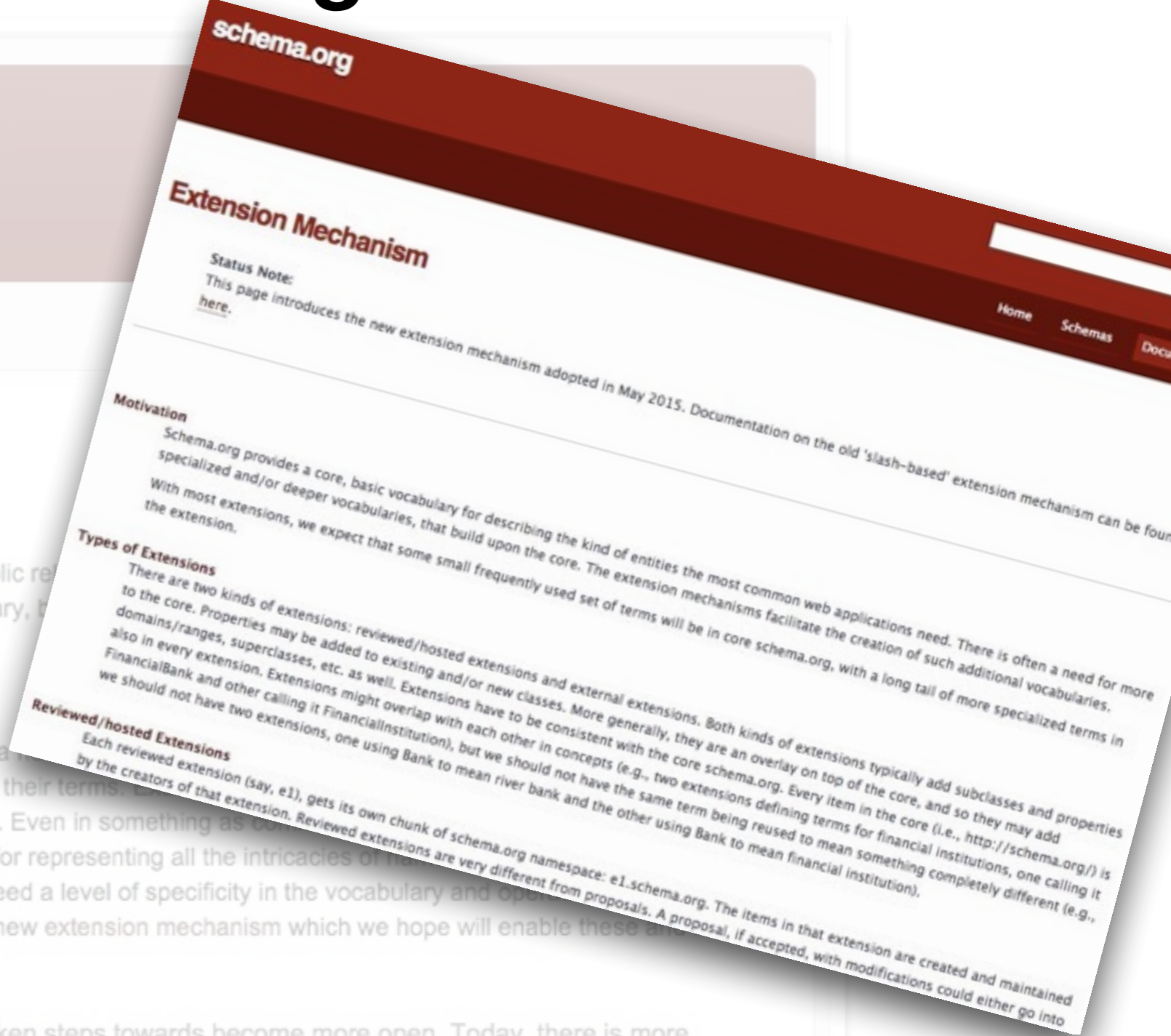
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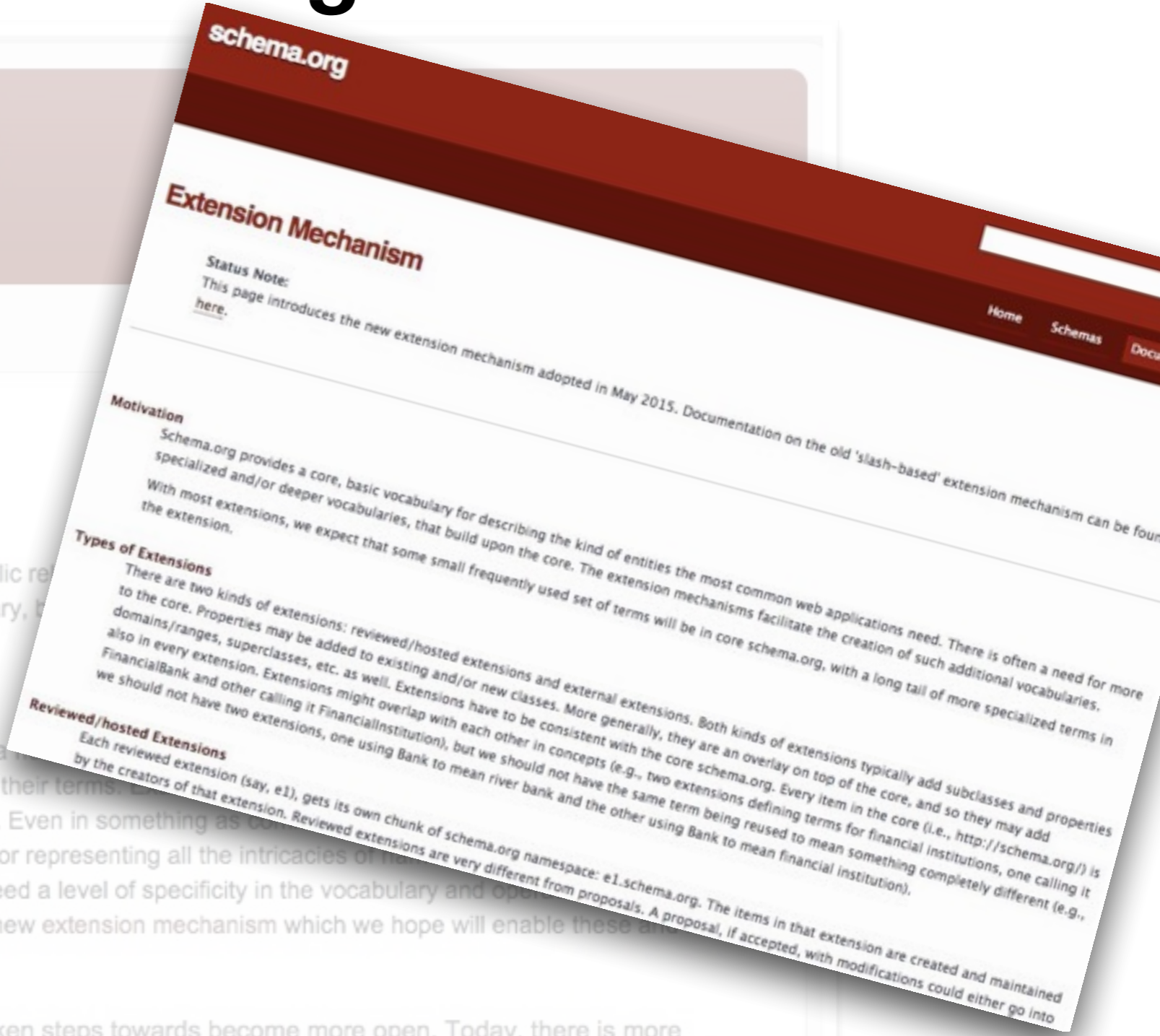
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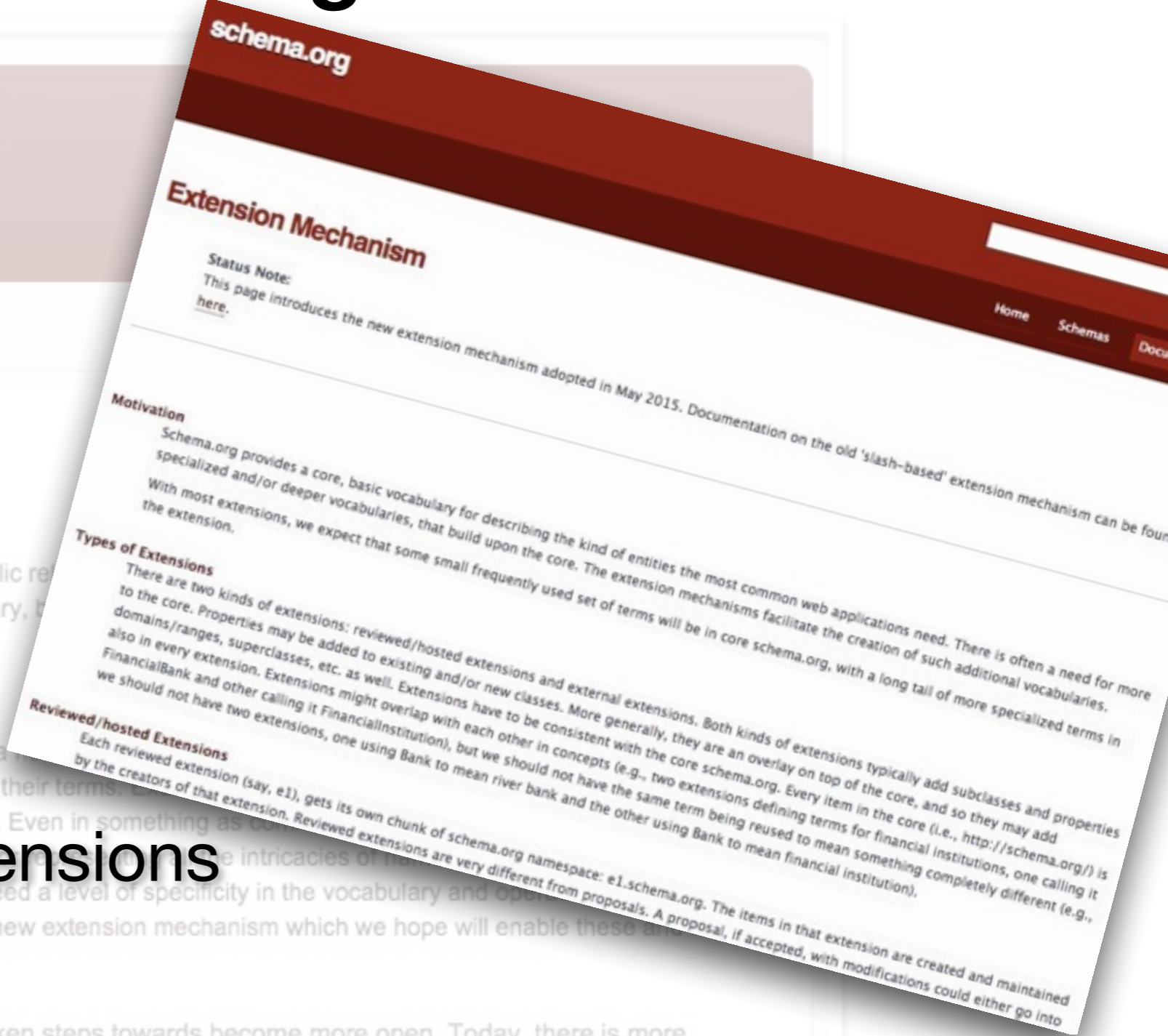
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## Extension Mechanism

- Reviewed / hosted extensions



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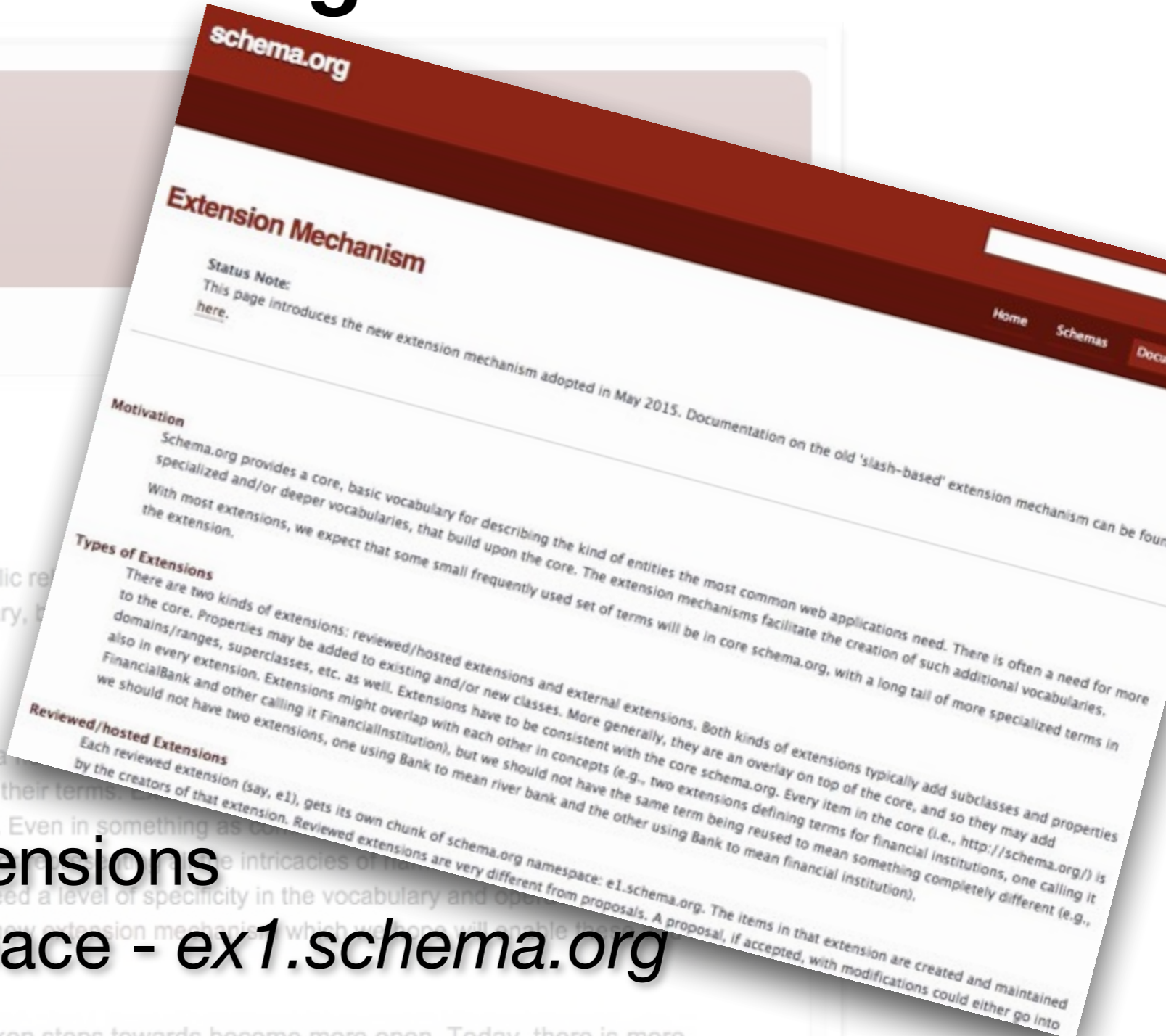
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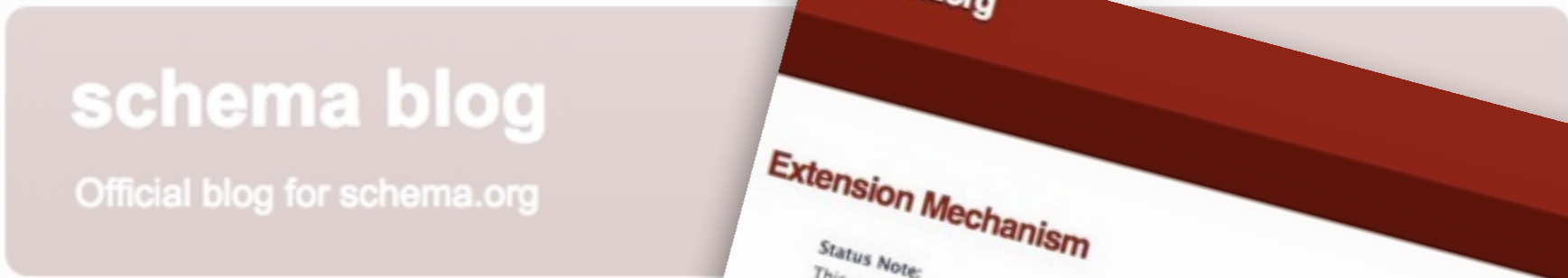
- Reviewed / hosted extensions
  - Schema.org namespace - *ex1.schema.org*

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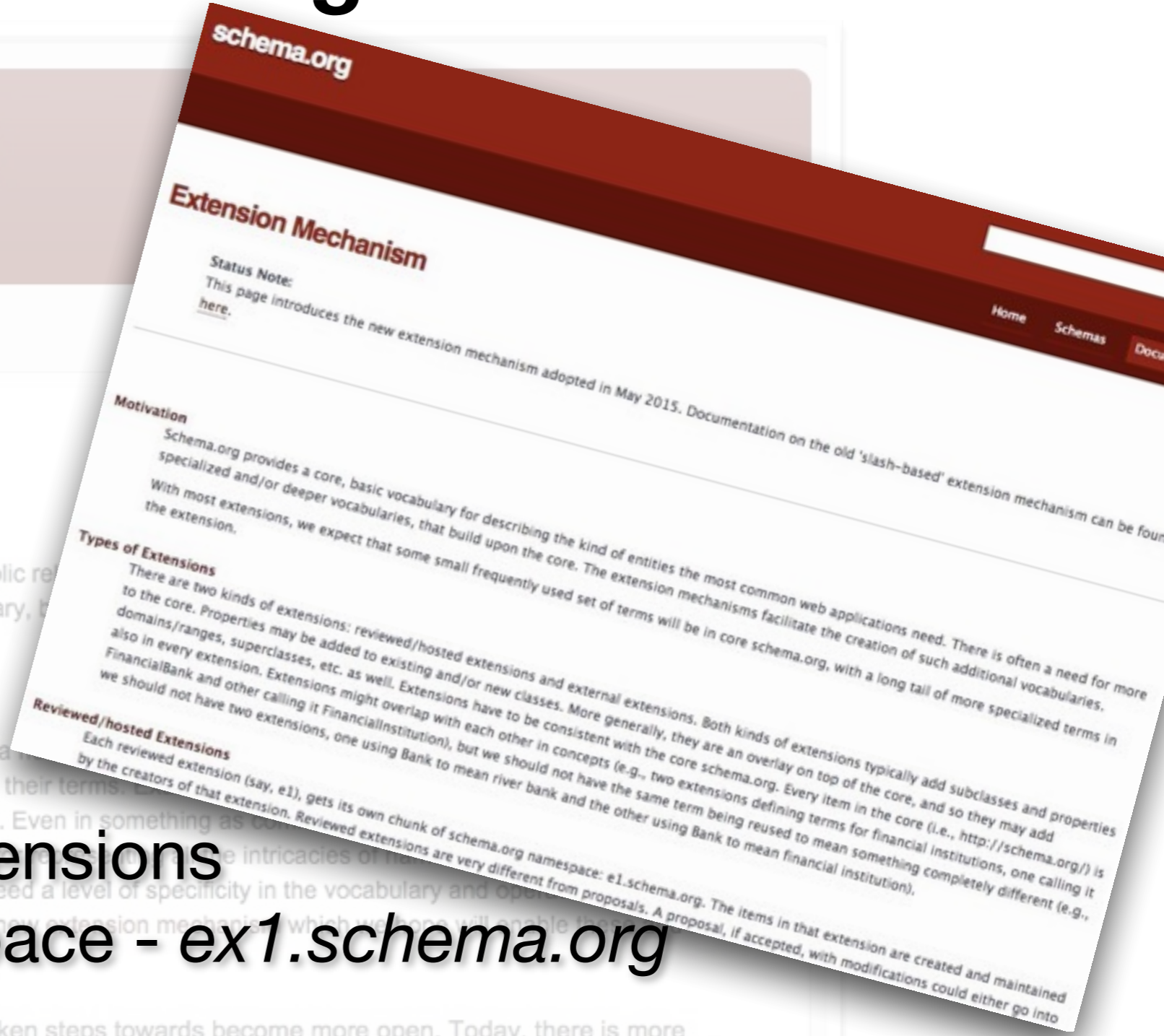
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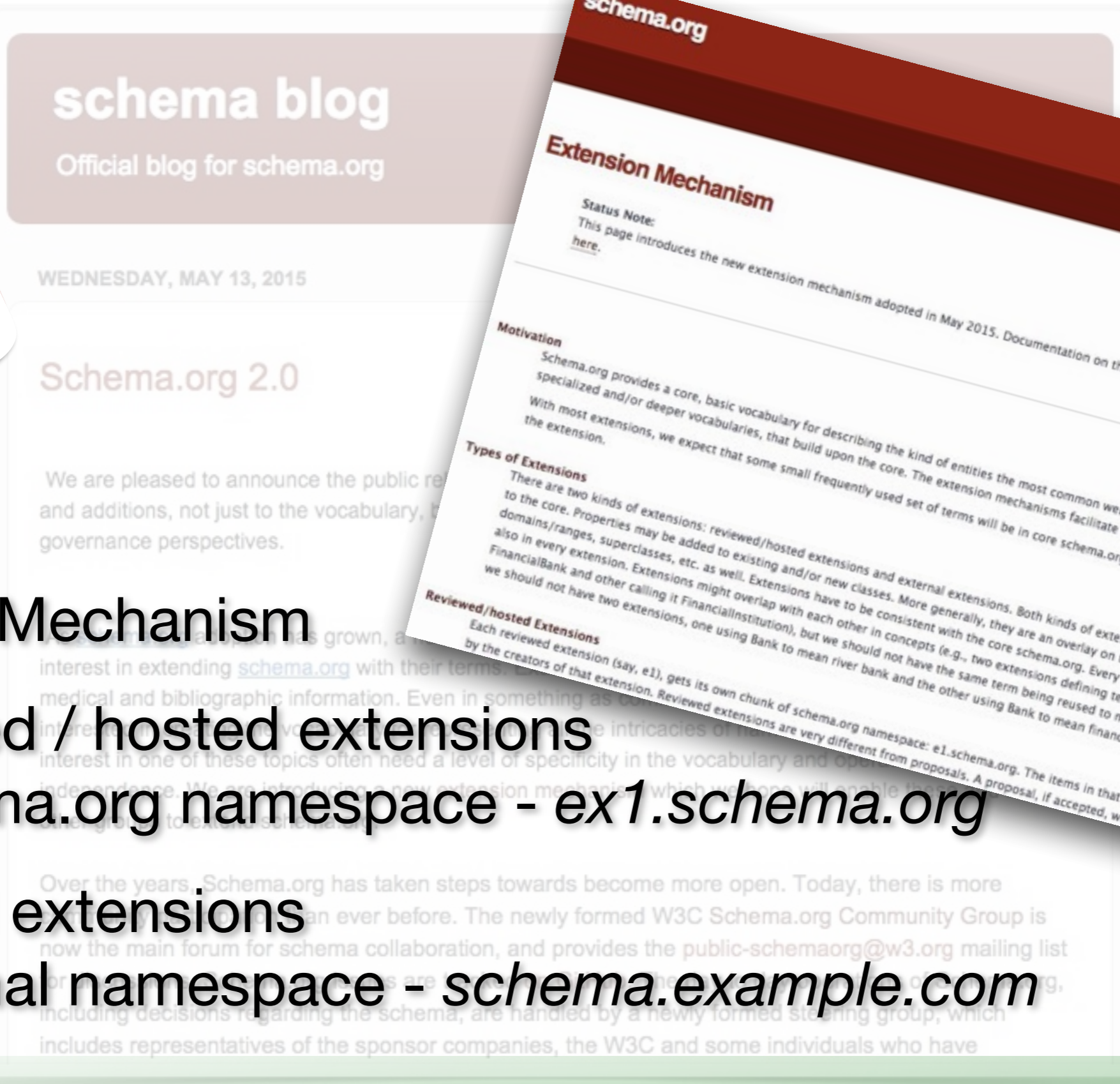
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  - Schema.org namespace - *ex1.schema.org*
- External extensions



Over the years, Schema.org has taken steps towards become more open. Today, there is more collaboration than ever before. The newly formed W3C Schema.org Community Group is now the main forum for schema collaboration, and provides the public-schemaorg@w3.org mailing list for discussions. Schema.org issues are tracked on GitHub. The day to day operations of Schema.org, including decisions regarding the schema, are handled by a newly formed steering group, which includes representatives of the sponsor companies, the W3C and some individuals who have



# Schema.org 2.0



## Extension Mechanism

- Reviewed / hosted extensions
  - Schema.org namespace - *ex1.schema.org*
- External extensions
  - external namespace - *schema.example.com*



**[bib.schema.org](http://bib.schema.org)**



**[bib.schema.org](http://bib.schema.org)**



**bib.schema.org**





# [bib.schema.org](http://bib.schema.org)

- First two hosted extensions



# [bib.schema.org](http://bib.schema.org)

- First two hosted extensions
  - [bib.schema.org](http://bib.schema.org) - [auto.schema.org](http://auto.schema.org)



# bib.schema.org

- First two hosted extensions
  - [bib.schema.org](http://bib.schema.org) - [auto.schema.org](http://auto.schema.org)
- Contents:





# bib.schema.org

- First two hosted extensions
  - bib.schema.org - auto.schema.org
- Contents:
  - SchemaBibex proposals



# bib.schema.org

- First two hosted extensions
  - bib.schema.org - auto.schema.org
- Contents:
  - SchemaBibex proposals
  - some BiblioGraph.net types/properties



# bib.schema.org

- First two hosted extensions
  - [bib.schema.org](http://bib.schema.org) - [auto.schema.org](http://auto.schema.org)
- Contents:
  - SchemaBibex proposals
  - some BiblioGraph.net types/properties
  - proposals from the Comics community





# bib.schema.org

- First two hosted extensions
  - bib.schema.org - auto.schema.org
- Contents:
  - SchemaBibex proposals
  - some BiblioGraph.net types/properties
  - proposals from the Comics community
- Review process:





# bib.schema.org

- First two hosted extensions
  - bib.schema.org - auto.schema.org
- Contents:
  - SchemaBibex proposals
  - some BiblioGraph.net types/properties
  - proposals from the Comics community
- Review process:
  - term name & description tweaks





# bib.schema.org

- First two hosted extensions
  - bib.schema.org - auto.schema.org
- Contents:
  - SchemaBibex proposals
  - some BiblioGraph.net types/properties
  - proposals from the Comics community
- Review process:
  - term name & description tweaks
  - drop proposed Agent Type





# **bib.schema.org**

# bib.schema.org

bib.schema.org

Search

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[Documentation](#)

## Schema.org Hosted Extension: Bibliographic Extension

Schema.org is a set of extensible schemas that enables webmasters to embed structured data on their web pages for use by search engines and other applications. For more details, see the [homepage](#).

This is the front page for the *Bibliographic Extension*, whose short name is: `bib`

You are viewing the Bibliographic Extension within [schema.org](#). It defines terms such as [Audiobook](#), [Thesis](#), [ComicStory](#), and [workTranslation](#). For more details see the W3C BibExtend Community Group's [wiki](#).

This should be considered a pre-final preview release; final changes may be made after wider [community review](#).

## Terms defined or referenced in the 'bib' extension.

### Types (11)

[Atlas](#), [Audiobook](#), [Chapter](#), [Collection](#), [ComicCoverArt](#), [ComicIssue](#), [ComicSeries](#), [ComicStory](#), [CoverArt](#), [Newspaper](#), [Thesis](#)

### Properties (18)

[abridged](#), [artist](#), [colorist](#), [duration](#), [inSupportOf](#), [inker](#), [letterer](#), [pageEnd](#), [pageStart](#), [pagination](#), [penciler](#), [publishedBy](#), [publisherImprint](#), [readBy](#), [translationOfWork](#), [translator](#), [variantCover](#), [workTranslation](#)

### Enumeration values (1)

[GraphicNovel](#)

[Terms and conditions](#)



# bib.schema.org

bib.schema.org

Search

Schema.org Hosted

Terms defined or referenced in the 'bib' extension.

## Types (11)

[Atlas](#), [Audiobook](#), [Chapter](#), [Collection](#), [ComicCoverArt](#), [ComicIssue](#), [ComicSeries](#), [ComicStory](#), [CoverArt](#), [Newspaper](#), [Thesis](#)

## Properties (18)

[abridged](#), [artist](#), [colorist](#), [duration](#), [inSupportOf](#), [inker](#), [letterer](#), [pageEnd](#), [pageStart](#), [pagination](#), [penciler](#), [publishedBy](#), [publisherImprint](#), [readBy](#), [translationOfWork](#), [translator](#), [variantCover](#), [workTranslation](#)

## Enumeration values (1)

[GraphicNovel](#)

[GraphicNovel](#)

[Terms and conditions](#)



# bib.schema.org

bib.schema.org

## Schema.org Hosted Extension: Bibliographic

Schema.org is a set of extensible schemas that can be used in various applications. For more details, see the [home page](#).

This is the front page for the *Bibliographic Extension*.

You are viewing the Bibliographic Extension page. To see the W3C BibExtend Community Group's view, see the [Bibliographic Extension](#) page. This should be considered a pre-final preview.

## Terms defined or referenced in the 'bib' extension

### Types (11)

[Atlas](#), [Audiobook](#), [Chapter](#), [Collection](#), [ComicStory](#)

### Properties (18)

[abridged](#), [artist](#), [colorist](#), [duration](#), [inSupportOf](#), [translationOfWork](#), [translator](#), [variantCover](#), [workTranslation](#)

### Enumeration values (1)

[GraphicNovel](#)

## Extension: 'bib'

- [Thing](#)
  - [CreativeWork](#)
    - [Atlas](#)
    - [Book](#)
      - [Audiobook](#)
    - [Chapter](#)
    - [Collection](#)
    - [ComicStory](#)
      - [ComicCoverArt](#)
    - [CreativeWorkSeries](#)
      - [Periodical](#)
        - [ComicSeries](#)
        - [Newspaper](#)
    - [MediaObject](#)
      - [AudioObject](#)
        - [Audiobook](#)
    - [PublicationIssue](#)
      - [ComicIssue](#)
    - [Thesis](#)
    - [VisualArtwork](#)
      - [CoverArt](#)
        - [ComicCoverArt](#)

 Search

[About](#) [Schemas](#) [Documentation](#)

use by search engines and other

ry, and [workTranslation](#). For more details

[thesis](#)

[publisherImprint](#), [readBy](#),

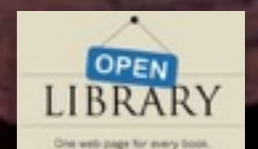
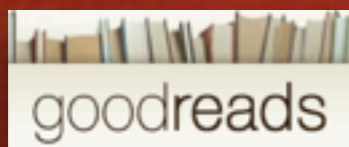
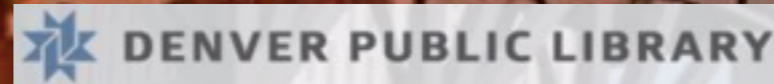
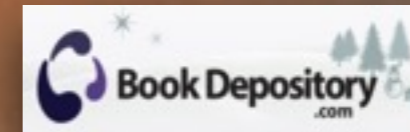
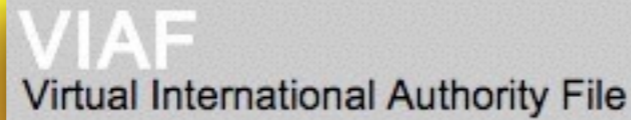
[Terms and conditions](#)

# Examples in the wild





# Examples in the wild





# Fit for a Bibliographic Purpose

# Fit for a Bibliographic Purpose

**schema.org**

# Fit for a Bibliographic Purpose

**[bib.schema.org](http://bib.schema.org)**

**[schema.org](http://schema.org)**



# Fit for a Bibliographic Purpose

BiblioGraph.net

**bib.schema.org**

**schema.org**

# Fit for a Bibliographic Purpose

BiblioGraph.net

bib.schema.org

schema.org



# Fit for a Bibliographic Purpose

BiblioGraph.net

bib.schema.org

schema.org



**The vocabulary tools to describe bibliographic resources  
on the web for broad discovery**



# Fit for a Bibliographic Purpose

BiblioGraph.net

bib.schema.org

schema.org



**The vocabulary tools to describe bibliographic resources  
on the web for broad discovery**

# Fit for a Bibliographic Purpose

BiblioGraph.net

bib.schema.org

schema.org



**The vocabulary tools to describe bibliographic resources  
on the web for broad discovery**

(Not a replacement for library metadata exchange  
That is a more specific task)

# Fit for a Bibliographic Purpose

What's  
next?

A hand holding a black marker is shown on the right side of the image, having just finished writing the question "What's next?" in a large, black, cursive font on a white background. The question mark is still being formed by the marker tip.



# Fit for a Bibliographic Purpose

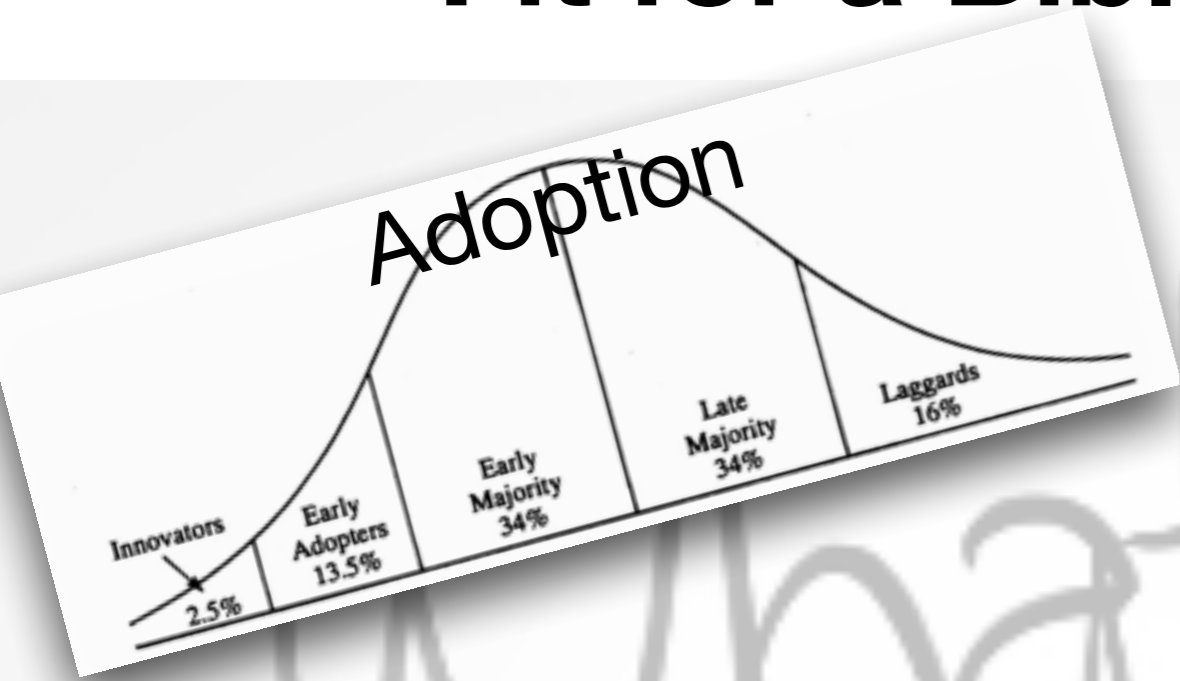


# Fit for a Bibliographic Purpose

What's  
next



# Fit for a Bibliographic Purpose

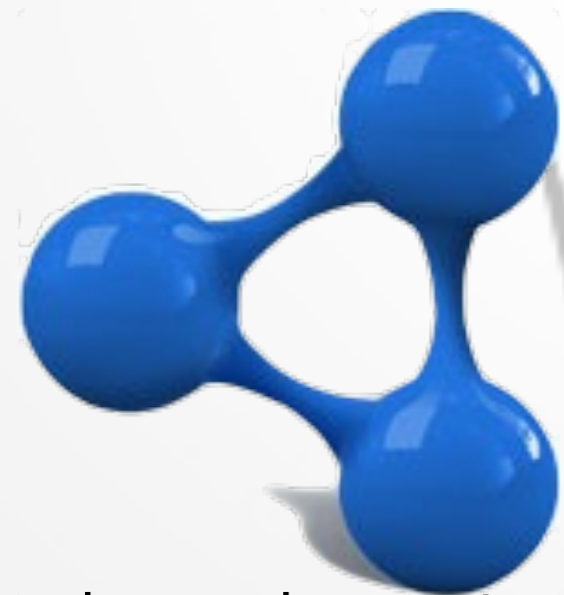
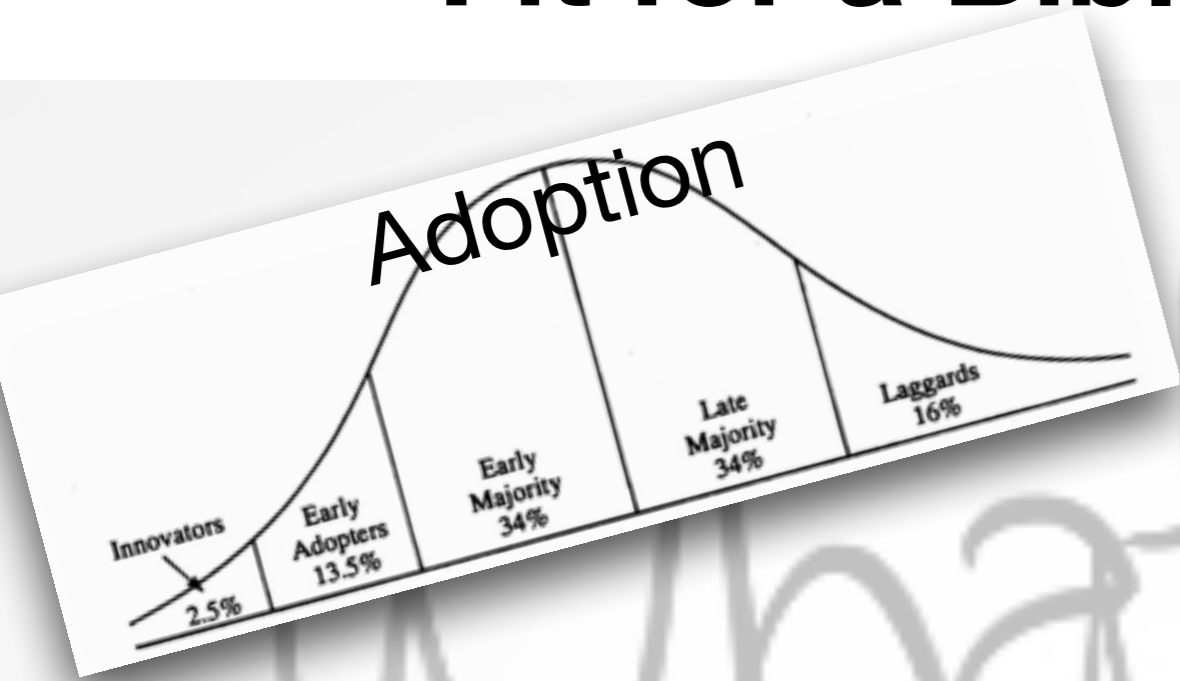


What's next





# Fit for a Bibliographic Purpose



becoming part  
of the graph



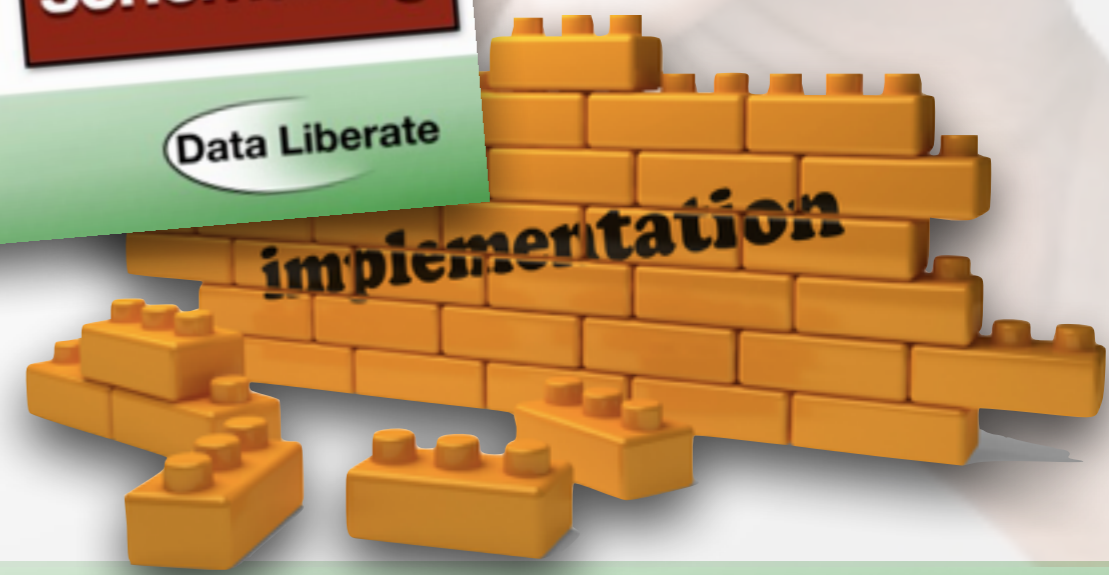
Schema.org fit for a bibliographic purpose



## Schema.org in Two Parts: From Use to Extension

### Part 2: Extending Potential Possibilities

**Richard Wallis**  
Evangelist and Founder  
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# Schema.org in Two Parts: From Use to Extension

## Part 1: Fit for a Bibliographic Purpose

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@rjw



**schema.org**