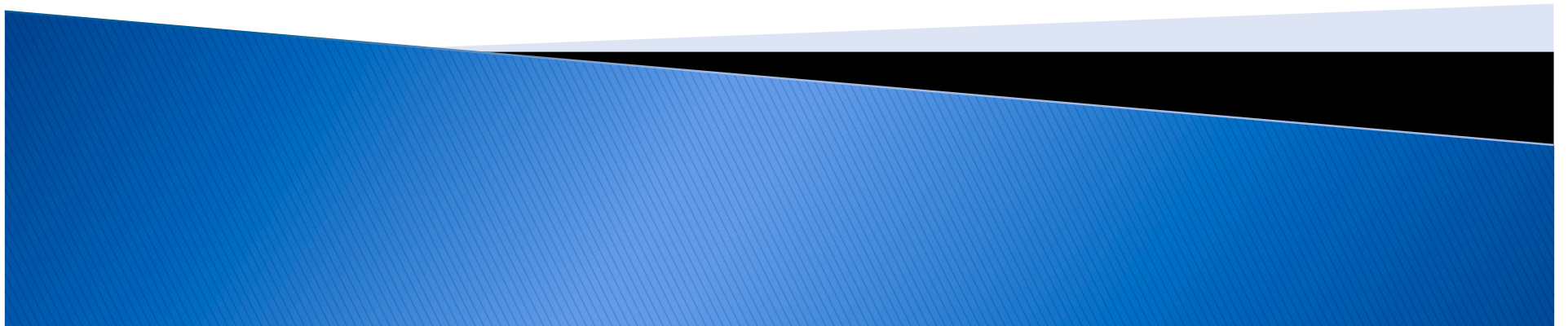


Combining the Social and Semantic Web Part 1 – Introduction

Sheila Kinsella, DERI / NUIG
Denny Vrandečić, KIT / Wikimedia.de



Agenda

Introduction

- ▶ Social and Semantic Web
- ▶ Data portability
- ▶ Ontologies

Applications: General

- ▶ Semantic Tagging
- ▶ Semantic Microblogging
- ▶ Facebook Open Graph
- ▶ Drupal 7

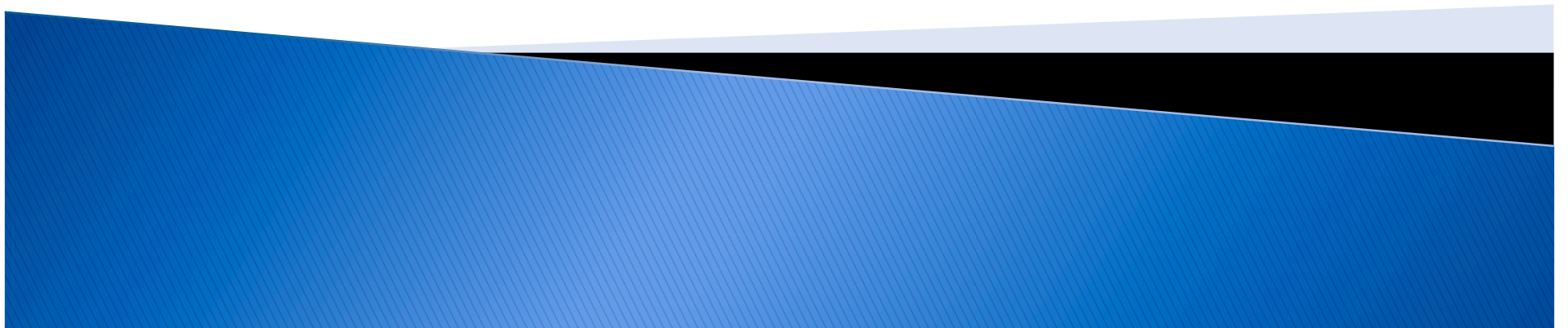
Applications: Wikis

- ▶ Wikis and semantics
- ▶ Semantic MediaWiki
- ▶ Collaboration

Using Semantic Social Data

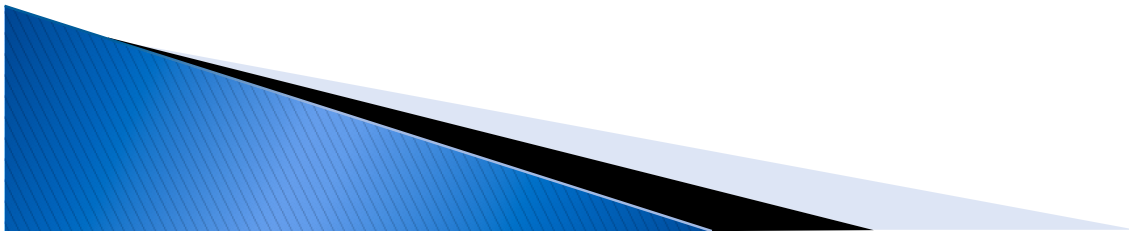
- ▶ Distributed Social Web
- ▶ Recommendations
- ▶ Enhanced visualisations
- ▶ Social network analysis

The Social Web



Object-centred sociality (AKA social objects)

- ▶ Users are connected via common objects
 - Their job, university, hobbies, interests, a date...
- ▶ *“[P]eople don’t just connect to each other. They connect through a shared object. [...]” – Jyri Engestrom, following Carin Knorr-Cetina*
 - Flickr = photos
 - Delicious = bookmarks
 - Blogs = discussion posts
 - Quora = questions
 - Facebook = ? (changing: network, dates, links, photos)





Social websites are like data silos



Many isolated communities of users and their data



image from pidgintech.com

Need ways to connect these
islands



image from pidgintech.com

Allowing users to easily move from one to another

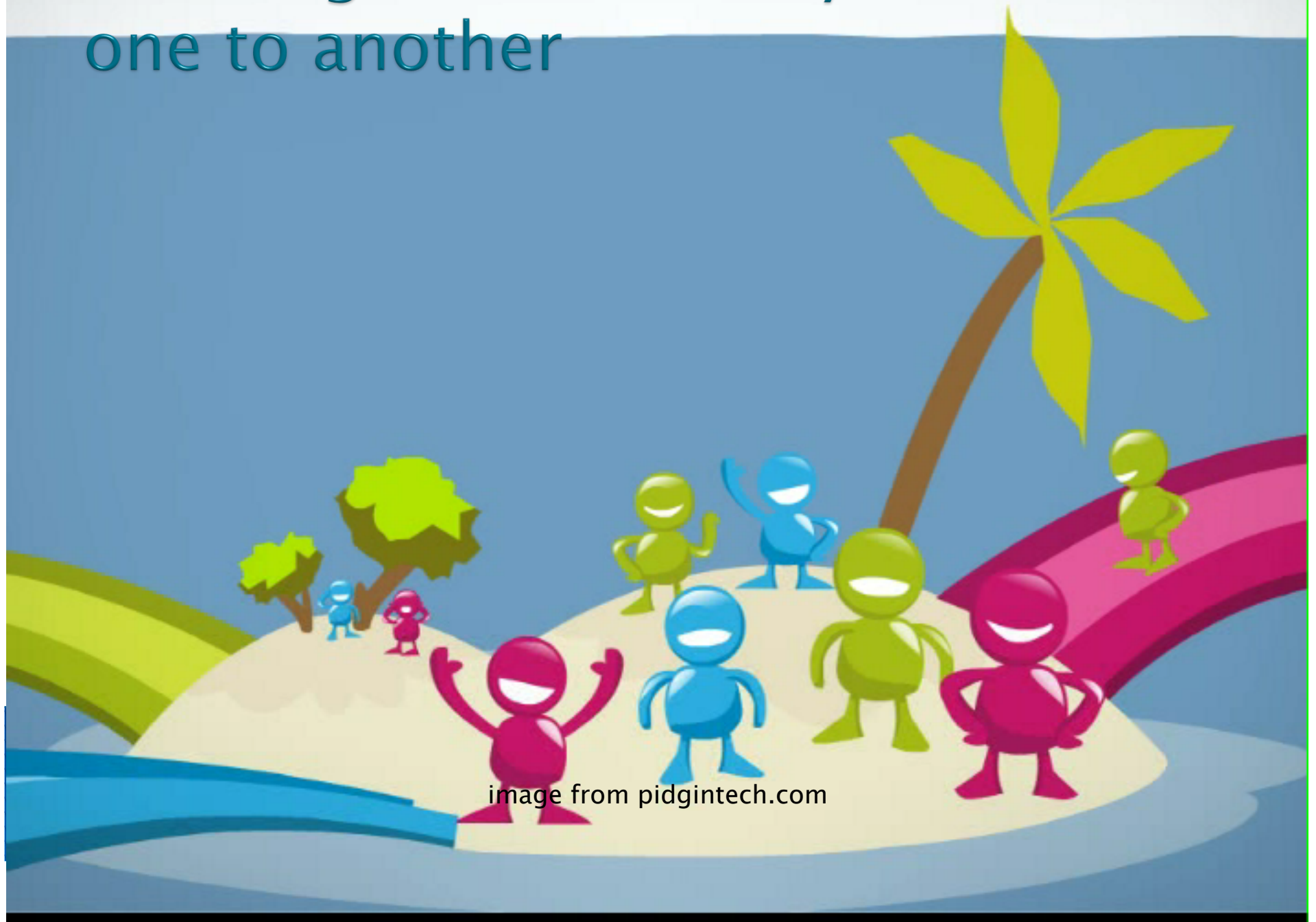
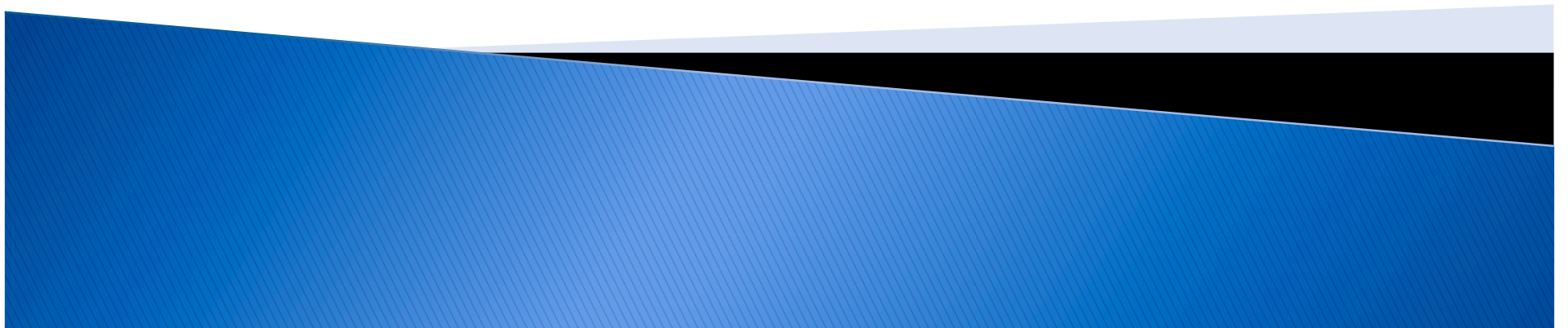


image from pidgintech.com



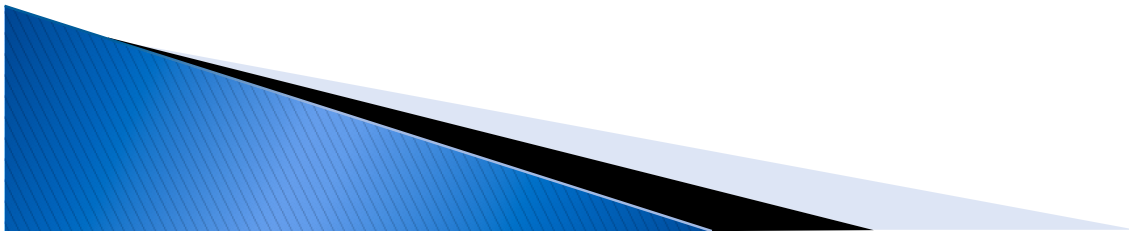


The Semantic Web



Hypertext → Web

Database → Semantic Web

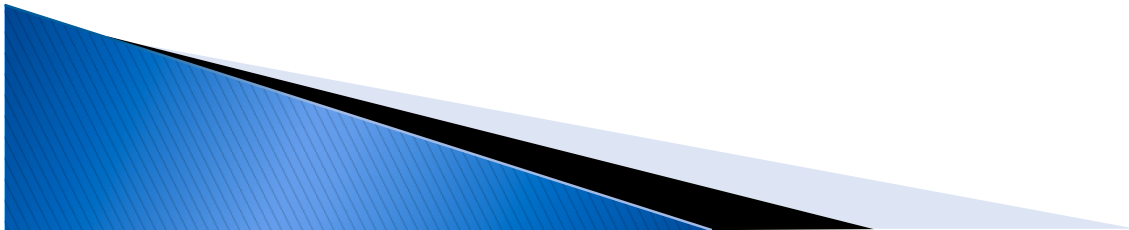


What is the Web?



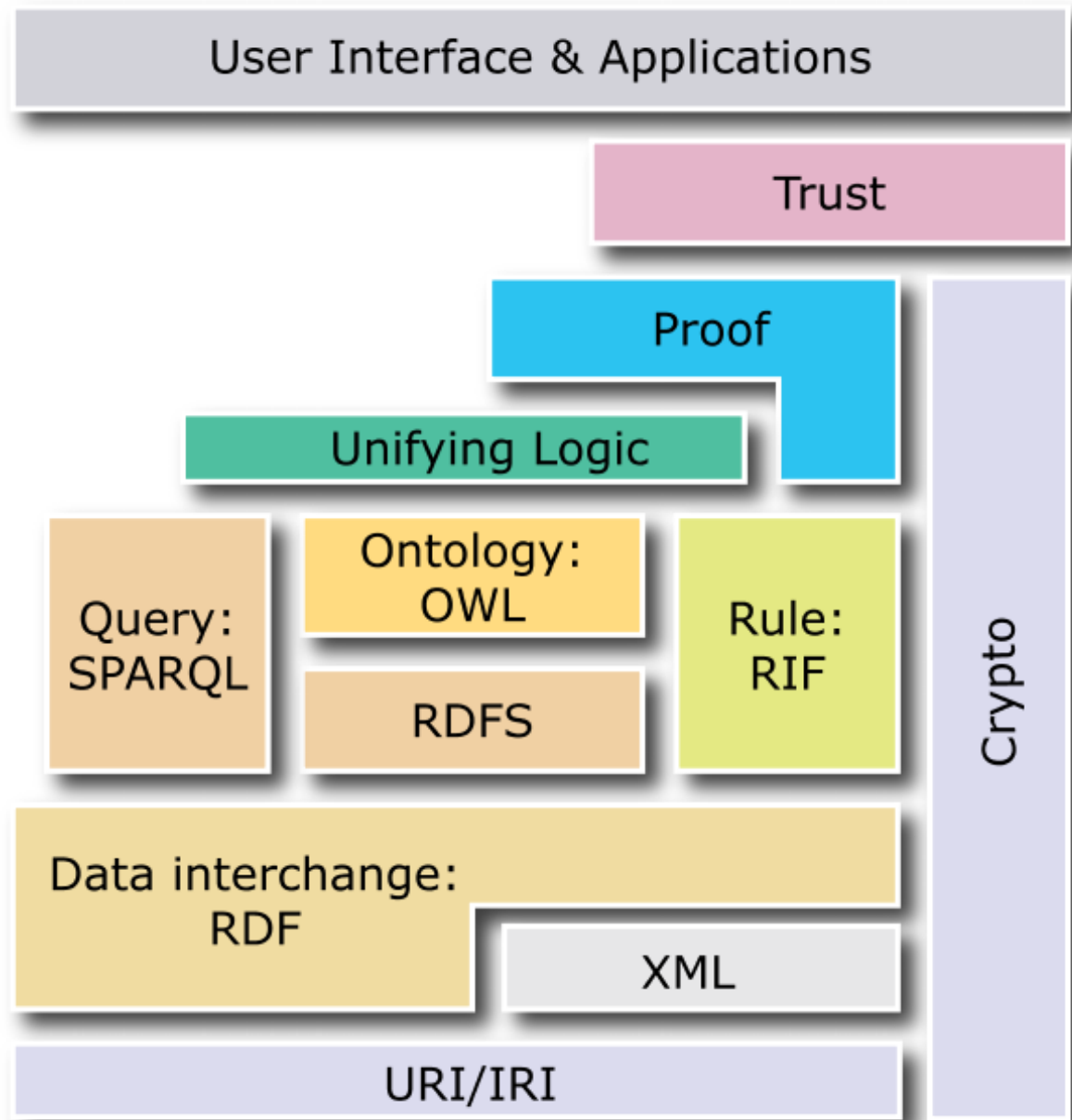
Standards and principles

- ▶ URI
- ▶ HTTP
- ▶ HTML
- ▶ CSS
- ▶ JavaScript
- ▶ XML
- ▶ PNG
- ▶ MPEG
- ▶ ...



What is the Semantic Web?





Linked Data Principles

1. Use URIs to name *things*
2. To enable look up, use HTTP URIs
3. On look up, provide useful information
4. Include links to other URIs and connect to more *things*



Linked Data Principles

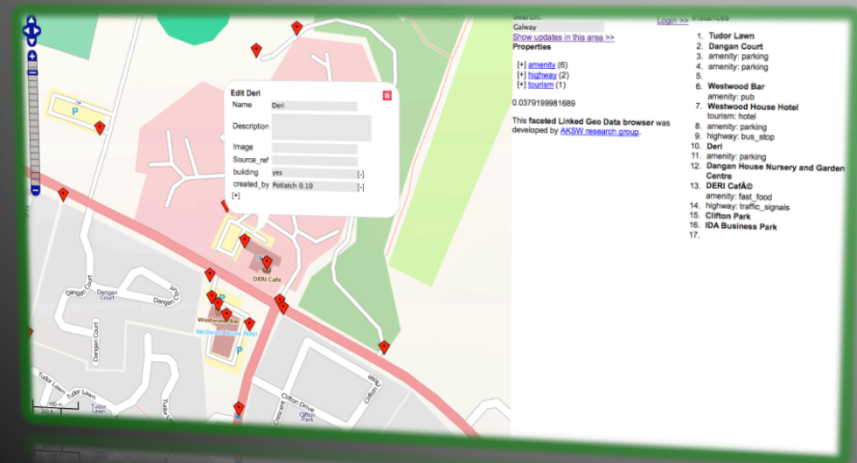
1. Use URIs to name *things*
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4. Include links to other URIs and connect to more *things*



<http://www.w3.org/People/Berners-Lee/card#i>

Linked Data Principles

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<http://linkedgedata.org/triplify/near/53.273797,-9.05178/500>

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

Linked Data Principles

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

Linked Data Principles

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

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4. Include links to other URIs and connect to more *things*

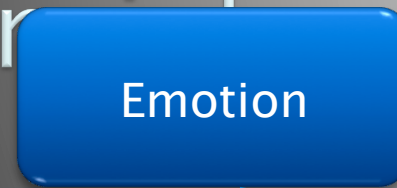
Emotion

type of



Linked Data Principles

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type of



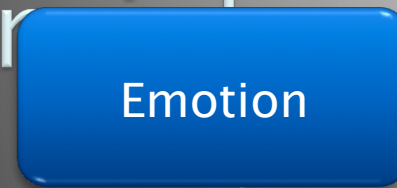
<http://dbpedia.org/resource/Happiness>

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

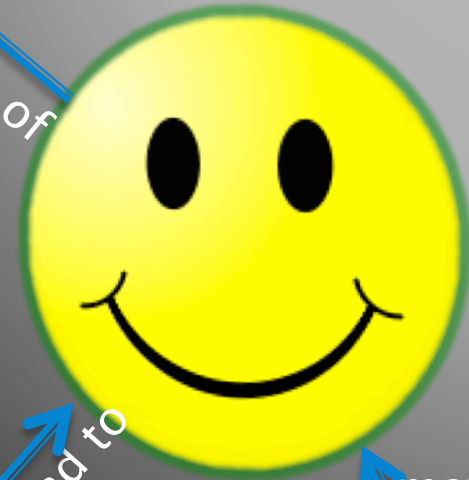
<http://sw.cyc.com/2006/07/27/E/m/Emotion>

Linked Data Principles

1. Use URIs to name *things*
2. To enable look up, use HTTP URIs
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type of



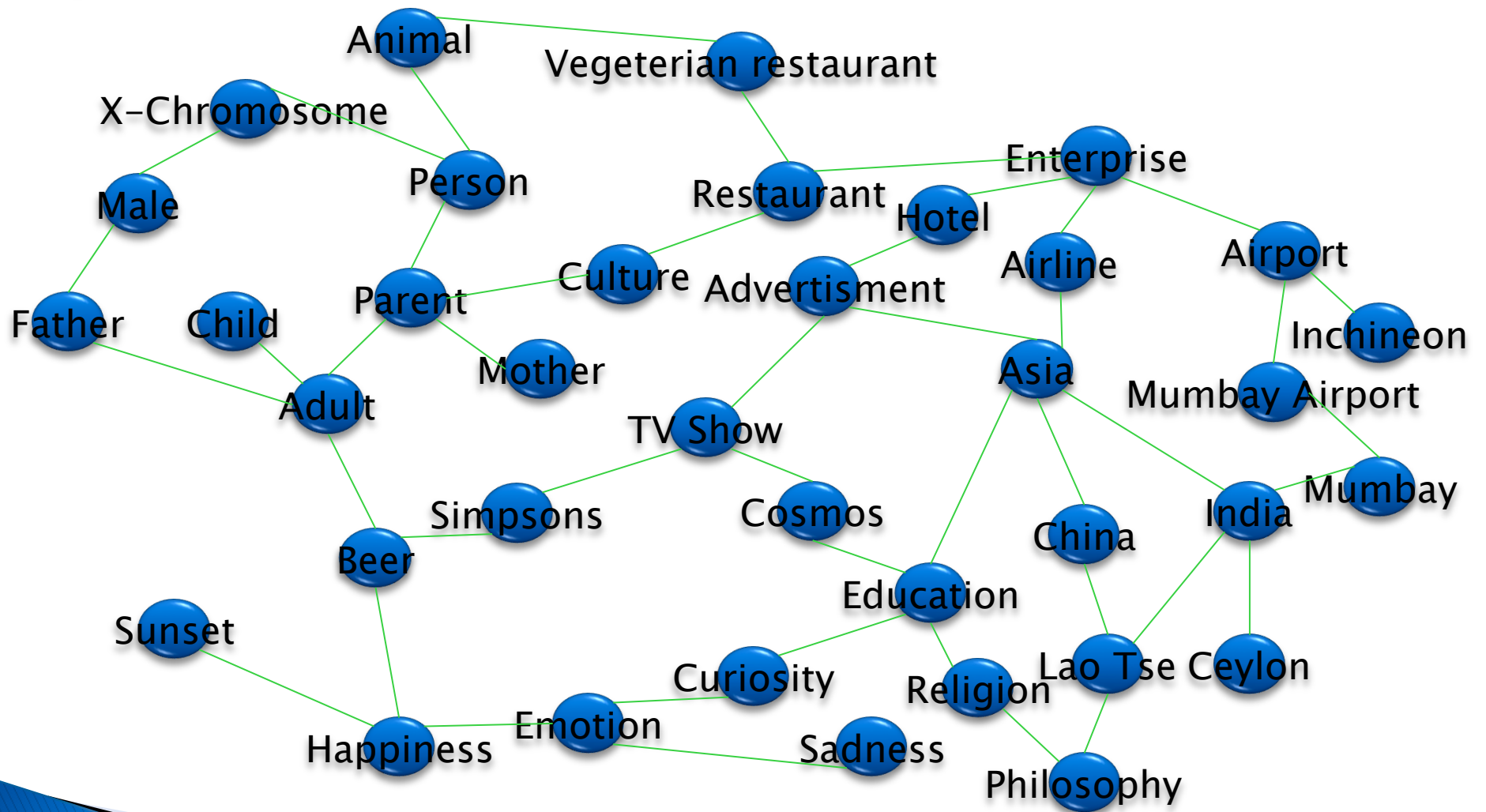
may lead to



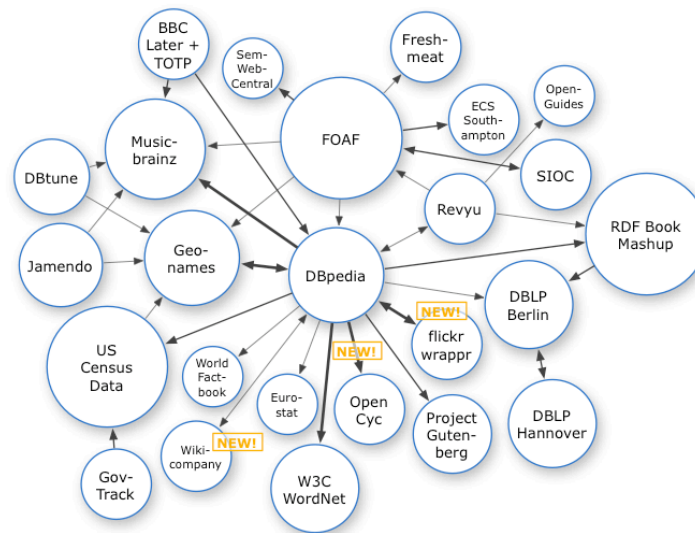
may lead to



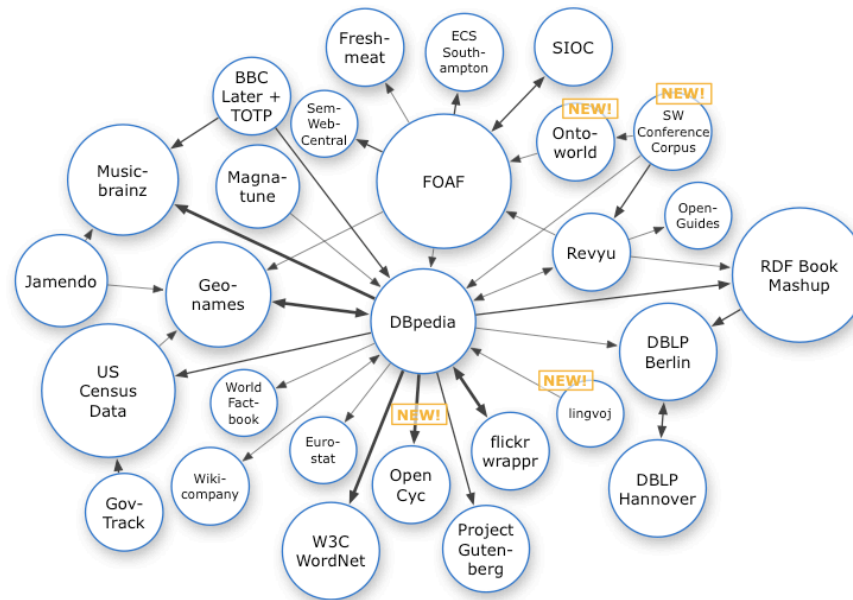
Semantic Web



Linked Data on the Web

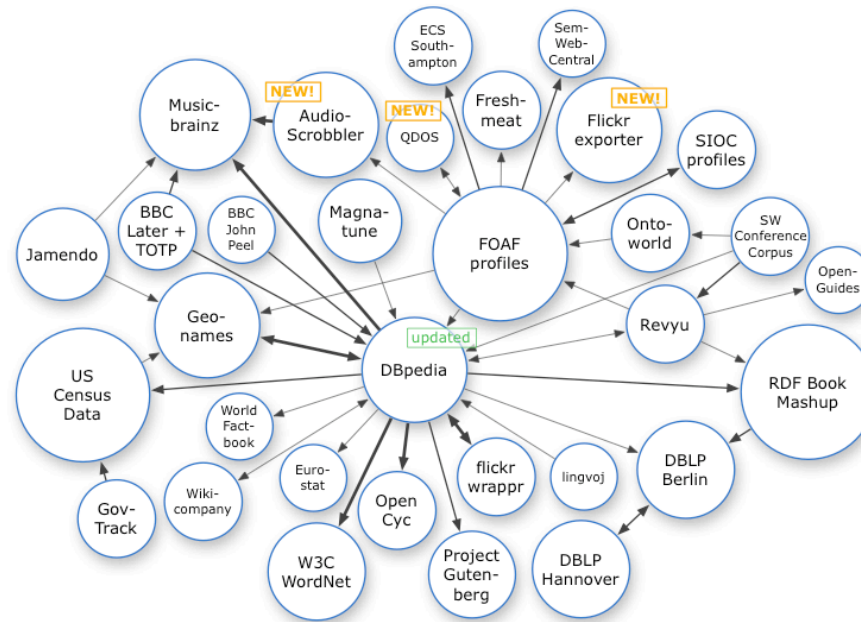


Linked Data on the Web



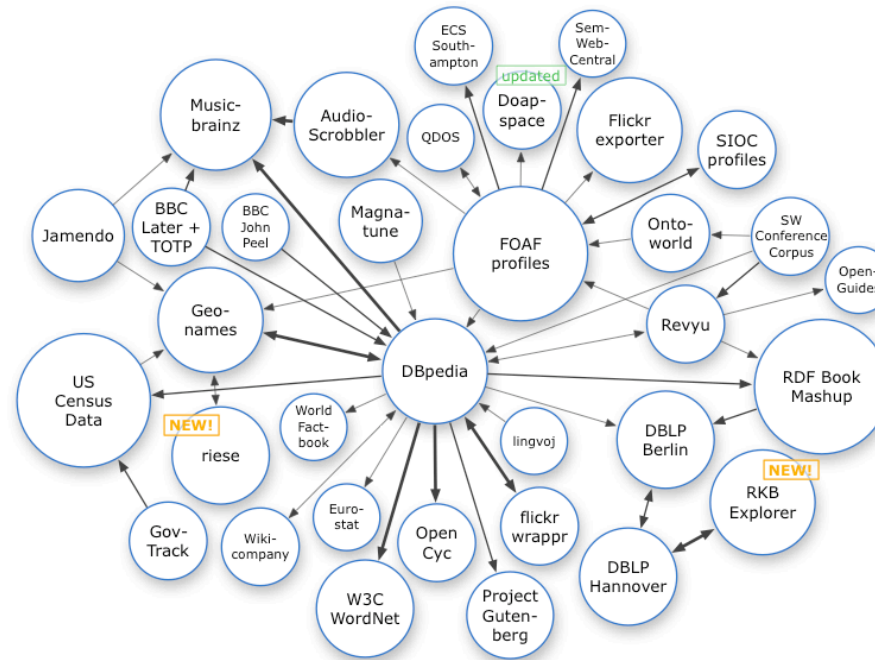
2007-11

Linked Data on the Web

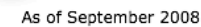


2008-02

Linked Data on the Web

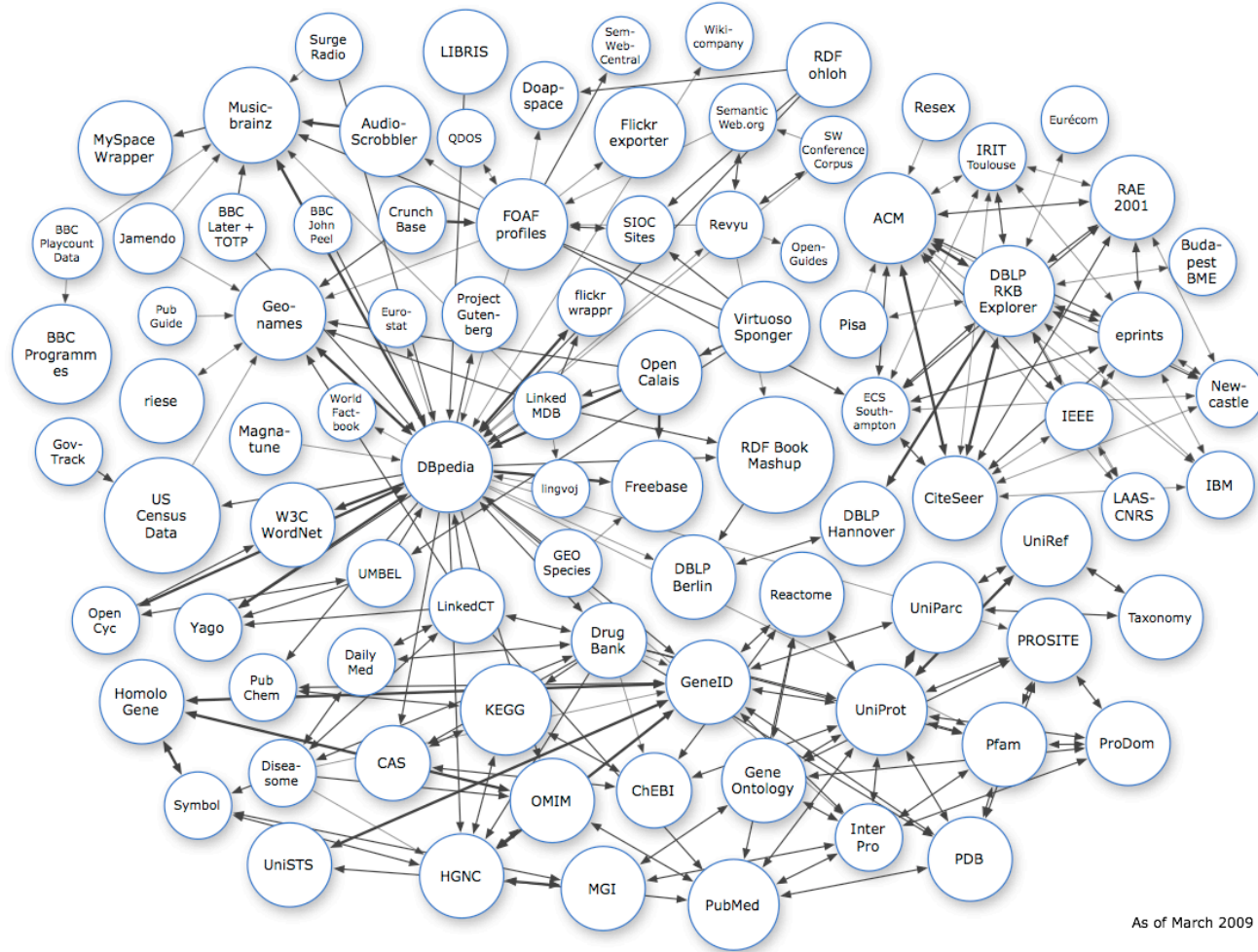


2008-03



2008-09

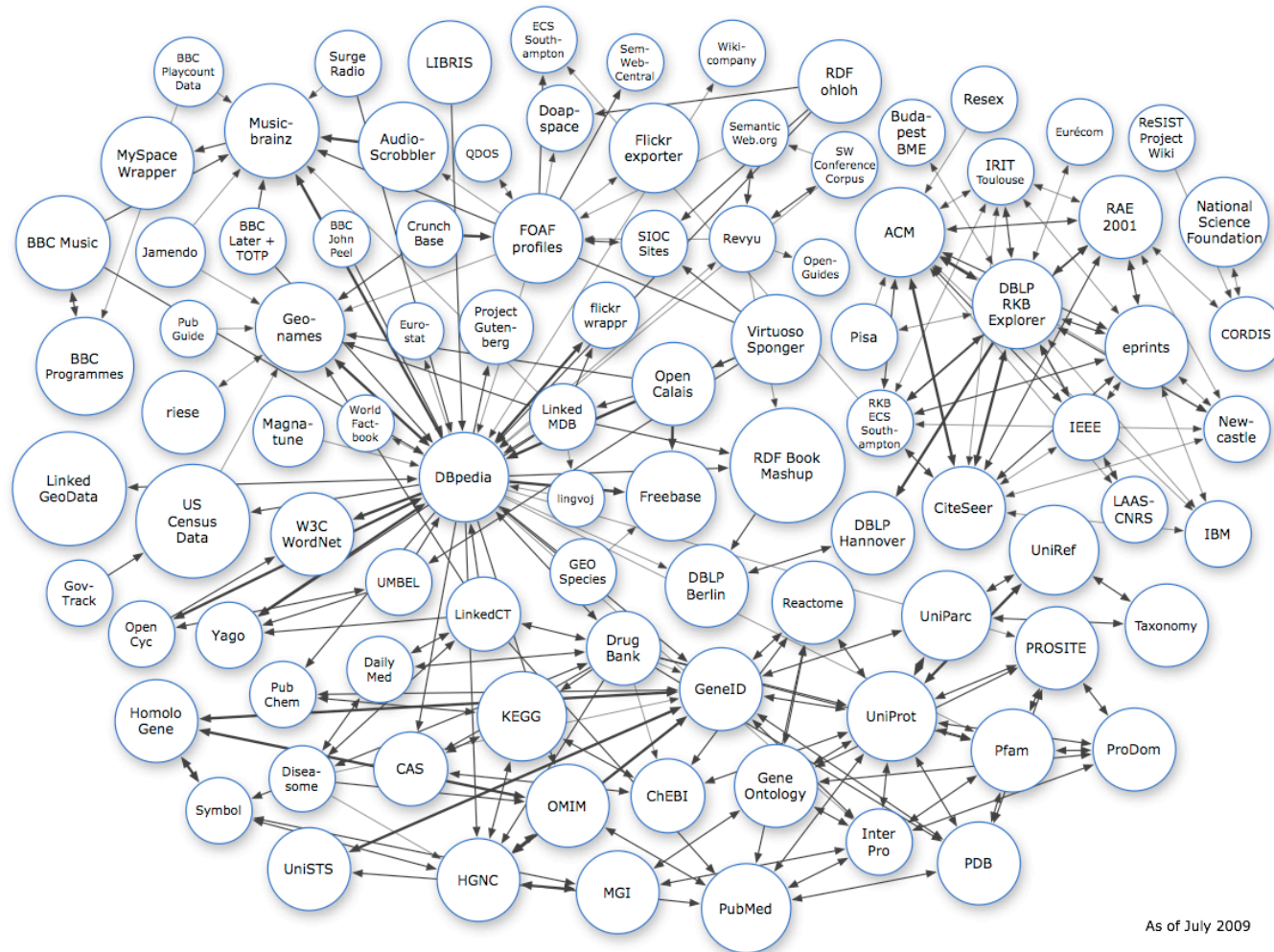
Linked Data on the Web



As of March 2009

2009-03

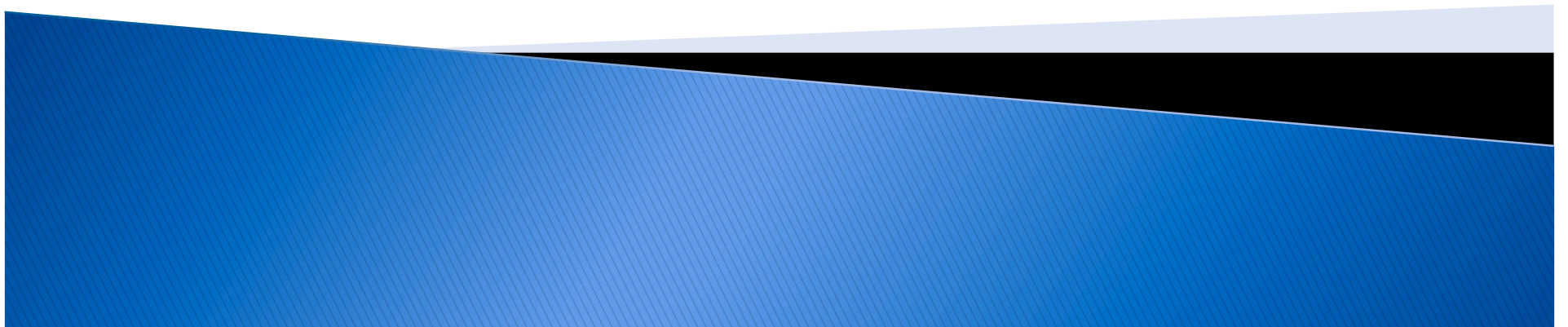
Linked Data on the Web



As of July 2009

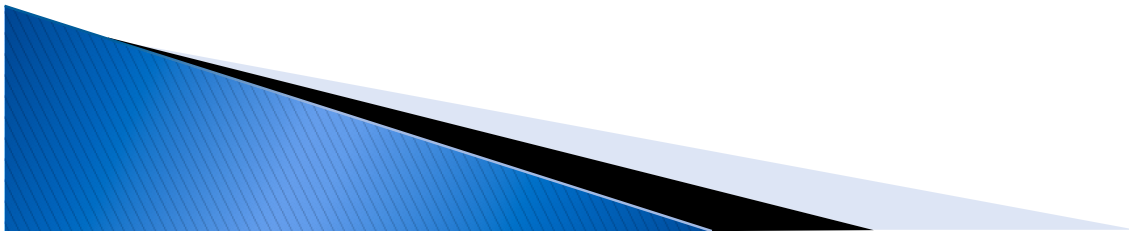
2009-07

The Semantic Web + The Social Web



Two ways how semantics are used

- ▶ Using semantics in social sites for sharing
- ▶ Using semantics on the Web to describe resources for social sites

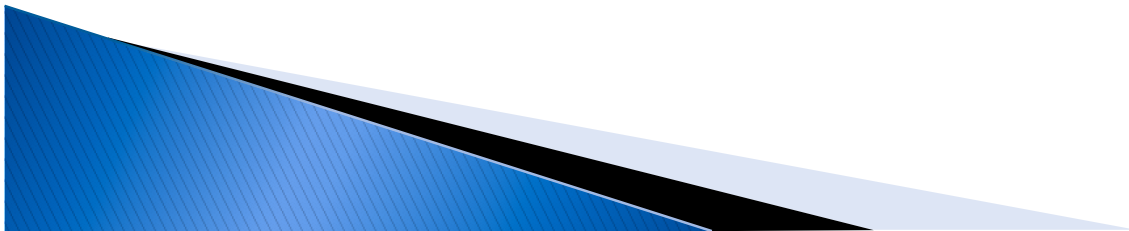




TM

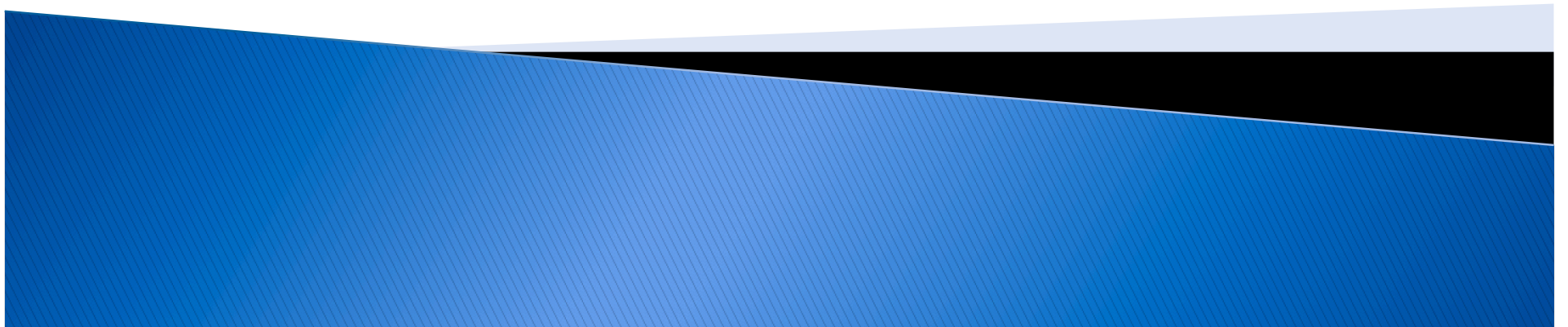
DataPortability

connect . control . share . remix



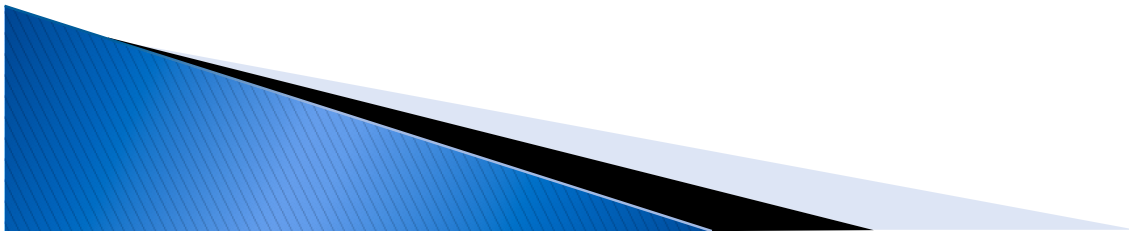
Mind privacy!

Breaking the silos $\neq$ Linked open data

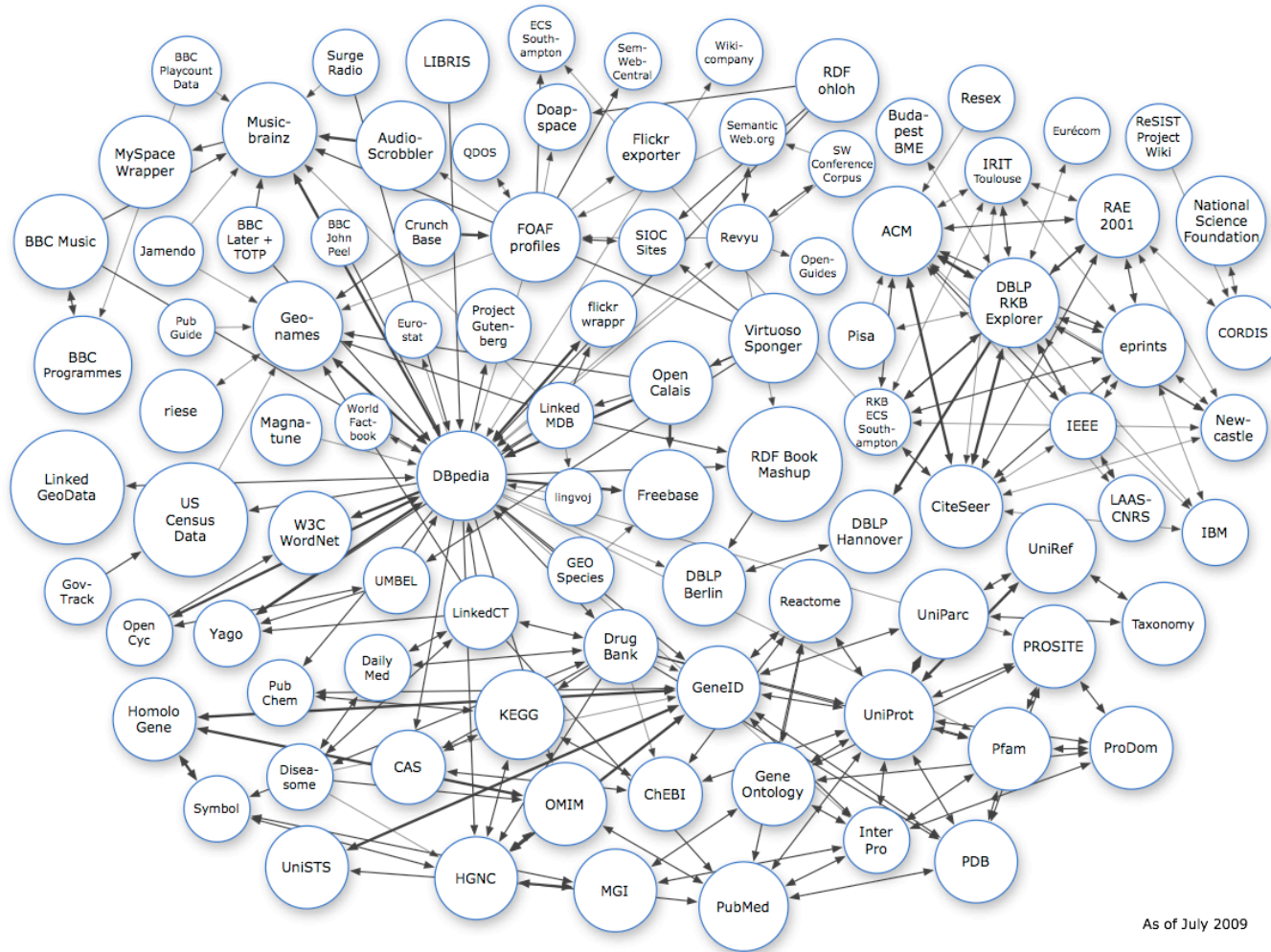


Two ways how semantics are used

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Linked Data on the Web

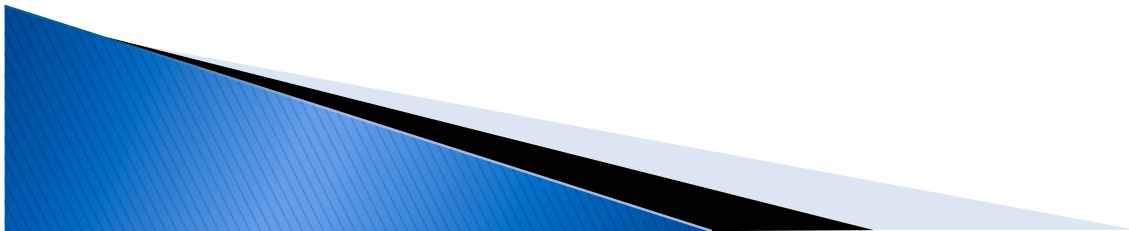


As of July 2009

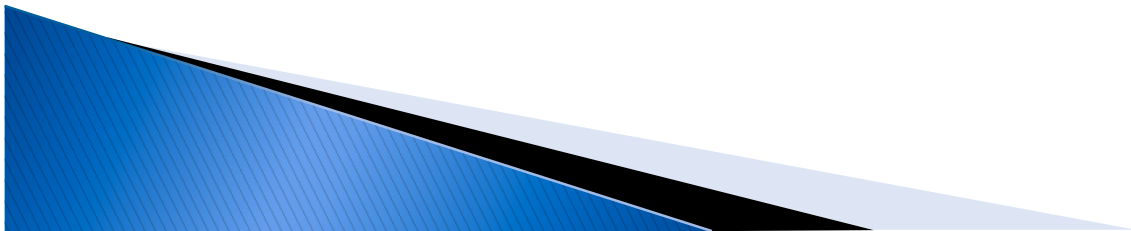
Ontologies

=

Formalizations of shared conceptualization
(inherently, necessarily social!)



Facebook Like



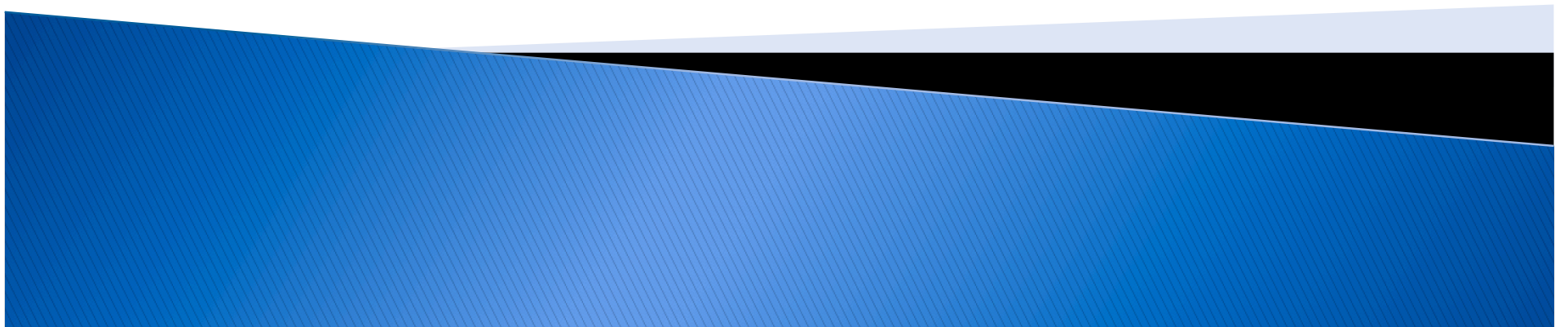
RDFa

- ▶ Markup to embed RDF in HTML
- ▶ Accessible via JavaScript API

```
<html
  xmlns="http://www.w3.org/1999/xhtml"
  xmlns:biblio="http://example.org/"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
>
<head>
  <title>Books by Marco Pierre White</title>
</head>
<body>
  I think White's book
  '<span about="urn:ISBN:0091808189" typeof="biblio:book"
    property="dc:title">
    Canteen Cuisine
  </span>'
  is well worth getting since although it's quite advanced stuff, he
  makes it pretty easy to follow. You might also like
  <span about="urn:ISBN:1596913614" typeof="biblio:book"
    property="dc:description">
    White's autobiography
  </span>.
</body>
</html>
```

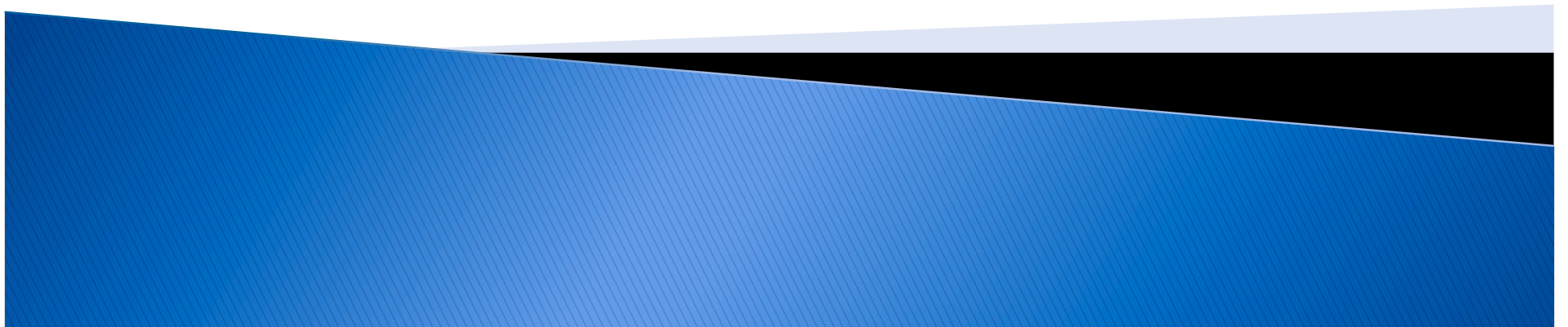
Representation models for the Social Semantic Web

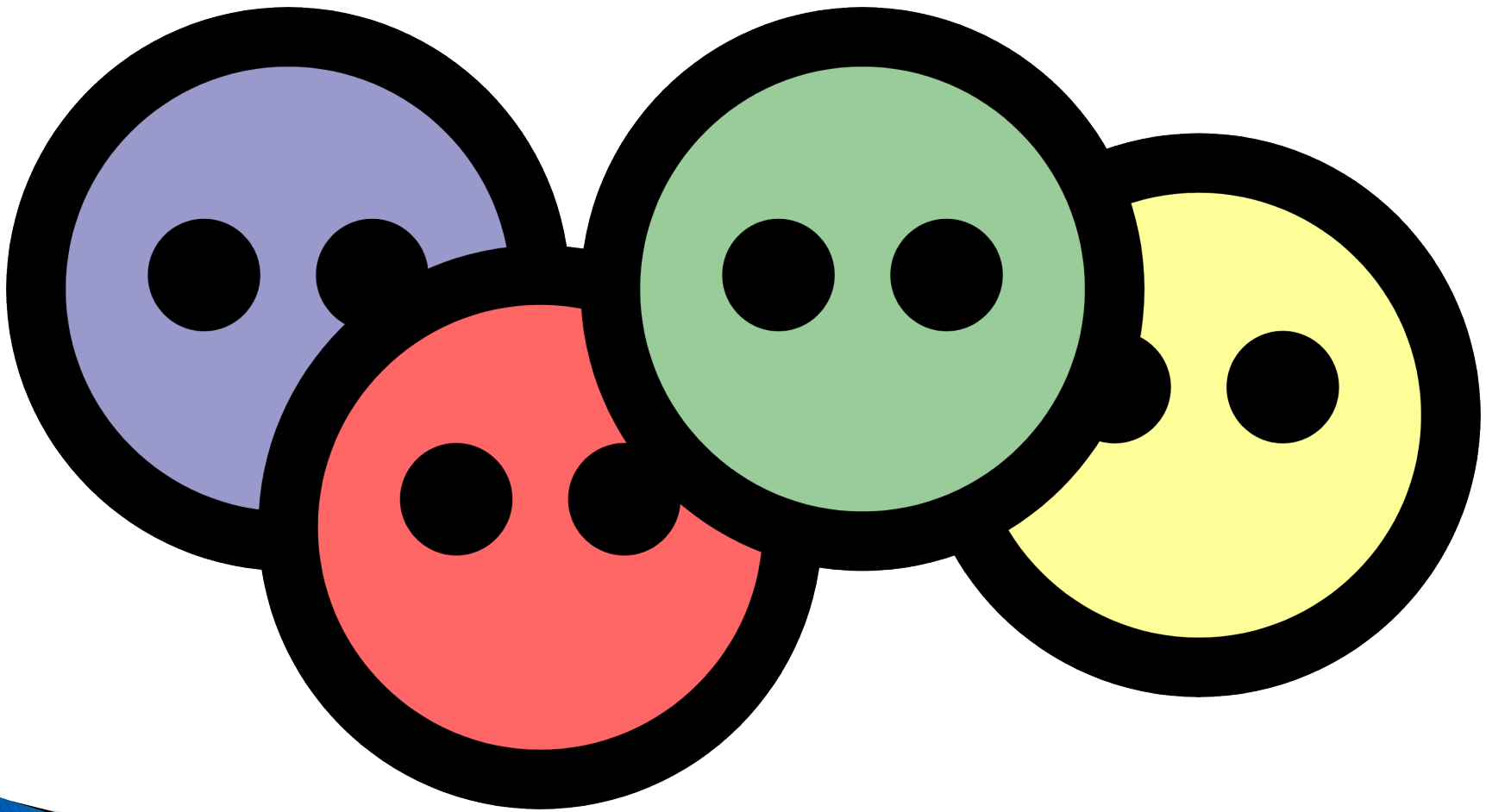
Ontologies for social data



FOAF

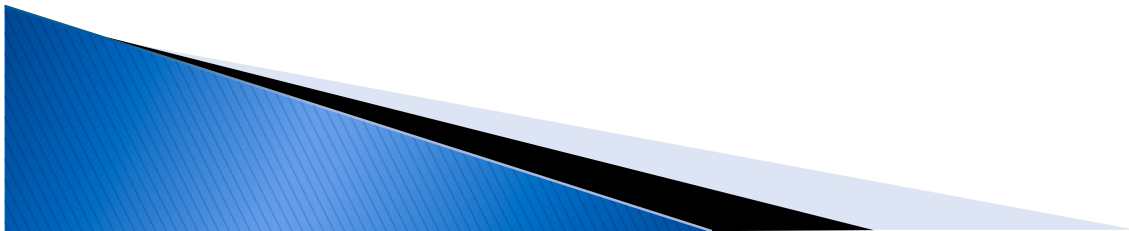
Friend Of A Friend

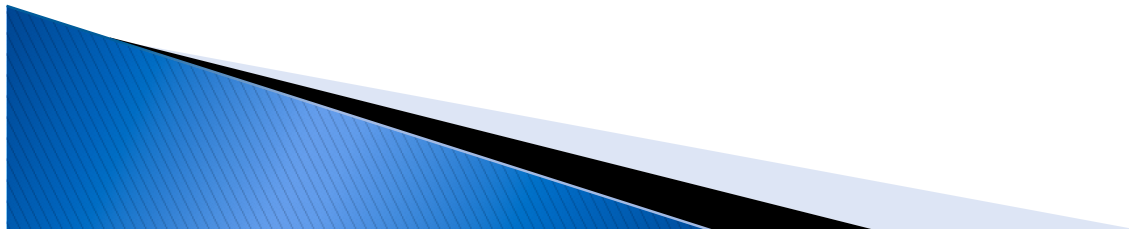


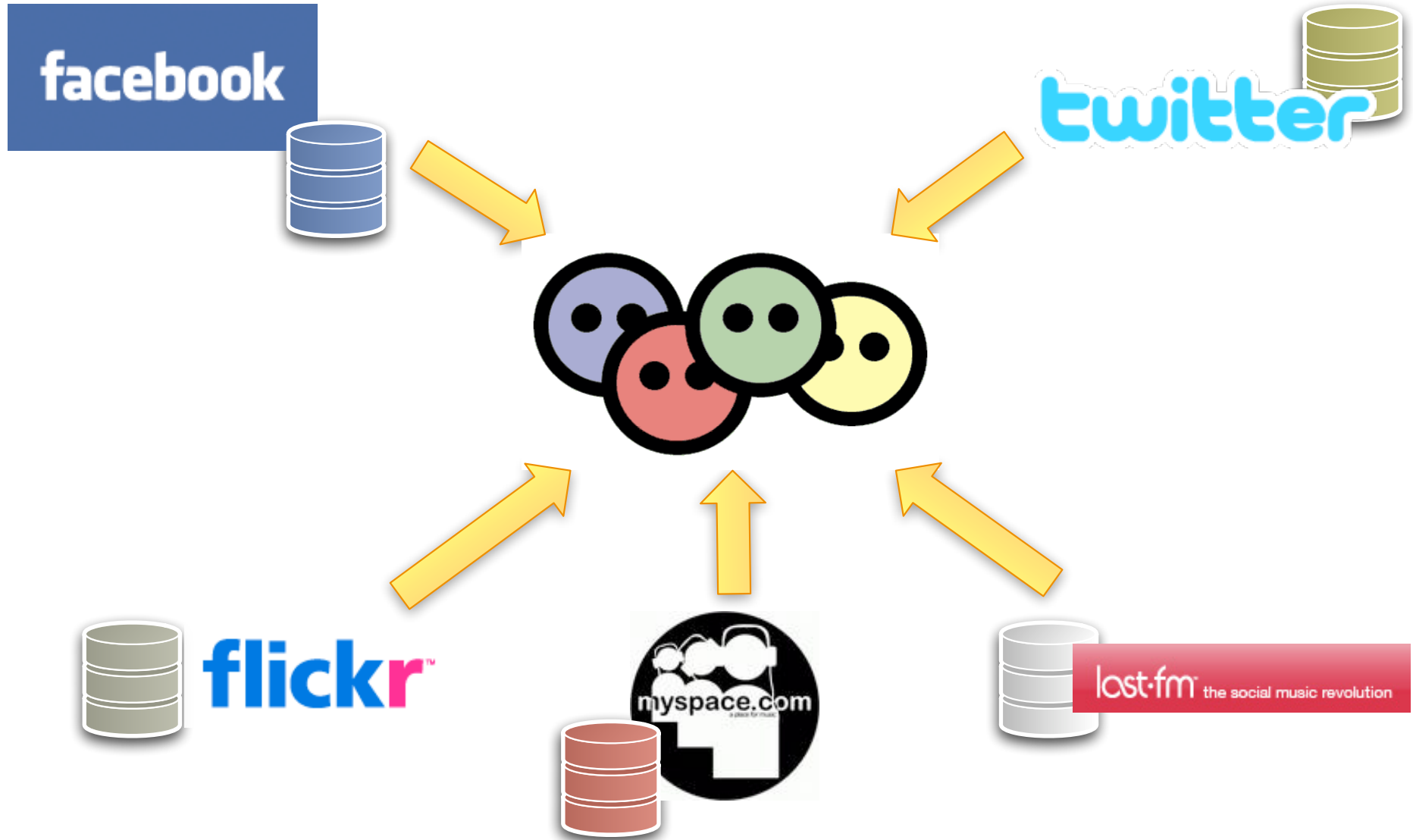


FOAF (Friend-of-a-Friend)

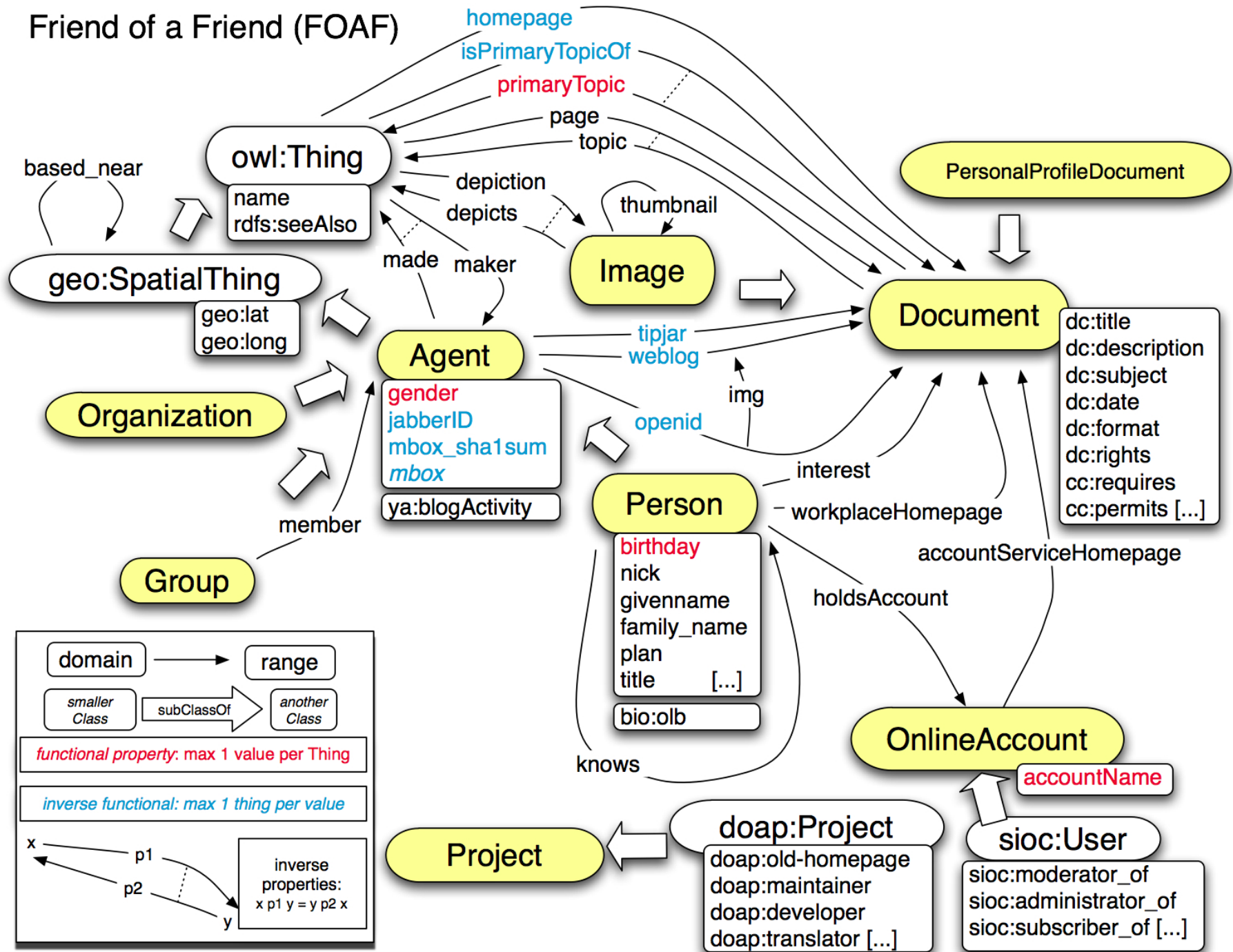
- ▶ An ontology for describing people and the relationships that exist between them:
 - <http://foaf-project.org/>
 - Identity, personal profiles and social networks
 - Can be integrated with other SW vocabularies
- ▶ FOAF on the Web:
 - LiveJournal, MyOpera, identi.ca, MyBlogLog, hi5, Fotothing, Videntity, FriendFeed, Ecademy, Typepad





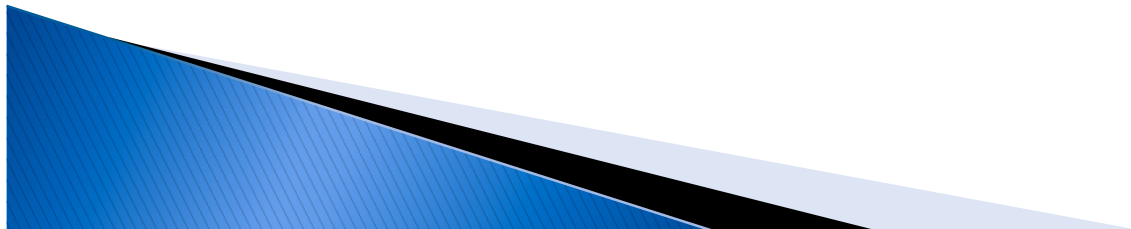


Friend of a Friend (FOAF)



FOAF from Flickr

```
<foaf:Person rdf:about="http://apassant.net/home/2007/12/flickrdf/people/33669349@N00">
  <foaf:name>Alexandre Passant</foaf:name>
  <foaf:mbox_sha1sum>80248cbb1109104d97aae884138a6afcda688bd2</foaf:mbox_sha1sum>
  <geonames:locatedIn rdf:resource="http://sws.geonames.org/3038213/" />
  <foaf:holdsAccount rdf:resource="http://apassant.net/home/2007/12/flickrdf/user/33669349@N00" />
  <foaf:knows rdf:resource="http://apassant.net/home/2007/12/flickrdf/people/86846122@N00" />
  <foaf:knows rdf:resource="http://apassant.net/home/2007/12/flickrdf/people/32233977@N00" />
  <foaf:knows rdf:resource="http://apassant.net/home/2007/12/flickrdf/people/43184127@N00" />
  <foaf:knows rdf:resource="http://apassant.net/home/2007/12/flickrdf/people/24266175@N00" />
  <foaf:knows rdf:resource="http://apassant.net/home/2007/12/flickrdf/people/7787294@N06" />
  <sioc:member_of rdf:resource="http://apassant.net/home/2007/12/flickrdf/groups/49656594@N00" />
  <sioc:member_of rdf:resource="http://apassant.net/home/2007/12/flickrdf/groups/23989049@N00" />
</foaf:Person>
```

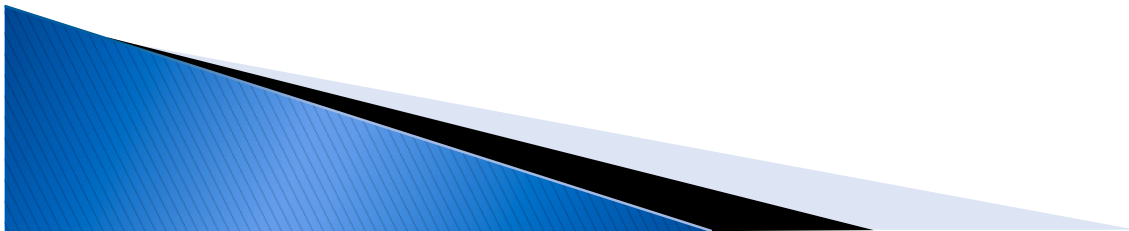


FOAF from Twitter

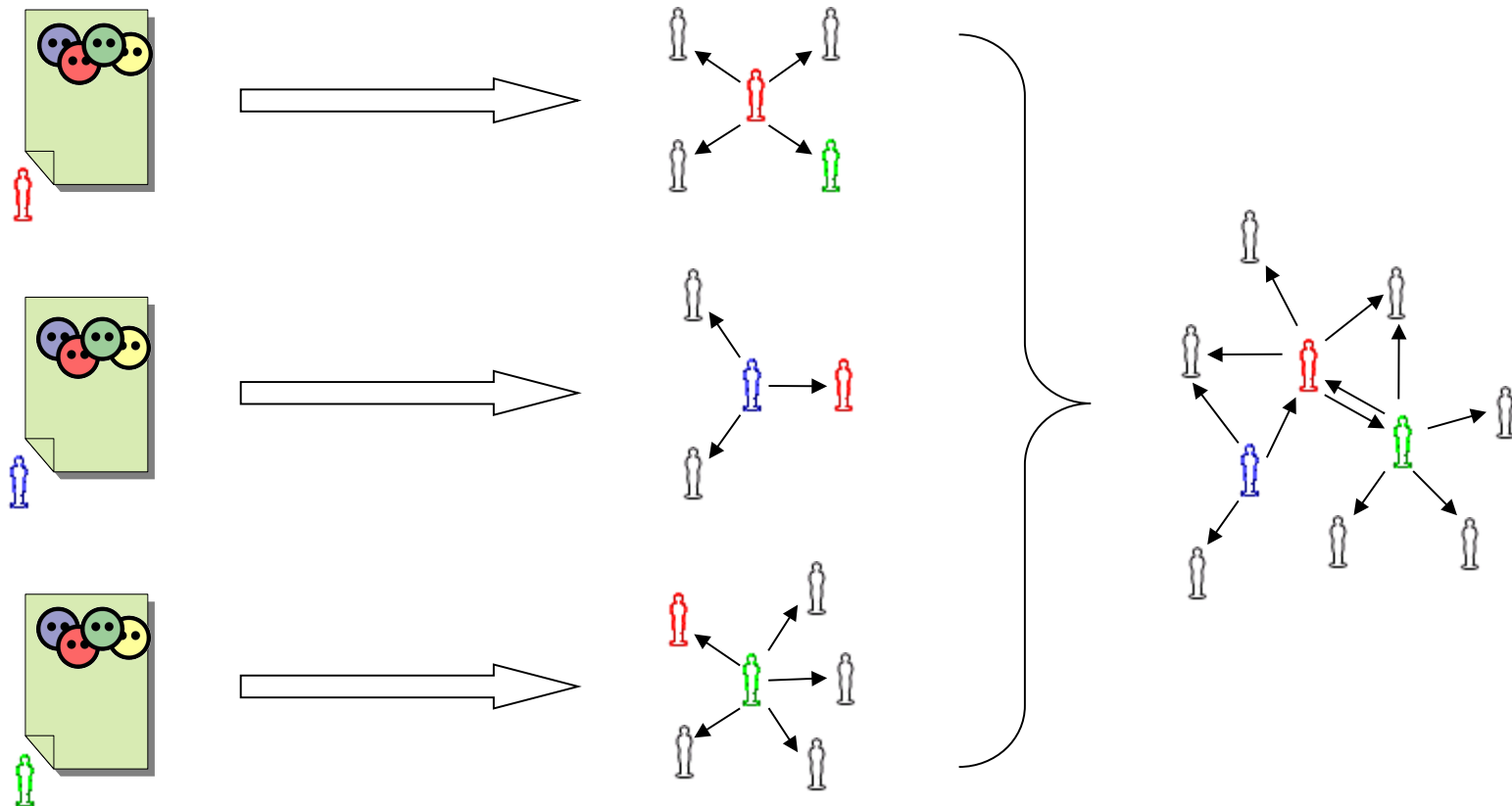
- <rdf:RDF>
 - <foaf:PersonalProfileDocument rdf:about="">
 - <foaf:maker rdf:resource="http://semantictweet.com/semantictweet"/>
 - <foaf:primaryTopic rdf:resource="http://semantictweet.com/terraces#me"/>
 - <admin:generatorAgent rdf:resource="http://semantictweet.com/">
 - <admin:errorReportsTo rdf:resource="mailto:stephen@flinter.com"/>
 - </foaf:PersonalProfileDocument>
 - <foaf:Agent rdf:about="http://semantictweet.com/josoha#me">
 - <foaf:name>Johanna Hampus</foaf:name>
 - <foaf:nick>josoha</foaf:nick>
 - <rdfs:seeAlso rdf:resource="http://semantictweet.com/josoha"/>
 - <foaf:homepage rdf:resource="http://ch.linkedin.com/pub/johanna-hampus/4/306/1a"/>
 - <foaf:img rdf:resource="http://a1.twimg.com/profile_images/782972558/2116628_normal.jpg"/>
 - </foaf:Agent>
 - <foaf:Agent rdf:about="http://semantictweet.com/NUIGalwayTTO#me">
 - <foaf:name>NUIGALWAYTTO</foaf:name>
 - <foaf:nick>NUIGalwayTTO</foaf:nick>
 - <rdfs:seeAlso rdf:resource="http://semantictweet.com/NUIGalwayTTO"/>
 - <foaf:homepage rdf:resource="http://www.nuigalway.ie/tto"/>
 - <foaf:img rdf:resource="http://a3.twimg.com/profile_images/860032369/tower_normal.jpg"/>
 - </foaf:Agent>
 - <foaf:Agent rdf:about="http://semantictweet.com/congosto#me">
 - <foaf:name>M. Luz Congosto</foaf:name>
 - <foaf:nick>congosto</foaf:nick>
 - <rdfs:seeAlso rdf:resource="http://semantictweet.com/congosto"/>
 - <foaf:homepage rdf:resource="http://barriblog.com/">
 - <foaf:img rdf:resource="http://a3.twimg.com/profile_images/486331241/congosto-manga-2_normal.jpg"/>
 - </foaf:Agent>

Exporting FOAF data

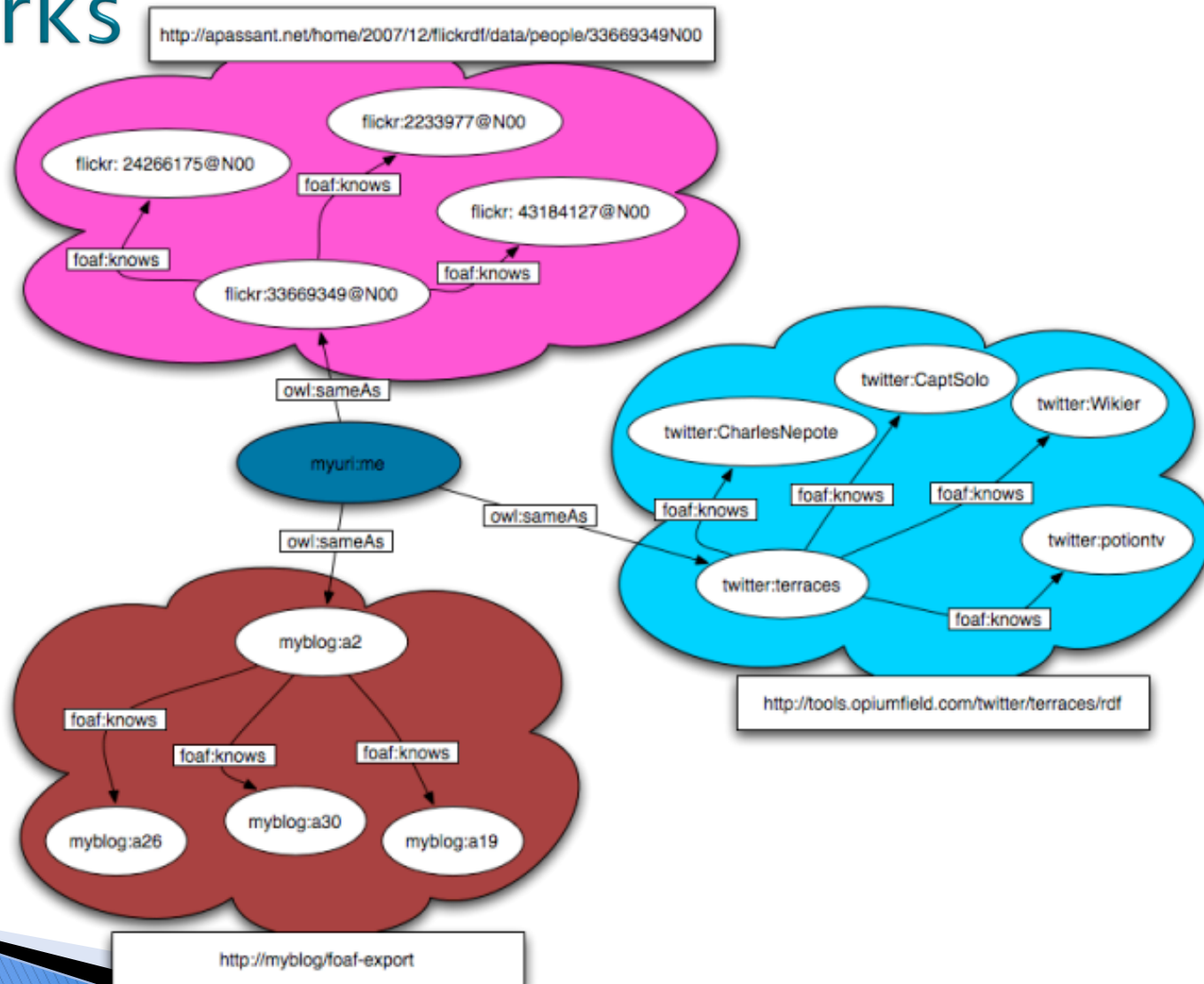
- ▶ Facebook:
 - <http://www.dcs.shef.ac.uk/~mrowe/foafgenerator.html>
- ▶ Twitter:
 - <http://semantictweet.com/>
- ▶ Flickr:
 - <http://apassant.net/blog/2007/12/18/rdf-export-flickr-profiles-foaf-and-sioc/>
- ▶ And many more (Drupal 7, WordPress plugins, Semantic MediaWiki, etc.)



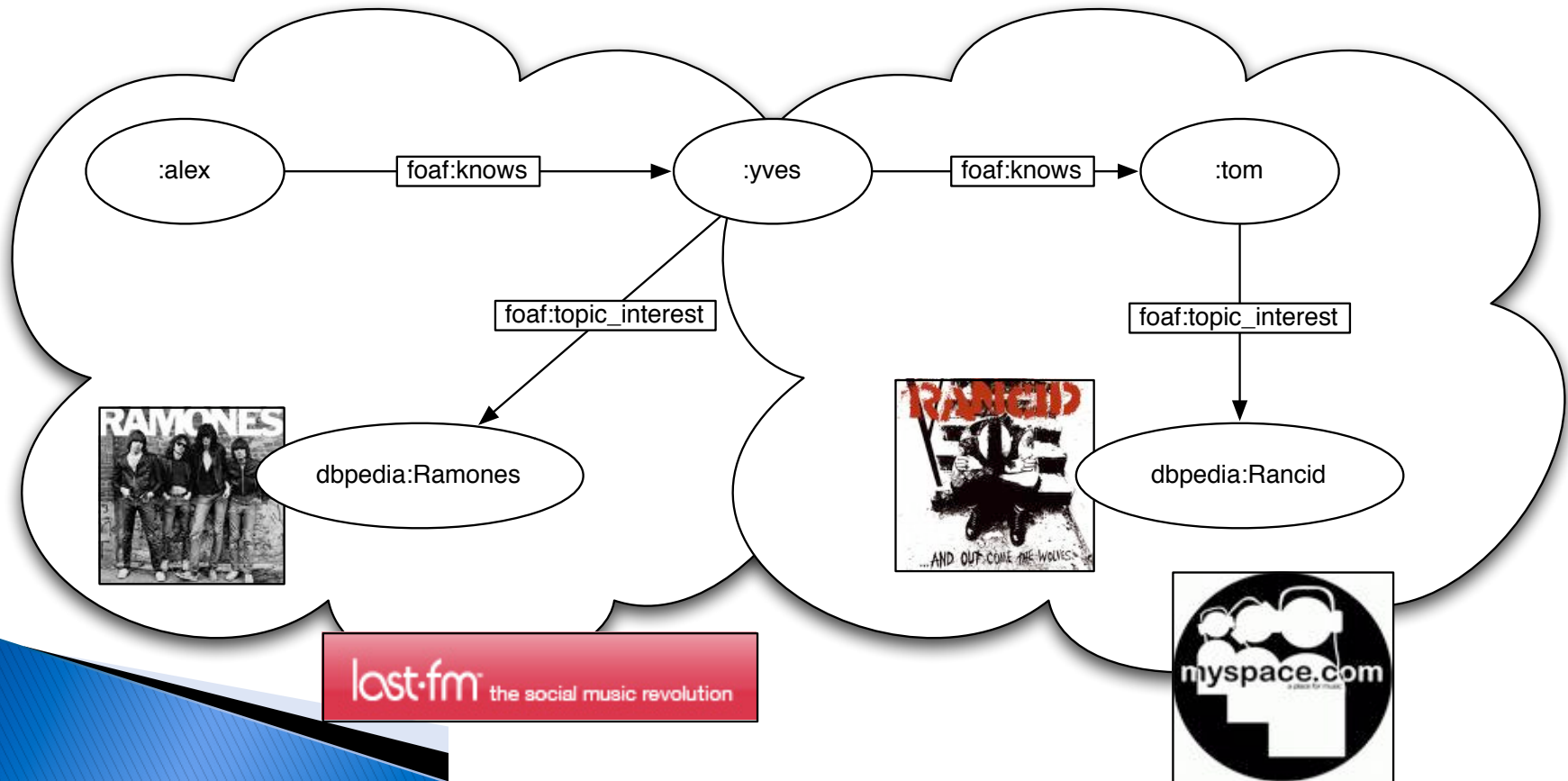
Distributed identity with FOAF



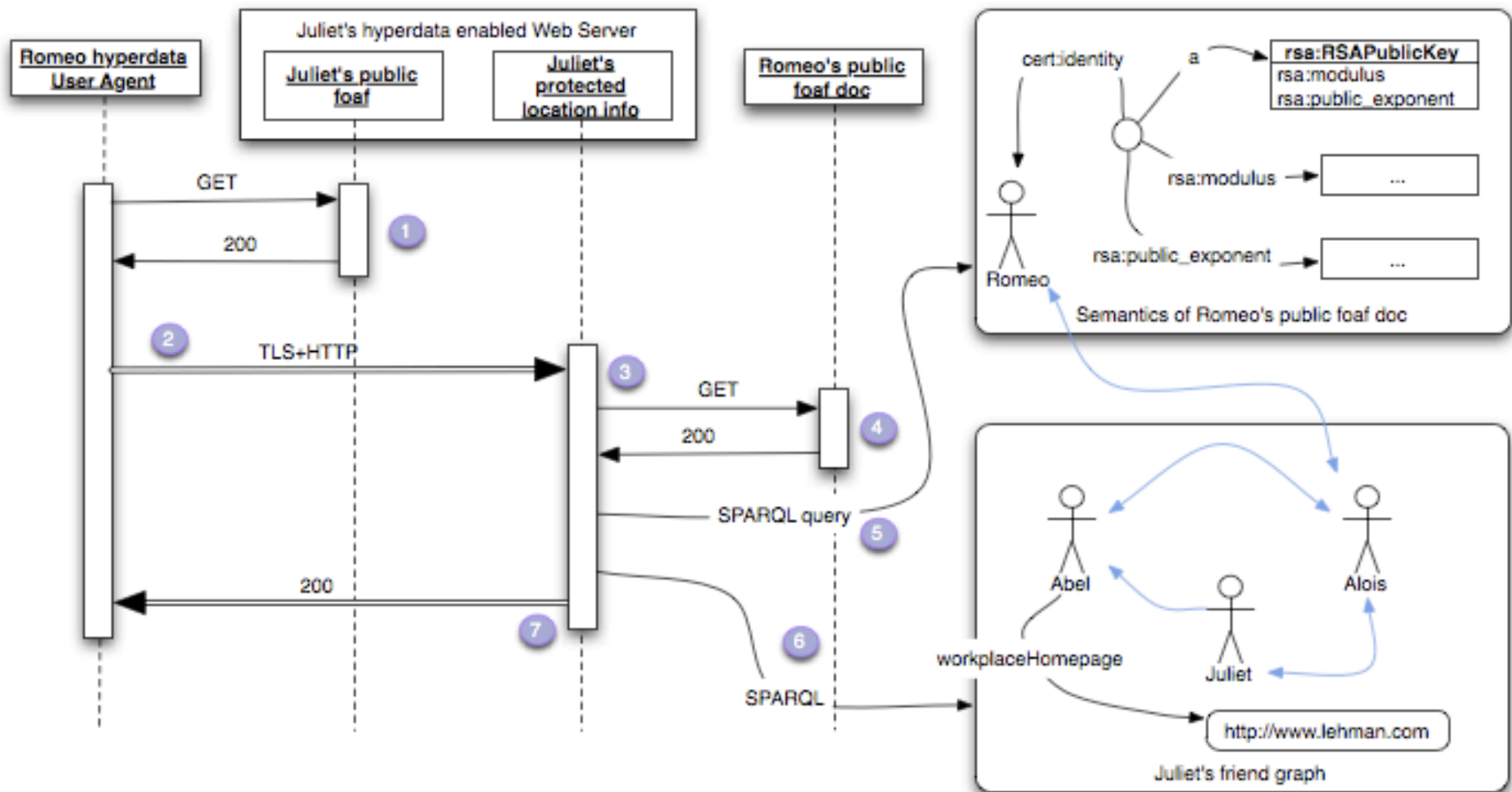
Interlinking identities and networks



Cross-site social recommendations with FOAF

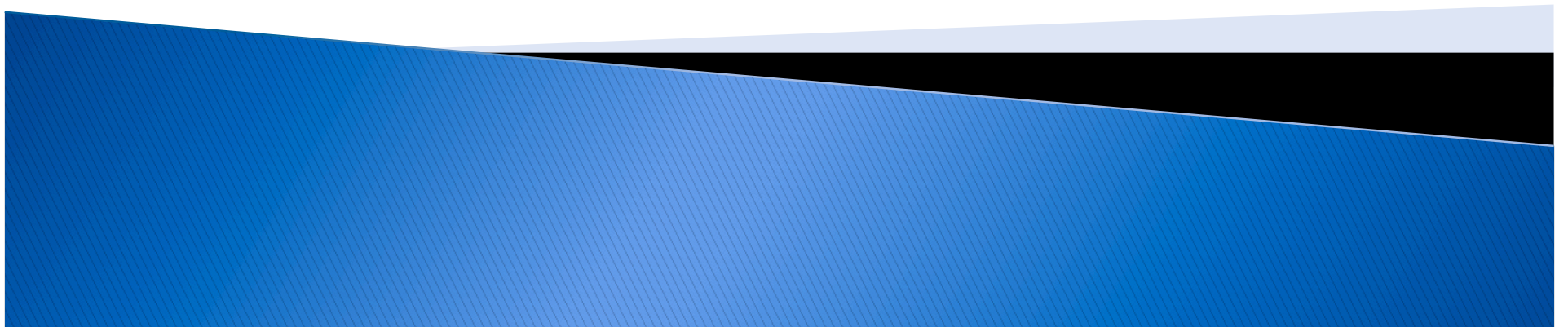


Distributed authentication with FOAF+SSL



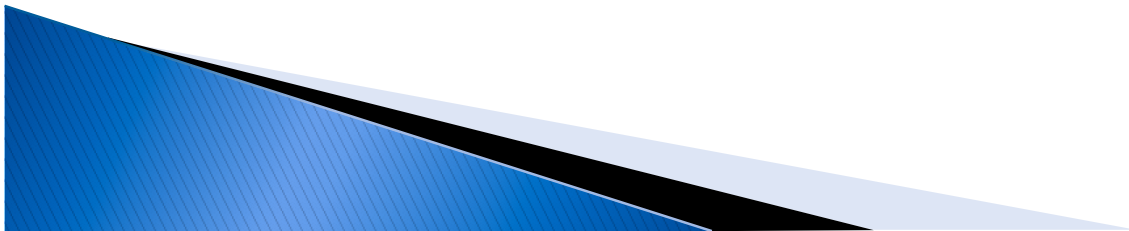
SIOC

Semantically-Interlinked
Online Communities



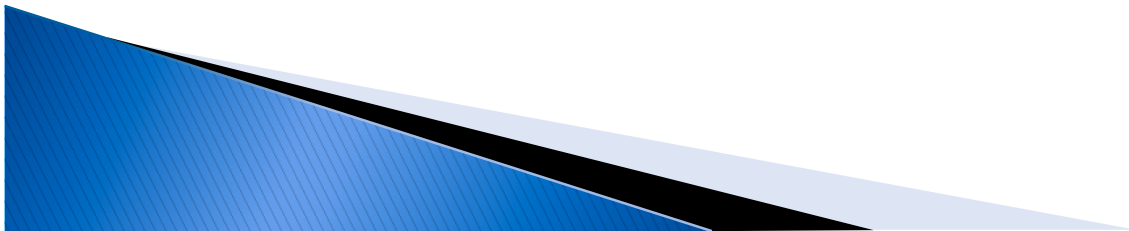
Semantically-Interlinked Online Communities (SIOC)

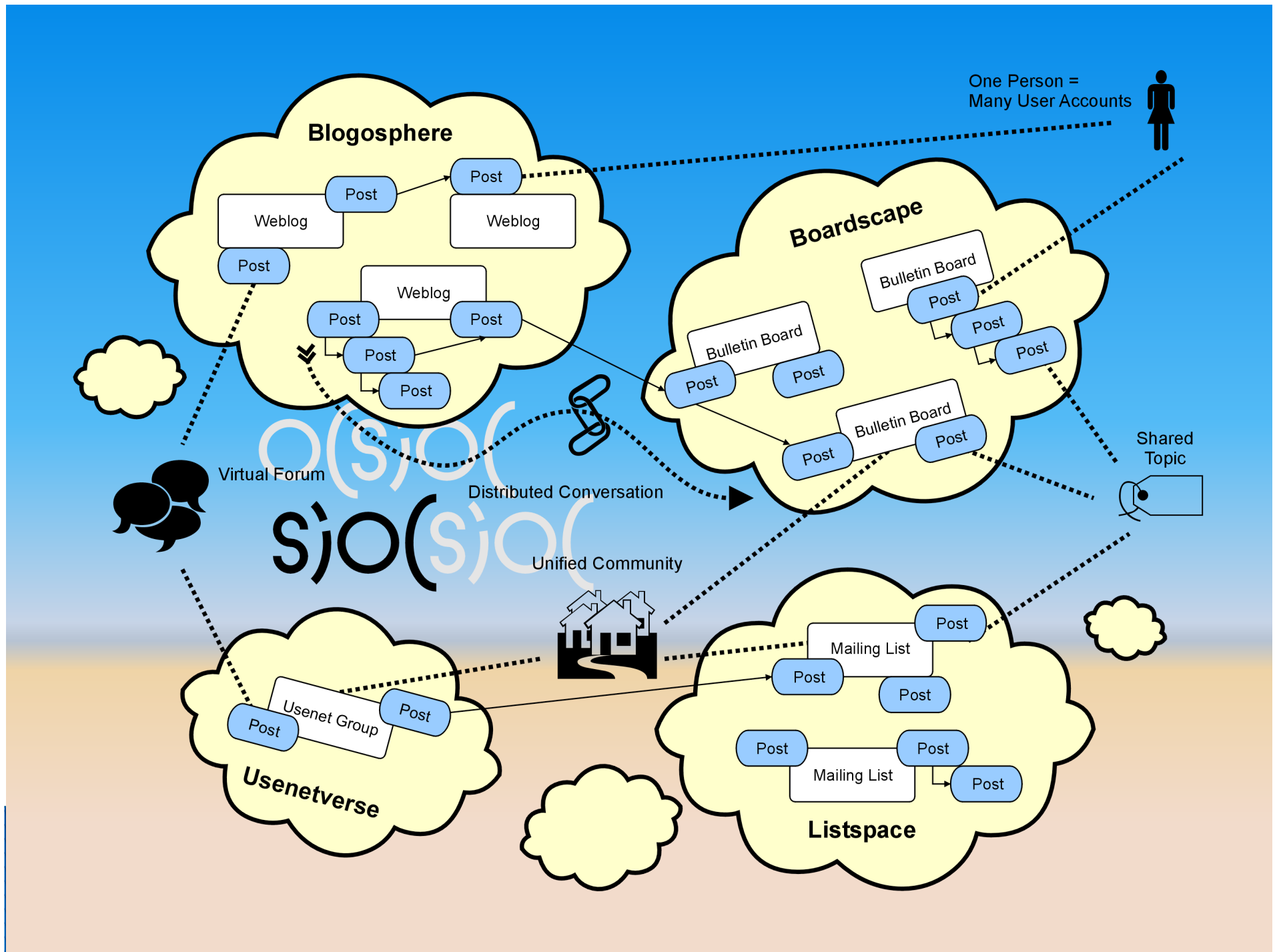
- ▶ Interoperability on the (Social) Web
- ▶ <http://sioc-project.org/>
- ▶ SIOC has been adopted in a framework of 50 applications or modules deployed on over 400 sites
- ▶ Various domains: Web 2.0, enterprise information integration, HCLS, e-government



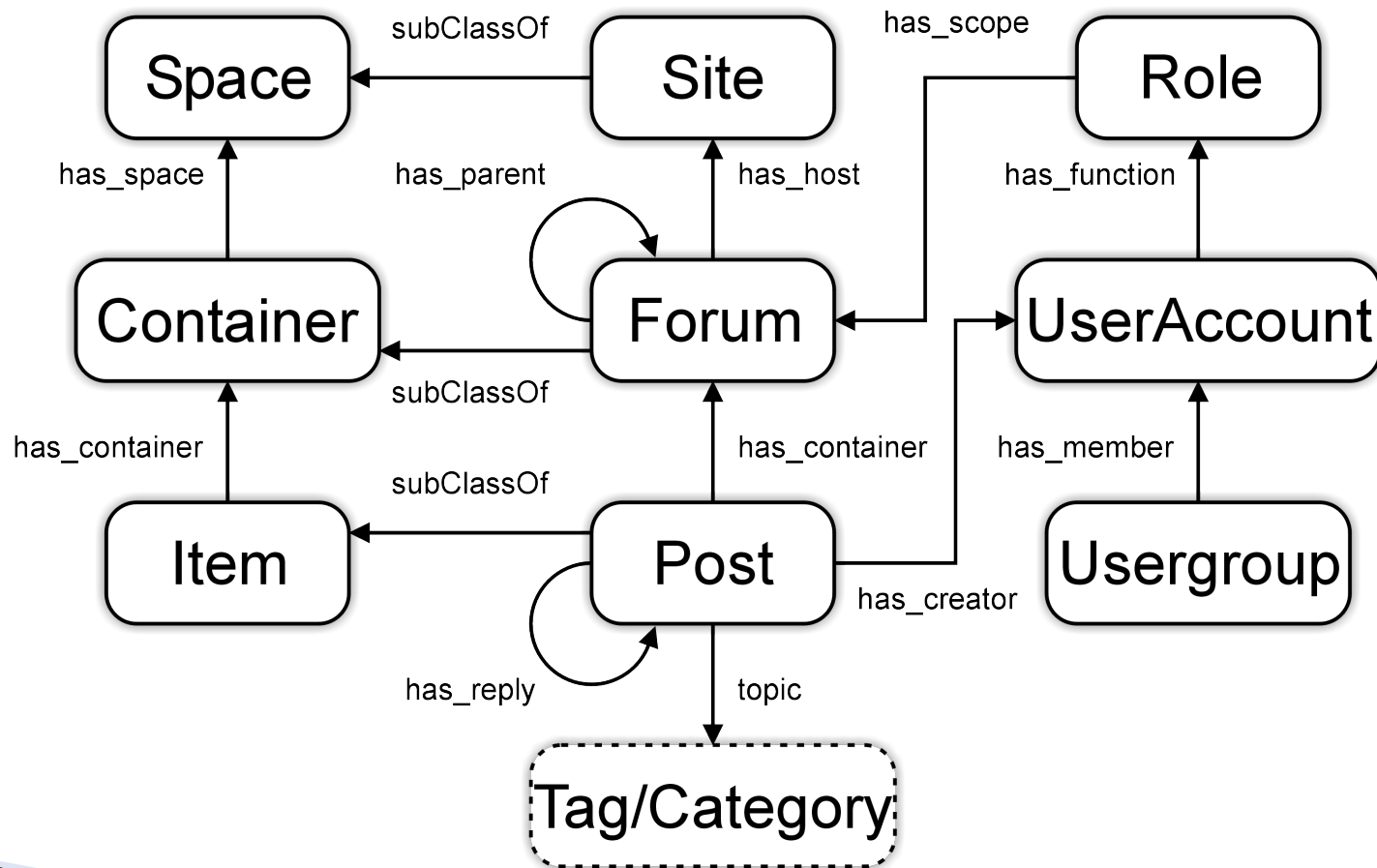
The aims of SIOC

- ▶ “Semantically–interlink online communities”
- ▶ Describe content of social websites
- ▶ Create connections
- ▶ Enable integration
- ▶ Browse posts in innovative ways



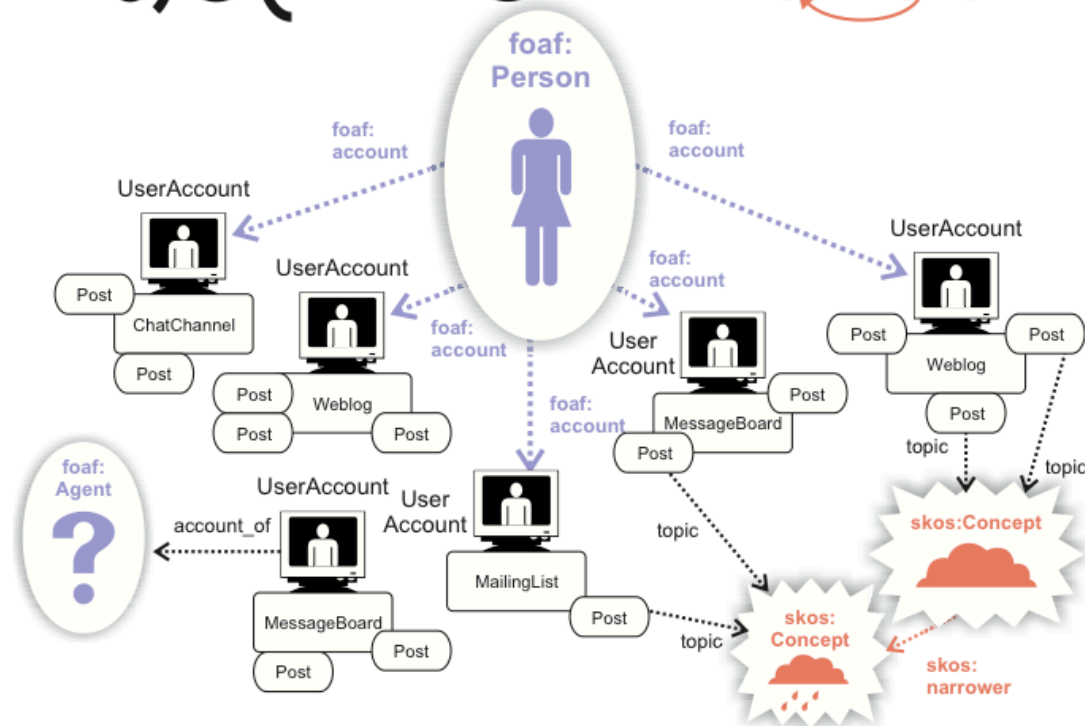


Some of the SIOC core ontology classes and properties

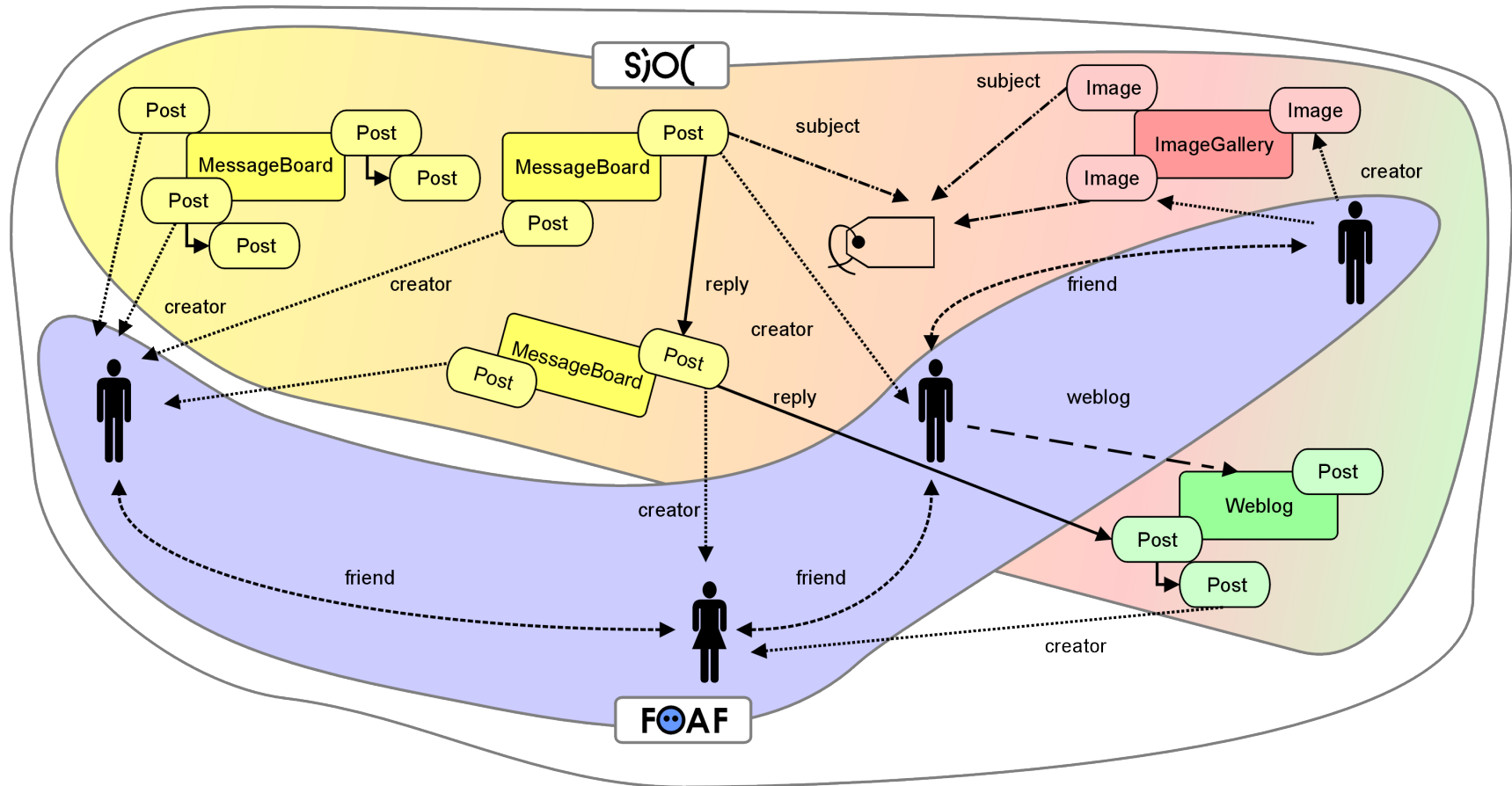


Designed to fit with other ontologies

SJO(+ FOAF + SKOS

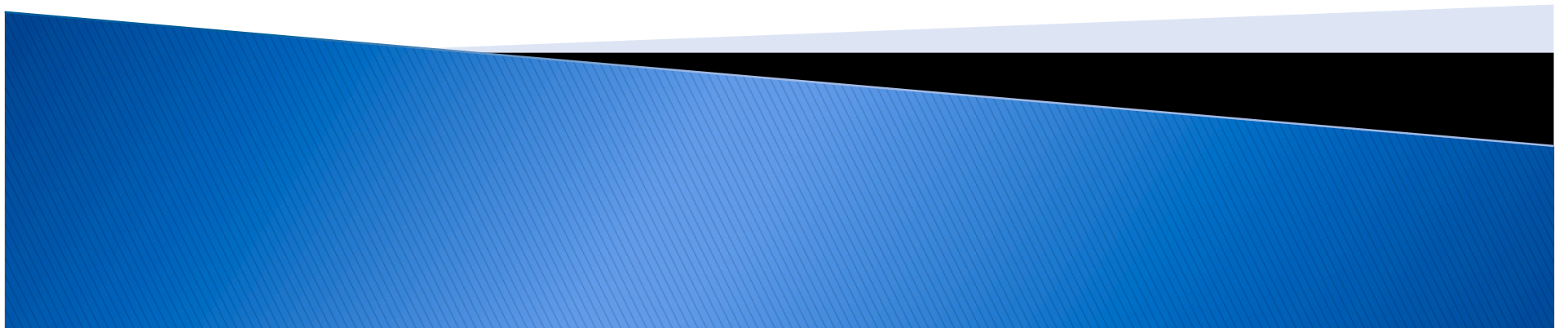


Combining SIOC and FOAF

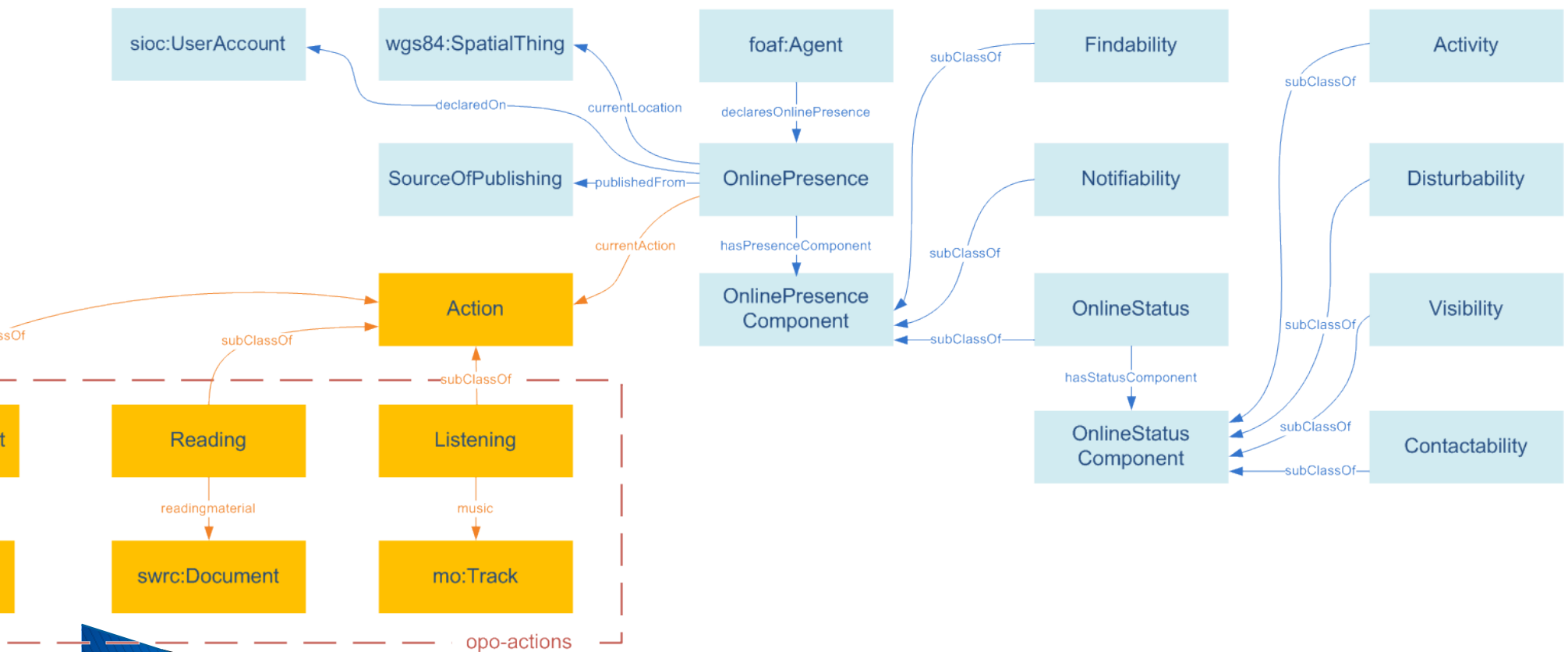


OPO

Online Presence Ontology

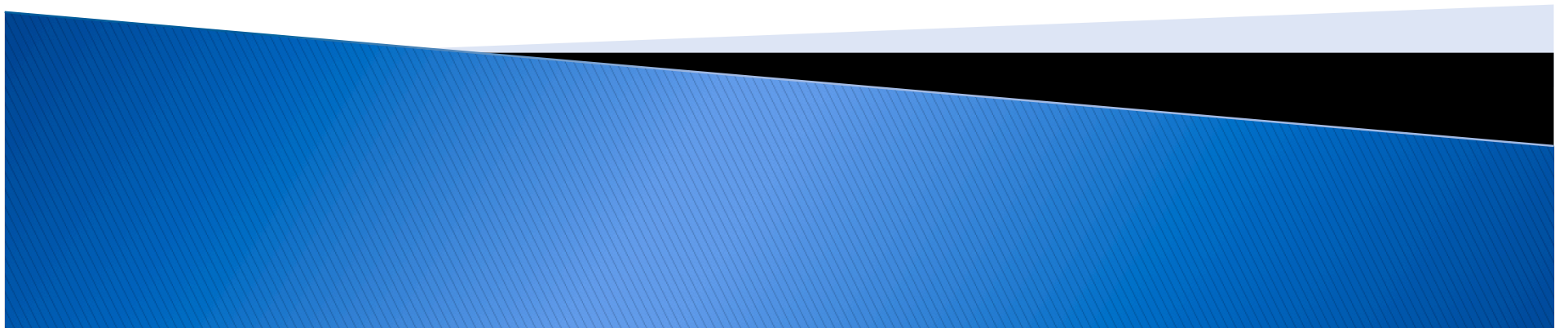


The OPO model



MOAT

Meaning Of A Tag



Agenda

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- ▶ Social network analysis