KNOWLEDGE MEDIA INSTITUTE

Integration of advanced and innovative solutions drawn from Machine Learning, Semantic Technologies, and Human-Computer Interactions

More info: http://technologies.kmi.open.ac.uk/rexplore/

Francesco Osborne

Research Analytics Team - KMi, The Open University, United Kingdom

Research Analytics Team - KMi

Vision

Empowering a new research paradigm in which researchers and companies will be assisted by software capable of applying data-driven methodologies on a machine-readable description of research knowledge. The aim is expanding the conceptual horizon of researchers and combining human creativity with the data mining ability of computers.

Recent Research Lines

- Automatic generation of large scale taxonomy of scientific knowledge
- Creation of innovative analytics and visualization for supporting researchers and companies
- Early detection of Research Topics
- Identification and forecasting of technologies

Collaborations

- Springer Nature
- Elsevier
- Linknovate

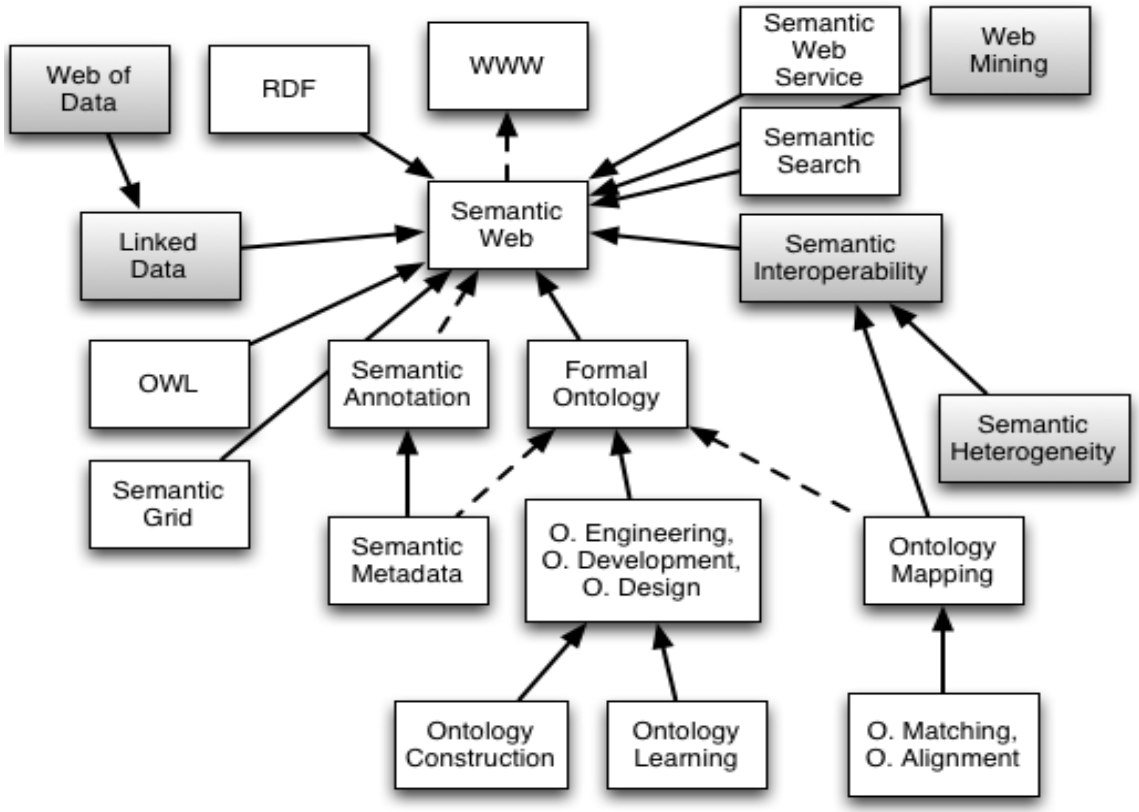
http://technologies.kmi.open.ac.uk/rexplore/

Building ontologies of research topics

For **making sense of academic data** is very useful to have an comprehensive and up-to-date ontology of research topics.

Unfortunately, **human crafted** classifications **evolve too slowly** and tend to be **too coarse-grained**.

Ontology learning is the answer.



Klink-2

Input keywords

Statistical Inferences

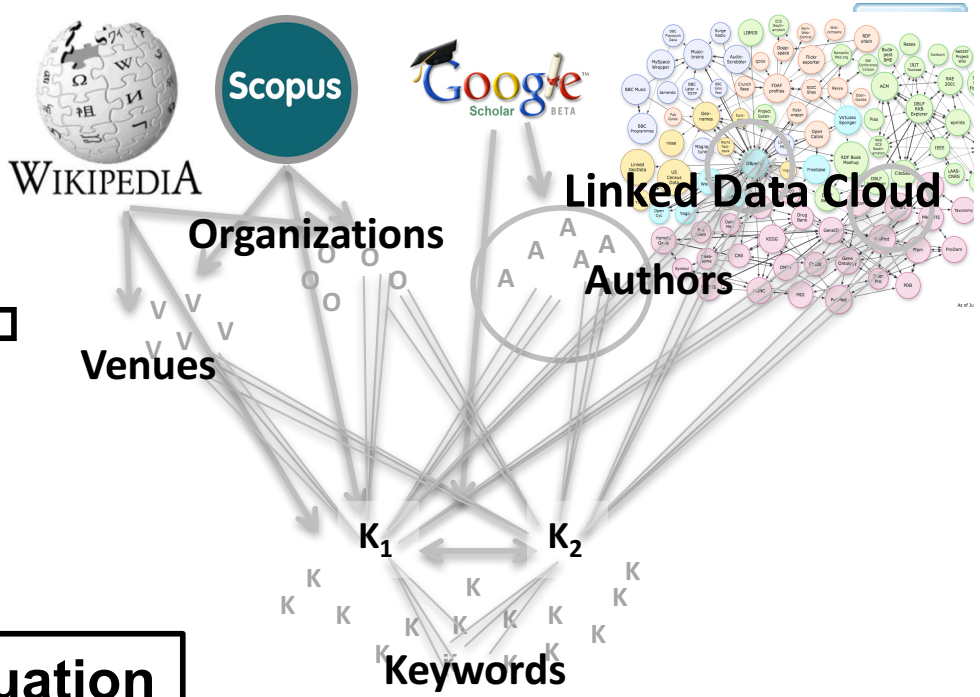
skos:broaderGeneric
contributesTo

Clusterization

skos:relatedEquivalent

Filtering

Triples generation

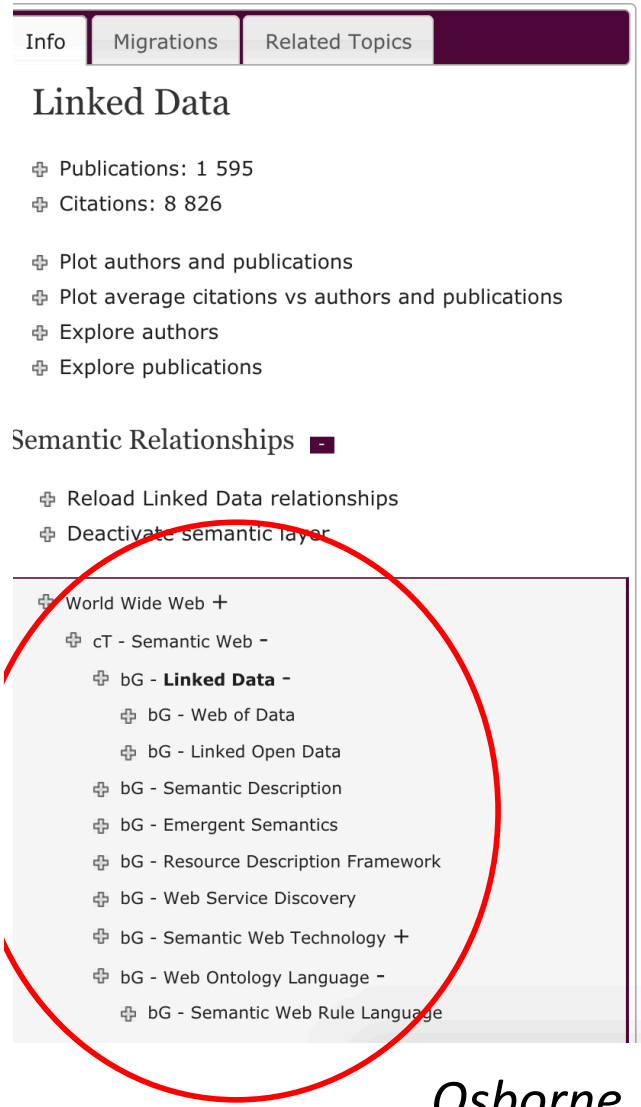


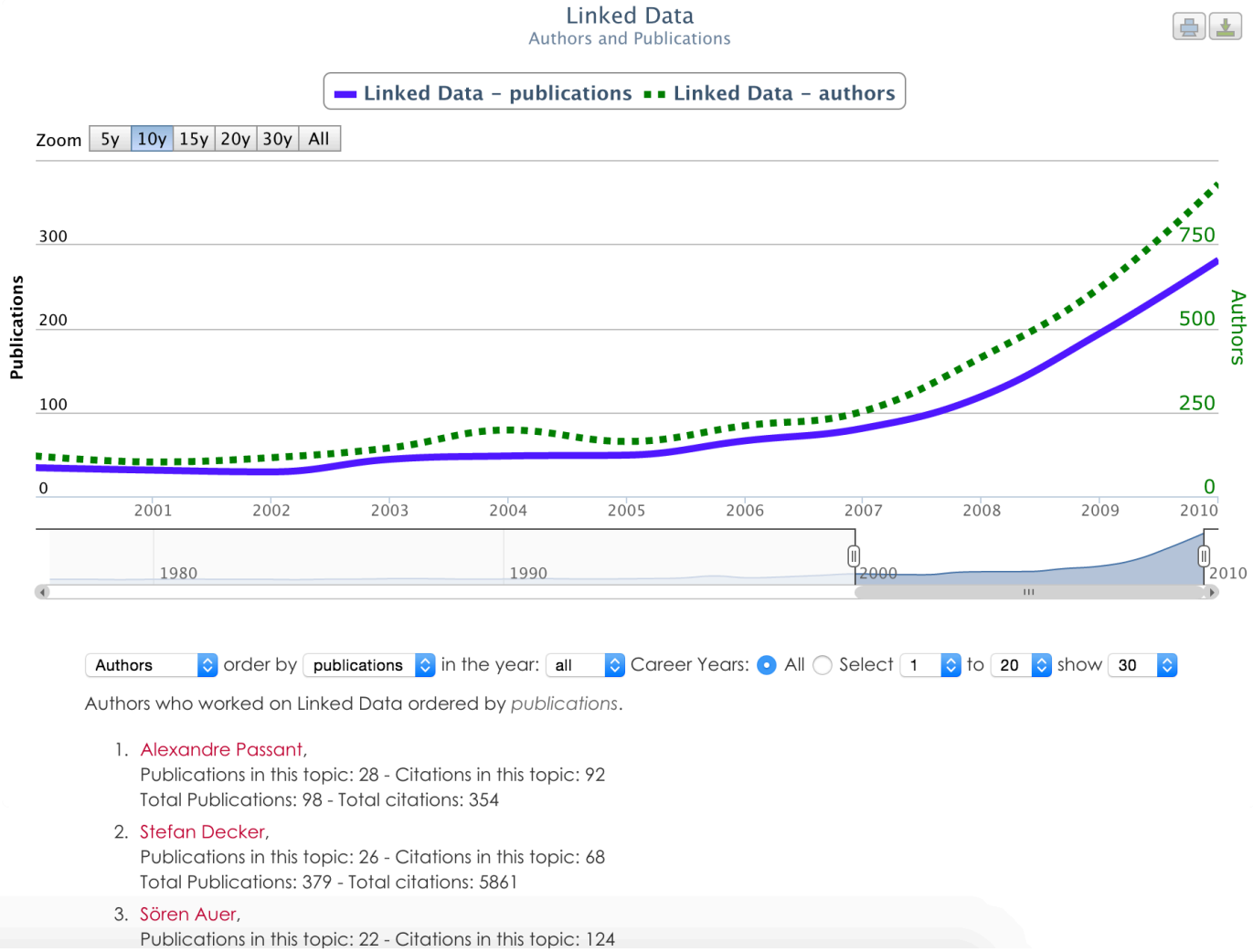

```
<!-- http://kmi.open.ac.uk/technologies/rexplore/ontologies/BiboExtension#semantic_web -->

<owl:NamedIndividual rdf:about="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#semantic_web">
        <rdf:type rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#Topic"/>
        <skos:broaderGeneric rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#semantic_web_services"/>
        <skos:broaderGeneric rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#semantic_web_technologies"/>
        <skos:broaderGeneric rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#web_ontology_language"/>
        <skos:broaderGeneric rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#semantic_web_applications"/>
        <skos:broaderGeneric rdf:resource="http://kmi.open.ac.uk/technologies/rexplore/ontologies/
BiboExtension#semantic_description"/>
```

Osborne, F. and Motta, E., 2015. Klink-2: integrating multiple web sources to generate semantic topic networks. In ISWC 2015, Bethlehem, USA.

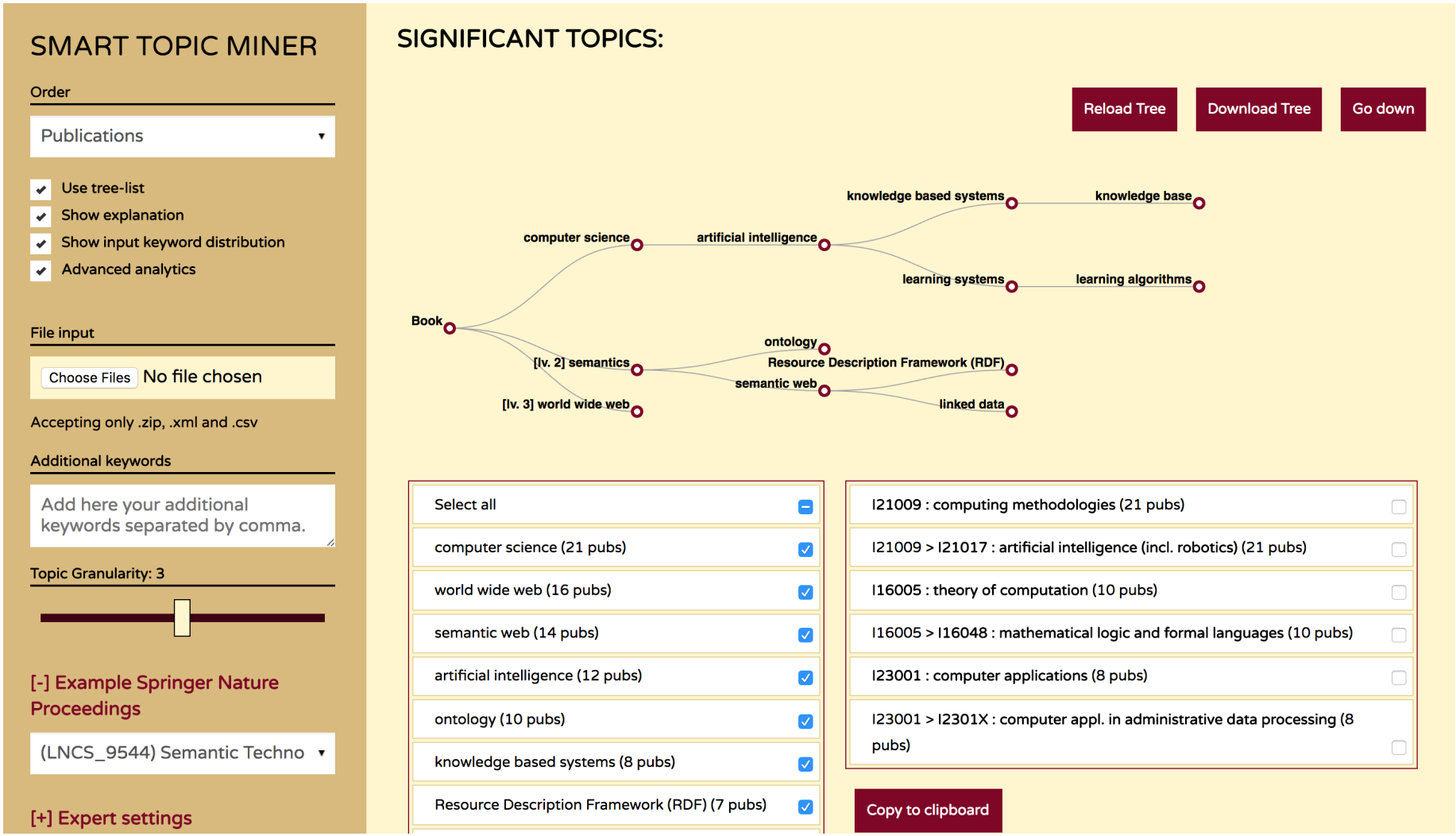
Some examples: Improving analytics and exploration





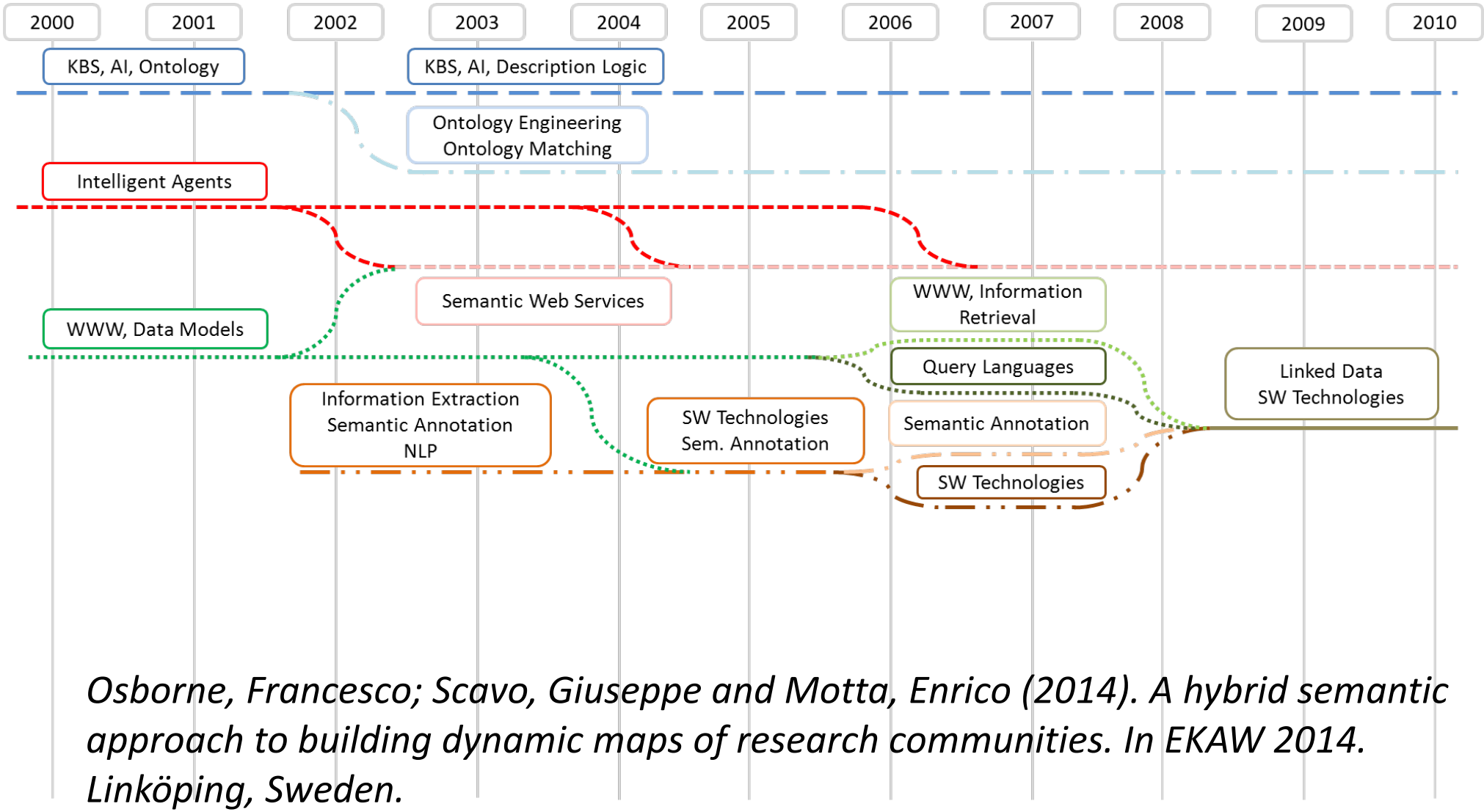
Osborne, F., Motta, E. and Mulholland, P. (2013) Exploring Scholarly Data with Rexplore, International Semantic Web Conference, Sydney, Australia

Some examples: The Smart Topic miner



Osborne, F., Salatino, A., Birukou, A. and Motta, E. (2016) Automatic classification of springer nature proceedings with smart topic miner. In International Semantic Web Conference (pp. 383-399).

Some example – The Map of Semantic Web



Osborne, Francesco; Scavo, Giuseppe and Motta, Enrico (2014). A hybrid semantic approach to building dynamic maps of research communities. In EKAW 2014. Linköping, Sweden.

KNOWLEDGE MEDIA INSTITUTE

Author Name | Topic | Explore

Authors | Publications | Topics | Groups

More info: http://technologies.kmi.open.ac.uk/rexplore/

Francesco Osborne - KMi, The Open University, United Kingdom

people.kmi.open.ac.uk/francesco
Francesco.osborne@open.ac.uk