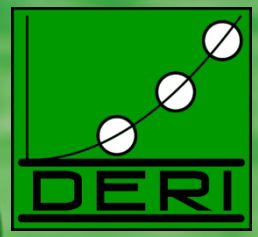

The State of the Art in Tag Ontologies: A Semantic Model for Tagging and Folksonomies

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DC 2008
Berlin, Germany, September 25th , 2008

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This Presentation

I. Background

II. Tagging Models and Tag Ontologies

III. Comparison of Existing Tag Ontologies

I. Background

HOW MANY MODERN SOCIAL SITES DO *NOT* SUPPORT TAGGING?

Easy-to-use

Created by user participation

Collective ‘intelligence’

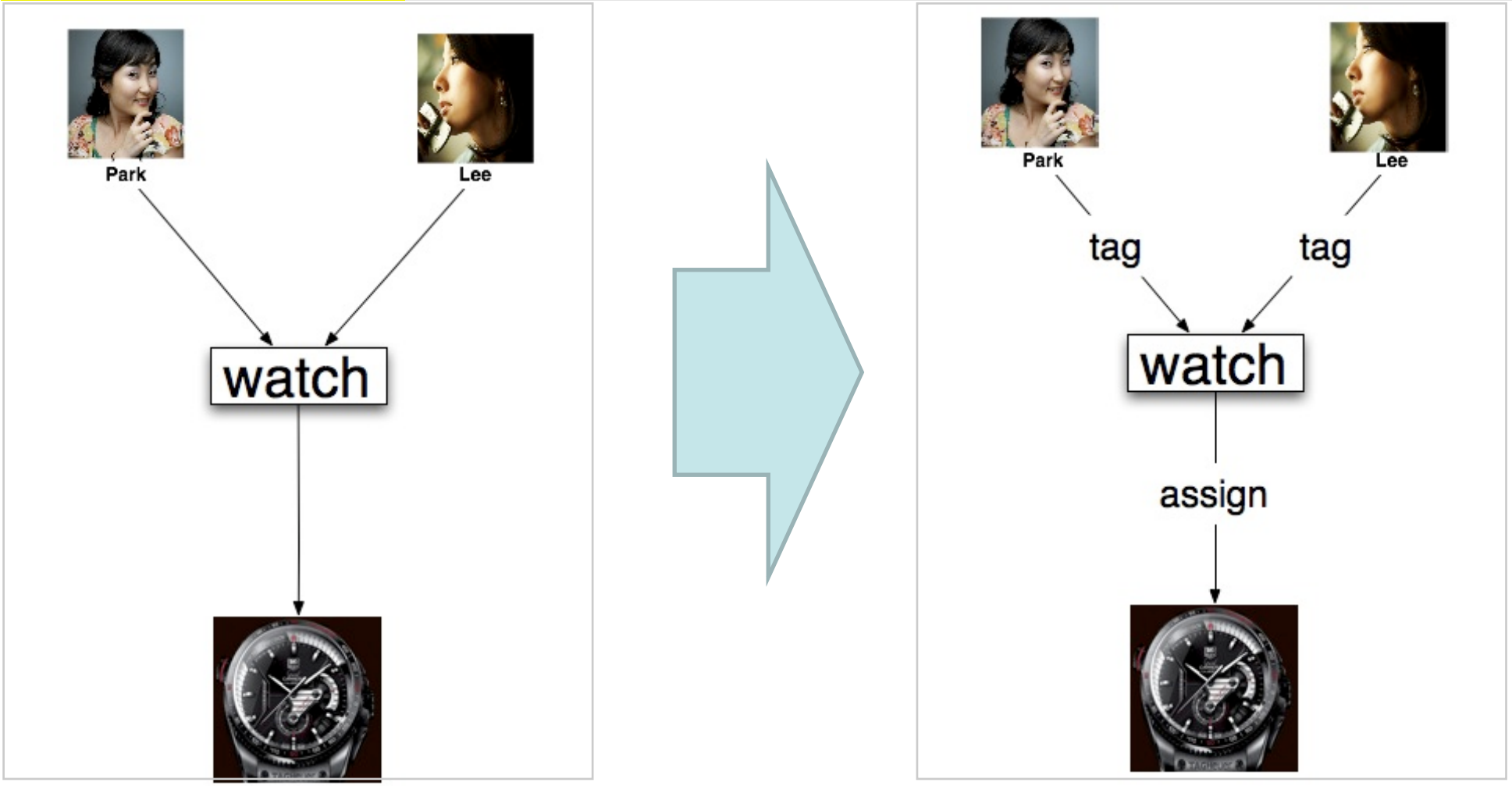
Emergent semantics

II. Tagging Models and Tag Ontologies

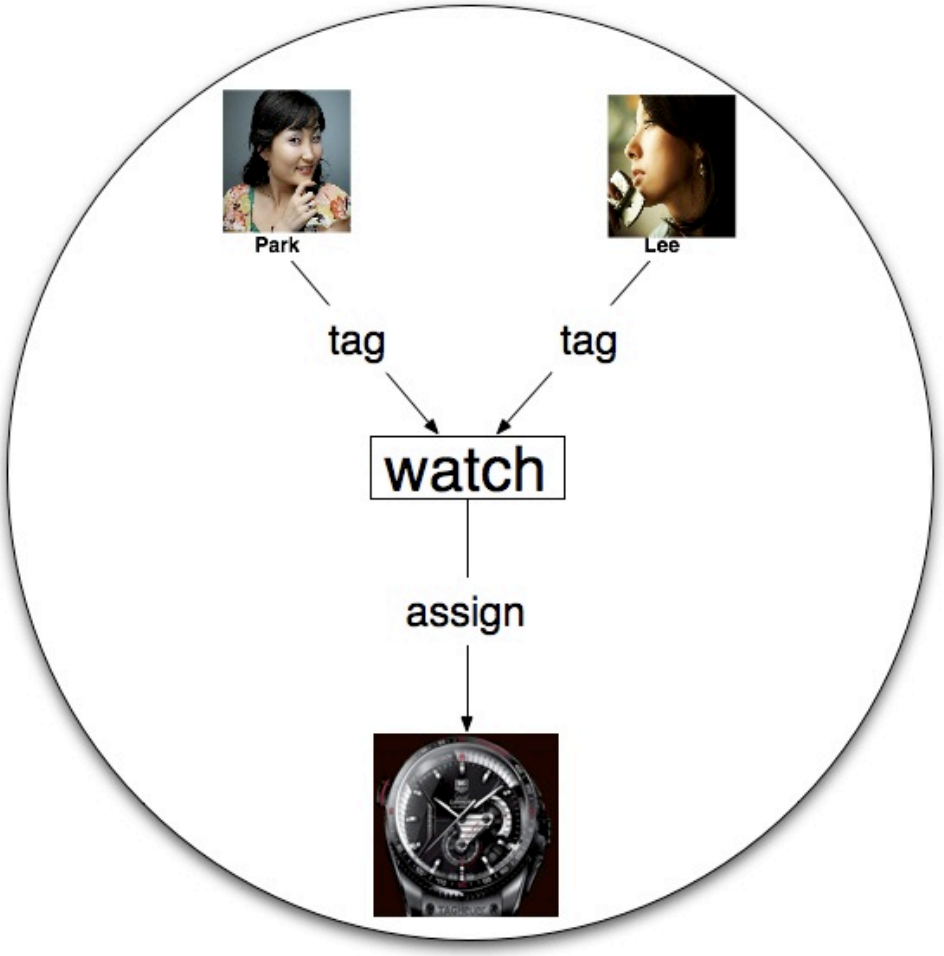
- Core Concepts
  - **Tag:** a word or phrase that is recognisable by people and computers
  - **Resource:** a thing to be tagged, identifiable by a URI or a similar naming service
  - **Tagger:** someone/thing doing the tagging, e.g. user of an application

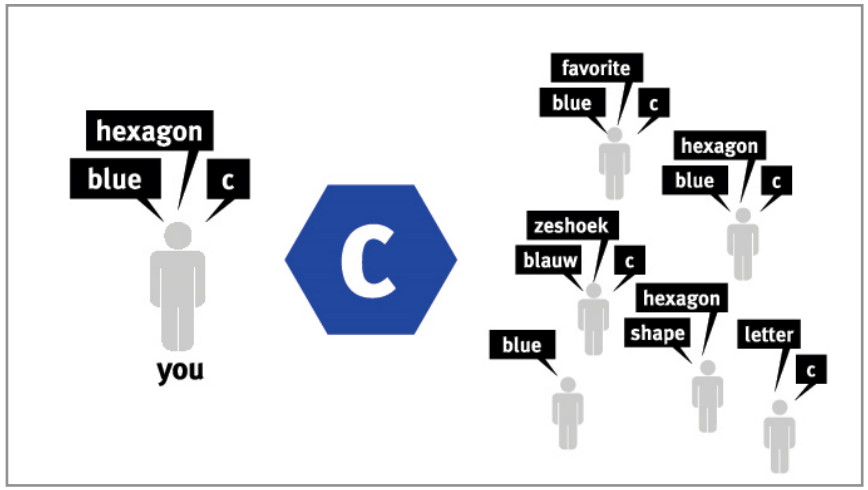
TAGGING

We tag a specific resource with keywords

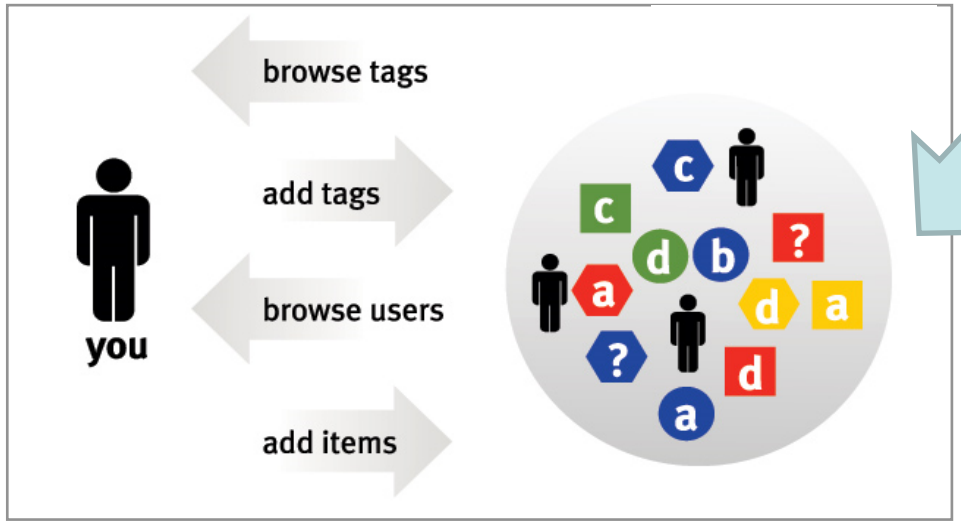


Tagging := (user, tag, resource)

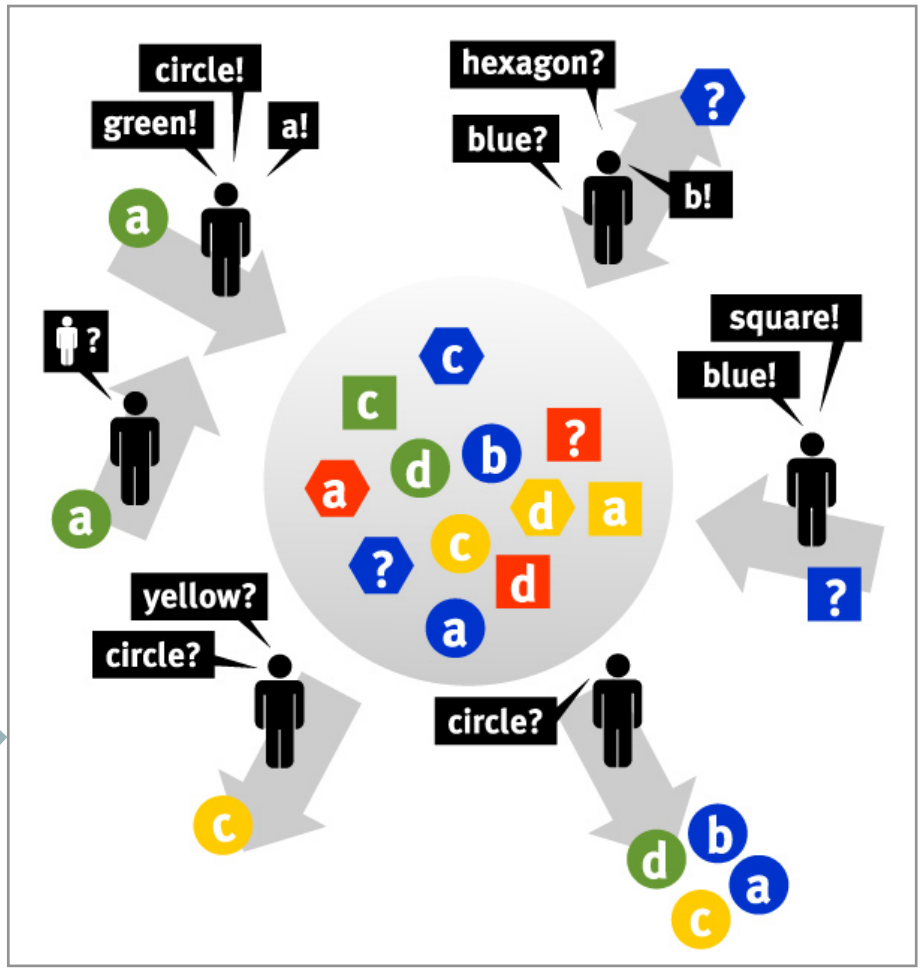




Personal tagging (non-social)



Social interaction across different systems?

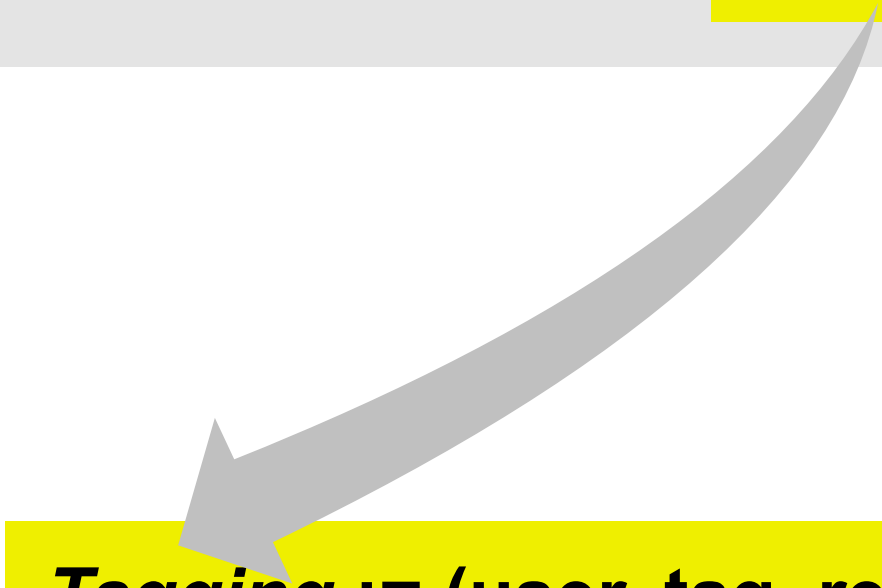


Folksonomies: collaborative tagging

'Picture Credit: Maarten Janssen, 2006'

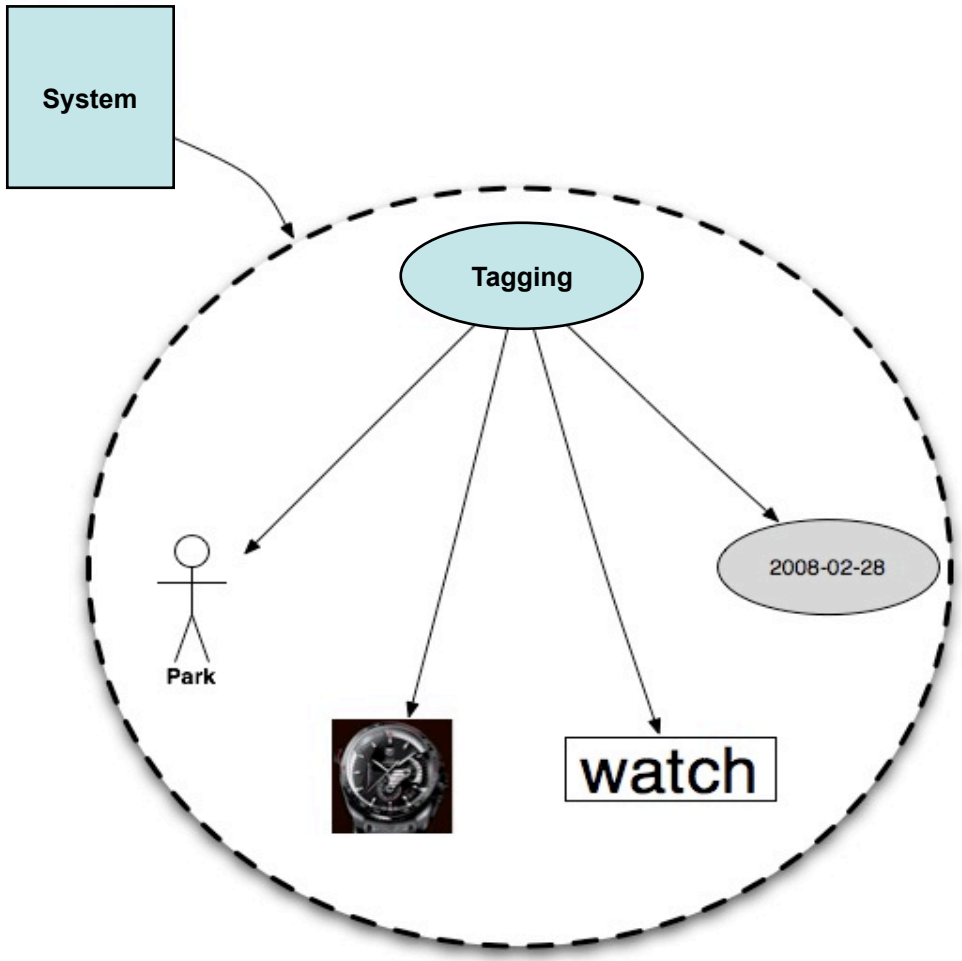
Folksonomy :=

(Tag Set, User Group, Source, *Tagging,* Occurrences)



***Tagging* := (user, tag, resource)**

CURRENTLY ***User*** **assigns a** ***Tag*** **to a** ***Resource*** **in a specific system.**



We don't know the ***relationships***

No ***standard*** to enable reuse among different systems

STRUCTURE

The structure of Tagging elements (People, Tags, Resources, ...) can be defined in human-readable *AND* machine-processable ways.

```
<tag:name>
bear
</tag:name>
```

MEANING

The *MEANING* of Tagging elements (People, Tags, Resources, ...) can also be defined in a machine-processable way.

bear toy

Bear

BEAR

bears

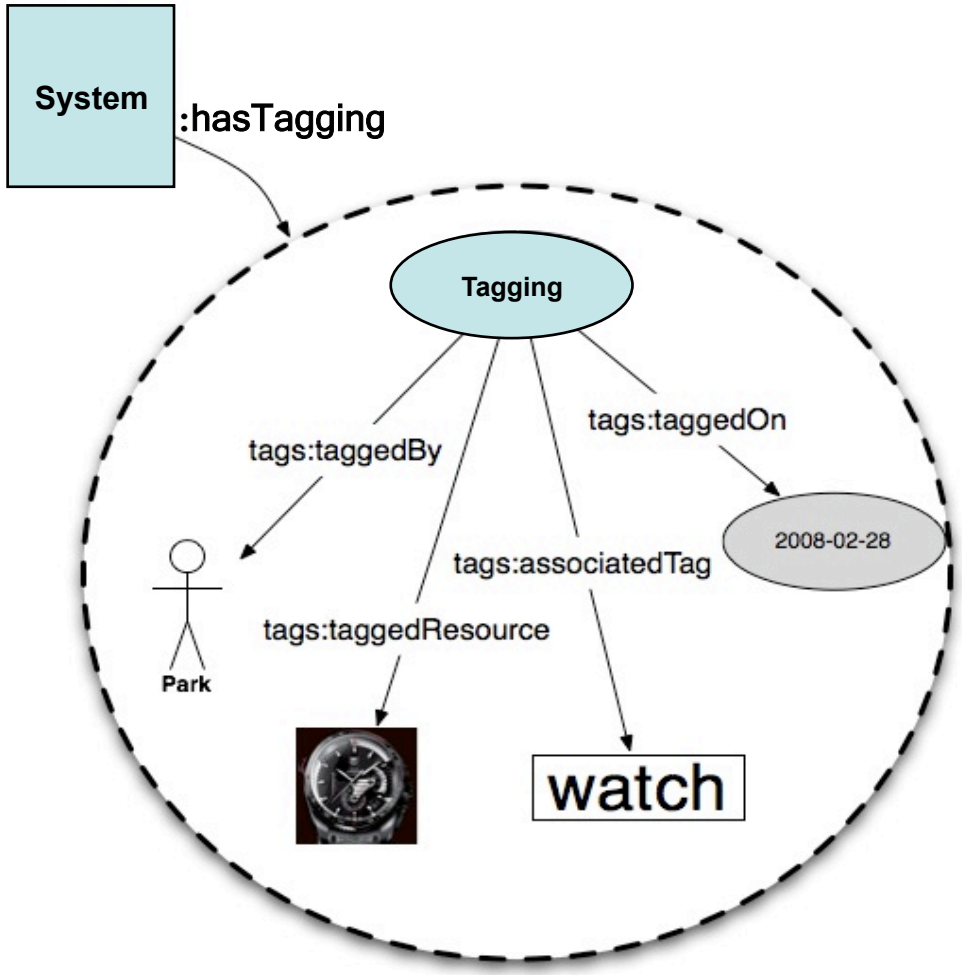
ONTOLOGIES

Enable:

- *Increased Knowledge Representation Sophistication*
- *Machine Processable Representation*
- *Facilitation of Knowledge Exchange*

TAG ONTOLOGIES

Allow us to represent tagging elements and their relationships at a semantic level.



"A little semantics goes a LONG way"

III. Comparison of Existing Tag Ontologies

Selected Tag Ontologies

Ontology	URL	Update	Applications
Gruber	-	-	-
Newman	http://www.holygoat.co.uk/projects/tags/	Nov ’05	http://revyu.com
Knerr	http://code.google.com/p/tagont/	Jan ’07	-
Echarte	http://eslomas.com/tagontology-1.owl	’07	-
SCOT	http://scot-project.org	Jun ’08	http://int.ere.st http://relaxseo.com http://openlinksw.com
MOAT	http://moat-project.org	Feb ’08	http://openlinksw.com lord.info
NAO	http://www.semanticdesktop.org/ontologies/nao/	Aug ‘07	Nepomuk

Ontology Class Comparison (selection)

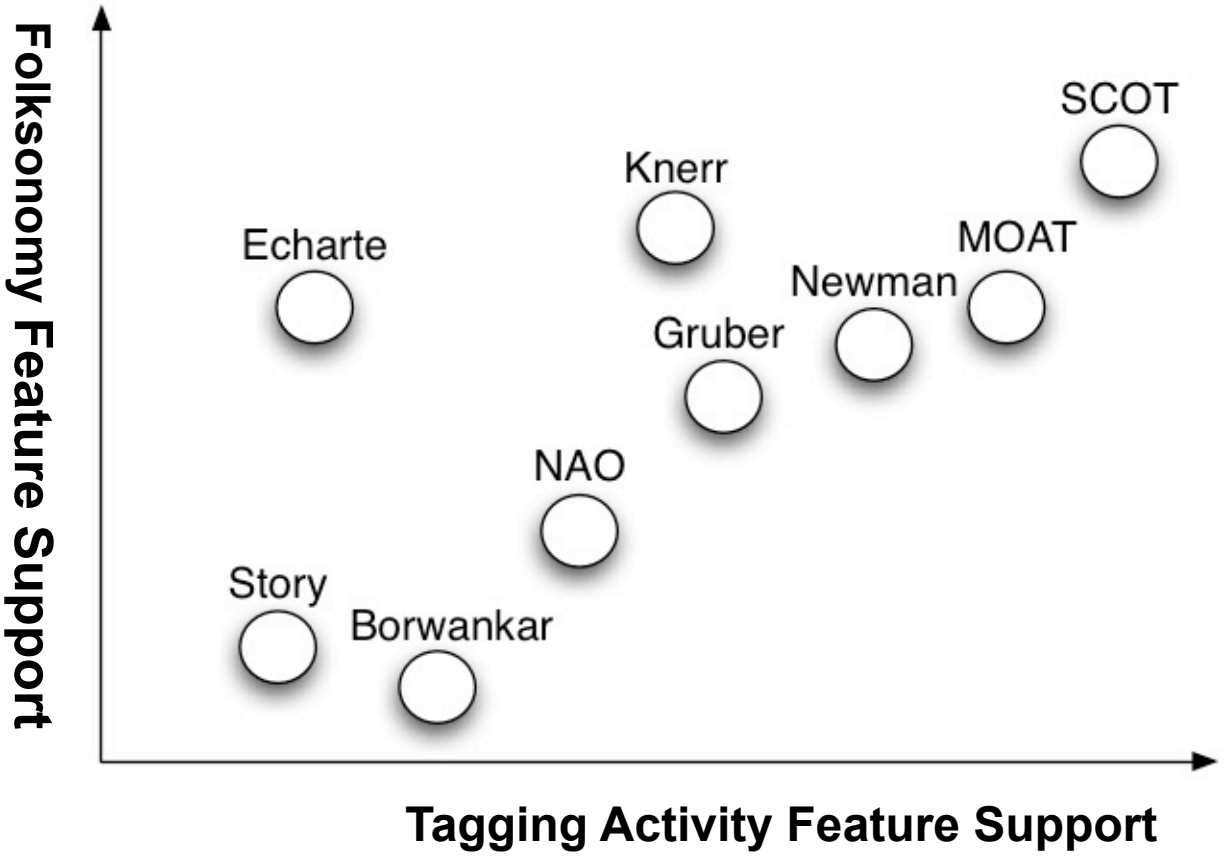
Model	Resource	Tag	Tagging	User	Group	Source
Gruber	*Object*	*Tag*	*Tagging*	*Tagger*		*Source*
Newman	rdfs:Resource	:Tag	:Tagging	foaf:Agent		
Knerr	rdfs:Resource	:Tag	:Tagging	:Tagger	foaf:Group	:ServiceDomain
Echarte	:Resource	:Tag	:Annotation	:User		:Source
SCOT	sioc:Item	:Tag	tags:Tagging	sioc:User	sioc:Usergroup	sioc:Site
MOAT	rdfs:Resource	tag:Tag	tags:Tagging	foaf:Agent		
NAO	rdfs:Resource	:Tag		:Party		

Ontology Property Comparison (selection)

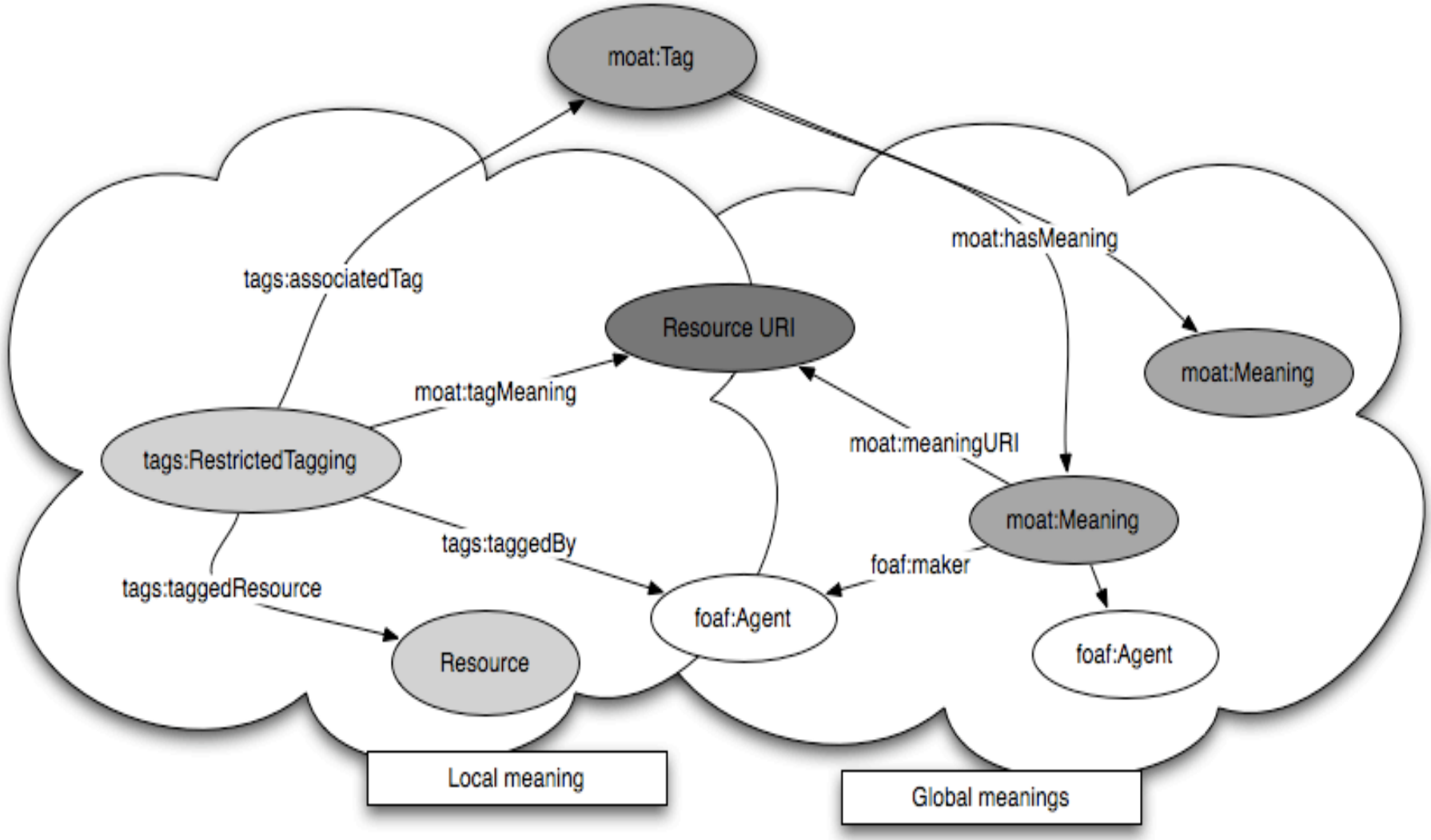
	Resource	User	Tag
Resource			tags:taggedWithTag scot:hasTag nao:hasTag
User			
Tag	tags: isTagOf scot:tagOf nao:isTagFor ec:hasRelatedResource	scot:usedBy nao:creator	tags:equivalentTag tags:relatedTag scot:aggregatedTag scot:spellingVariant scot:delimited tagont:sameTag ec:hasTag

Table 4. Object Type Properties. The table shows relationships between core concepts, interpreted as domain (row) – property – range (column)

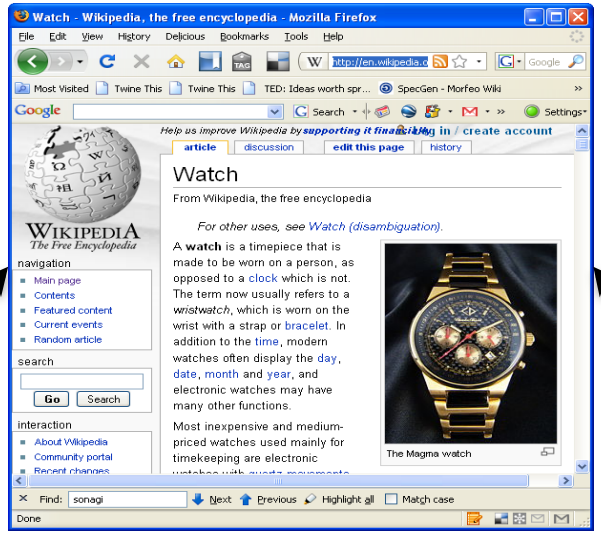
Inclinations and Representation Levels of Selected Ontologies



MOAT (Meaning Of A Tag)

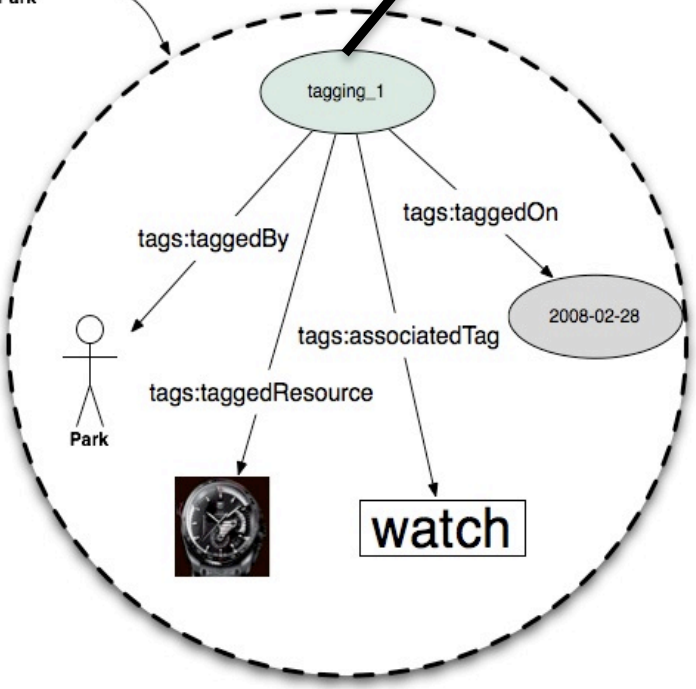


http://en.wikipedia.org/wiki/Watch



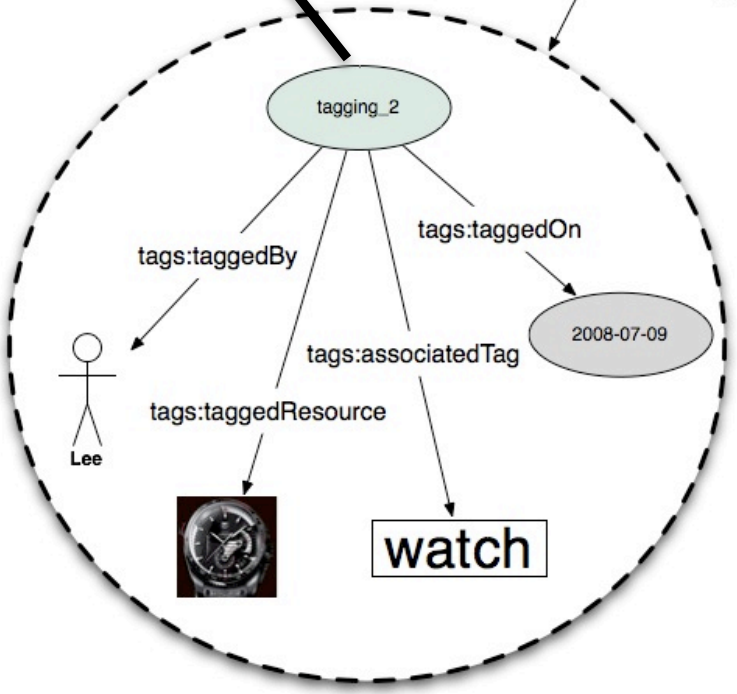
Park

moat:tagMeaning

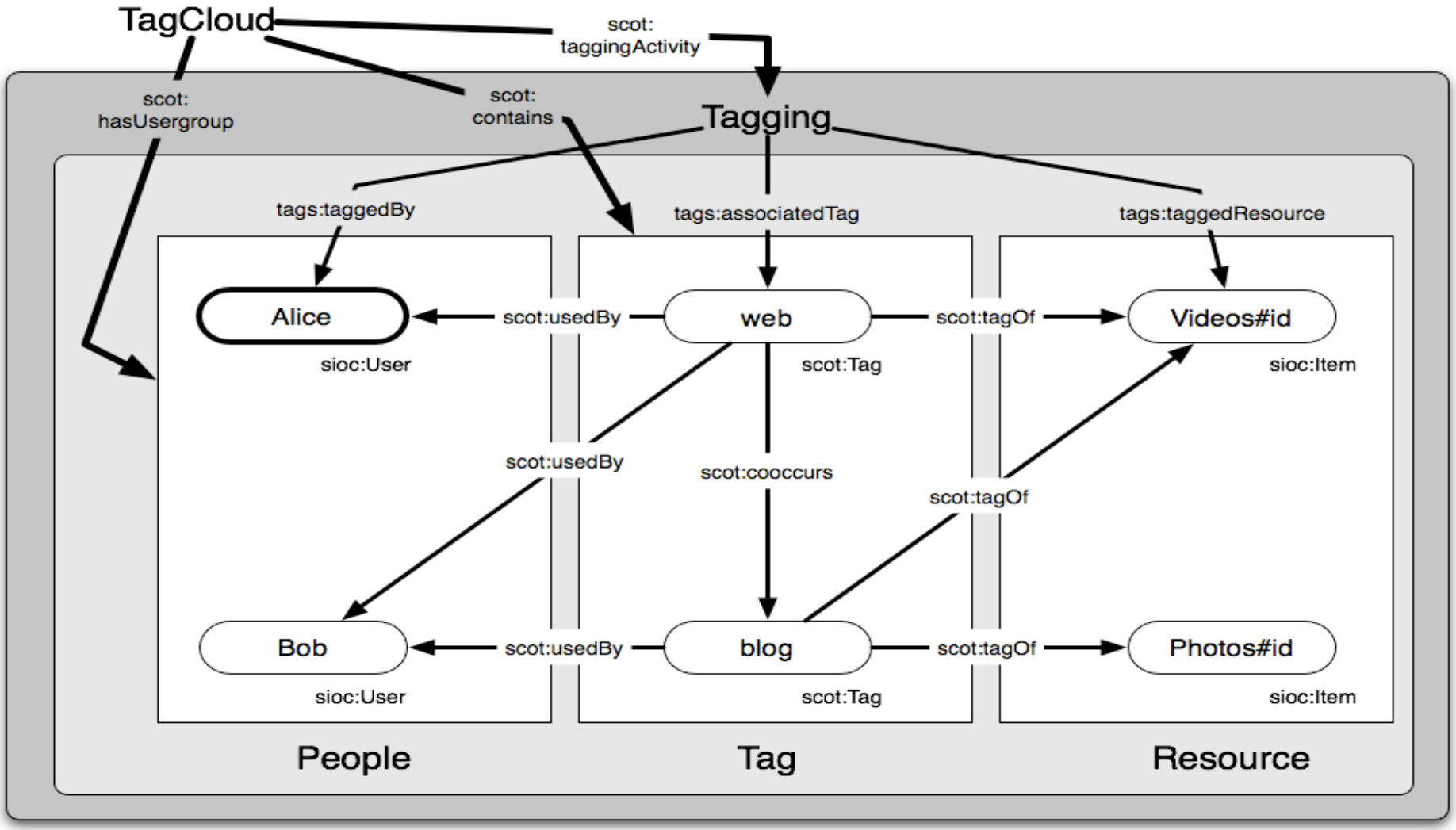


moat:tagMeaning

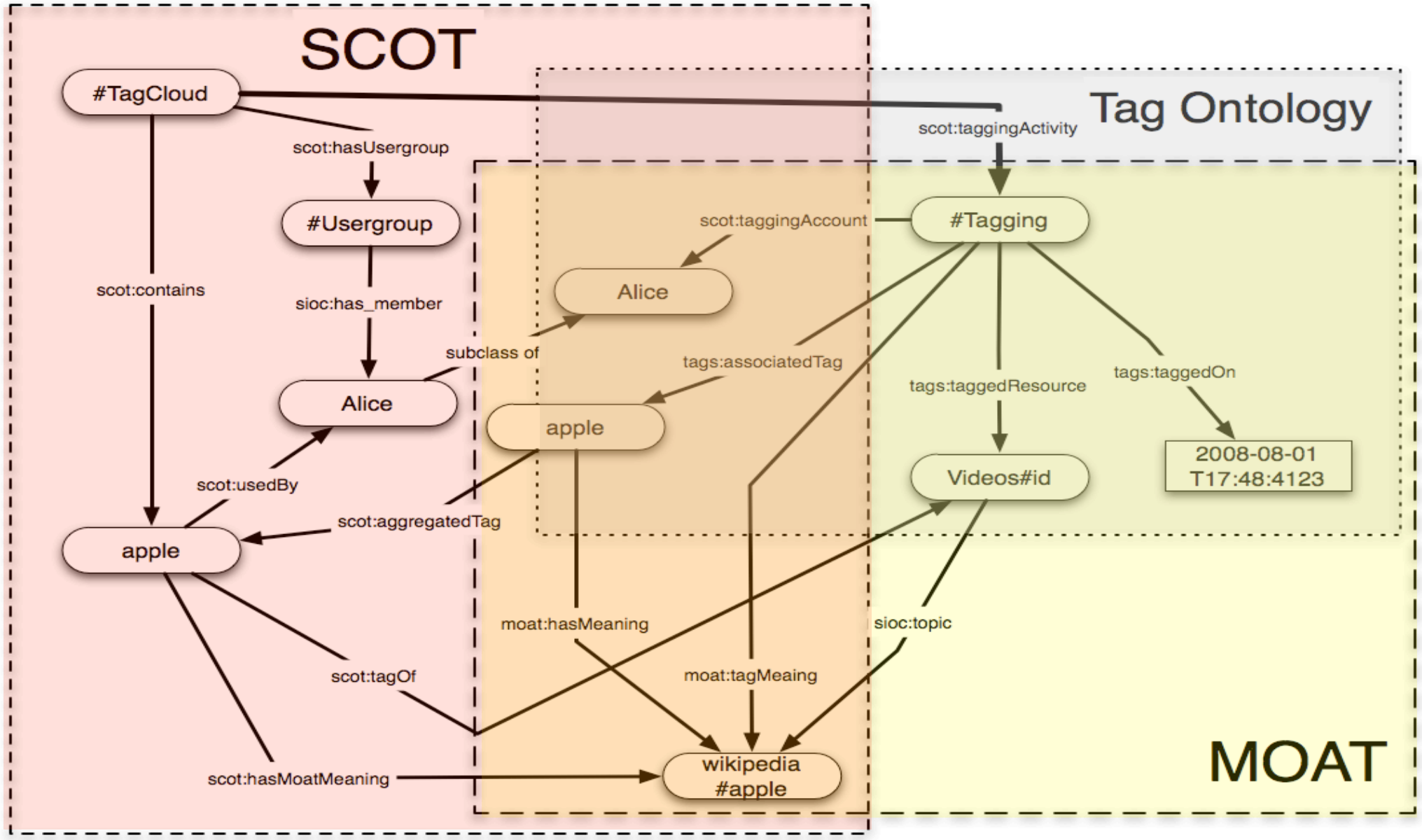
Lee



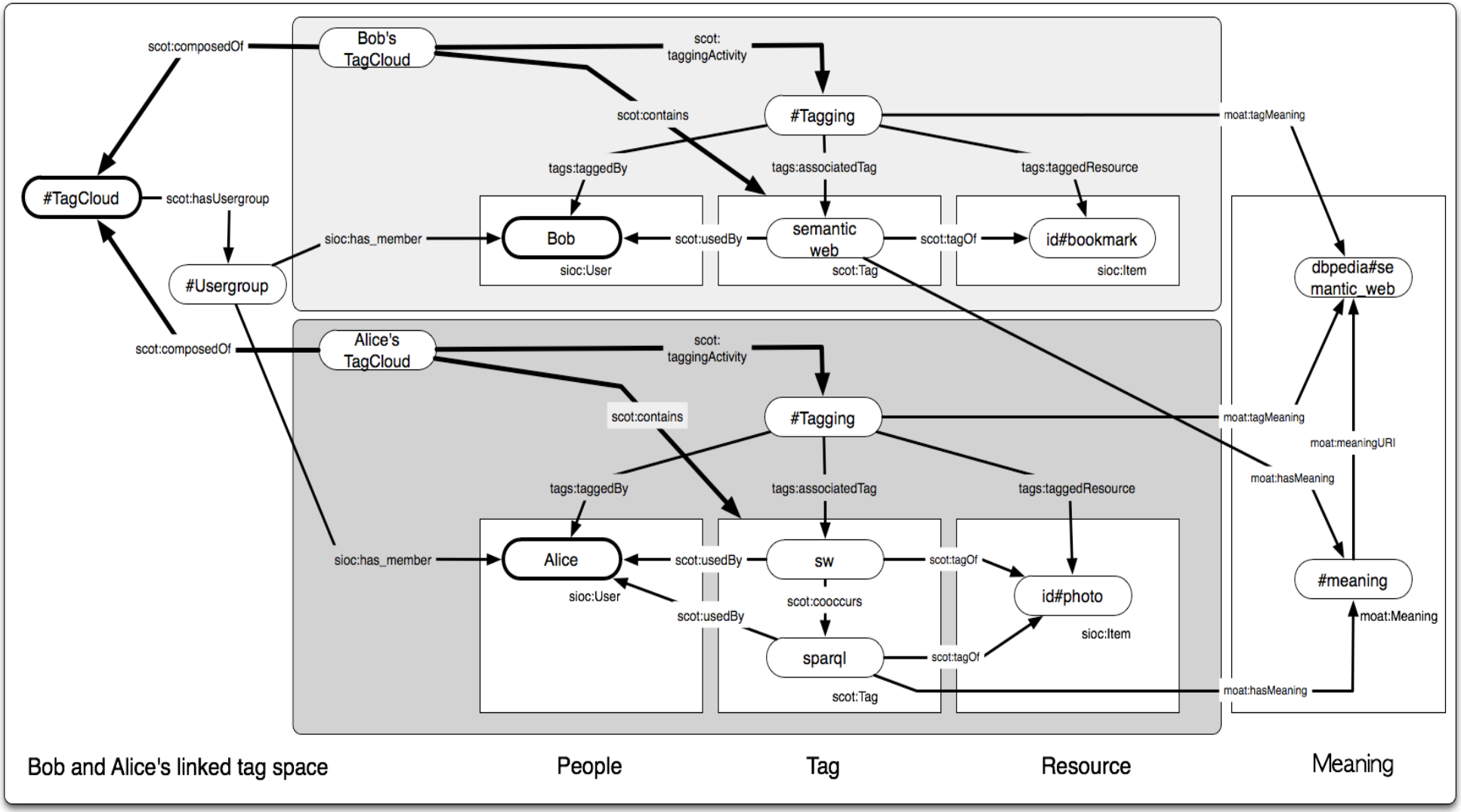
SCOT (Social Semantic Cloud of Tags)



Linking among Tag Ontologies



Folksonomies: Linking Tag Clouds



Conclusion

Tagging := (User, Tag, Resource)

Folksonomy :=
(Users, Tags, Source, Tagging*, Occurrences*)

- **Existing Tag Ontologies do not represent Collaborative Tagging well enough on their own.**

- **SCOT + MOAT + additional vocabularies (SIOC, FOAF, DC, etc.) provide sufficient representation for Collaborative Tagging & Folksonomies**

- **Thus, Tag Ontologies provide the possibility for machine-processable representations that can be shared across social tagging systems.**