Extending a Large Semantic Network

Luis Espinosa-Anke

taln research group
upf. Universitat Pompeu Fabra Barcelona

Extending a Large Semantic Network

- COST STSM Reference Number: COST-STSM-IS1305- 160215-055460
- Host Institution/Researcher: Sapienza University of Rome / Prof. Roberto Navigli

cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

EUROPEAN NETWORK OF e-LEXICOGRAPHY

Talk outline

- STSM Motivation

- Knowledge Base Unification via Sense-based Embeddings and Disambiguation

- Discussion: Interaction with Lexicography

STSM Motivation

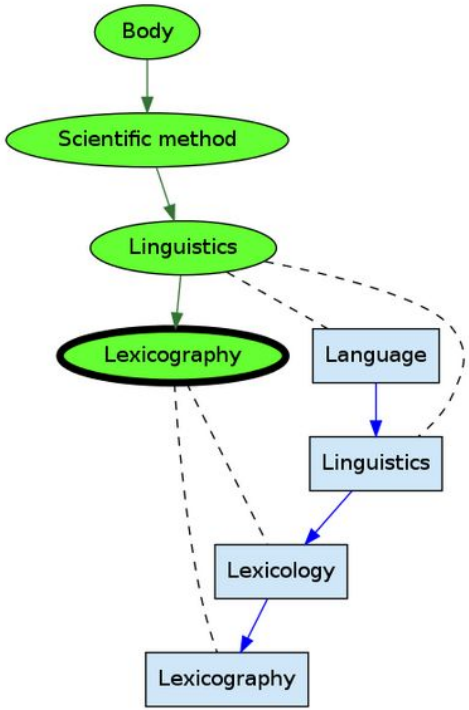
- BabelNet (Navigli and Ponzetto, 2012) is currently the largest repository for entities and concepts, containing up to 14M BNsynsets.

- It is fully taxonomized thanks to the Wikipedia Bitaxonomy, i.e. WP pages and categories (Flati et al., 2014).

STSM Motivation

STSM Motivation

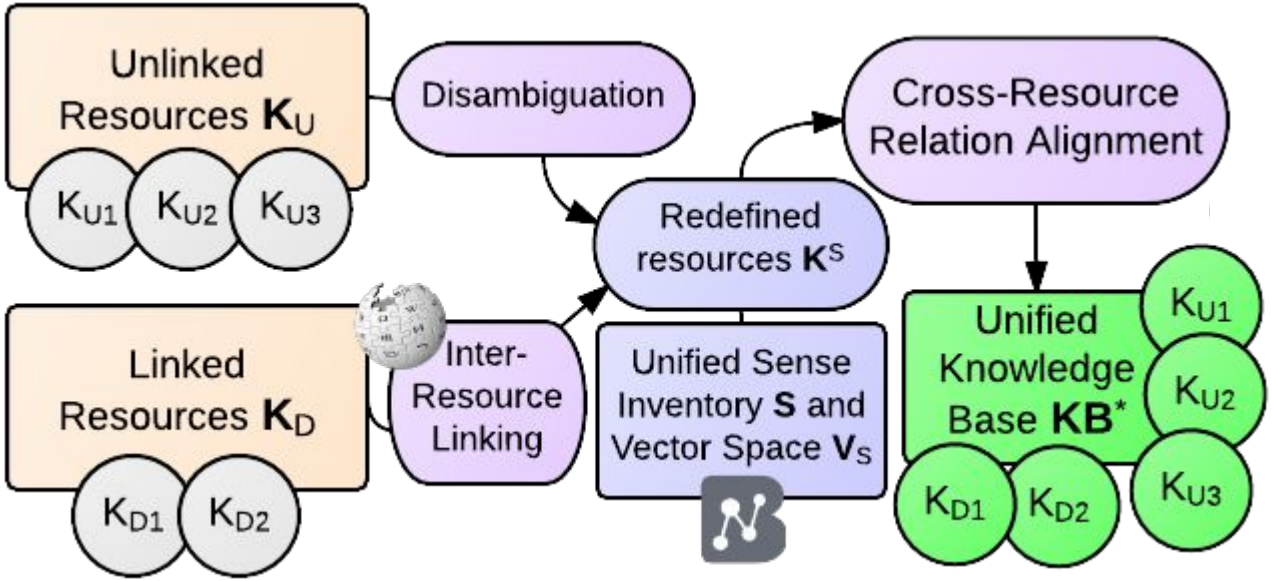
STSM Motivation



- Aiming at introducing finer-grained relations into BabelNet.
- Providing an ontological structure to the BabelNet graph.

- Leverage existing knowledge derived from successful OIE systems: NELL (Carlson et al., 2010), PATTY (Nakashole et al., 2012), WiseNet (Moro and Navigli, 2012) and ReVerb (Etzioni et al., 2011).

Knowledge Base Unification - Summary

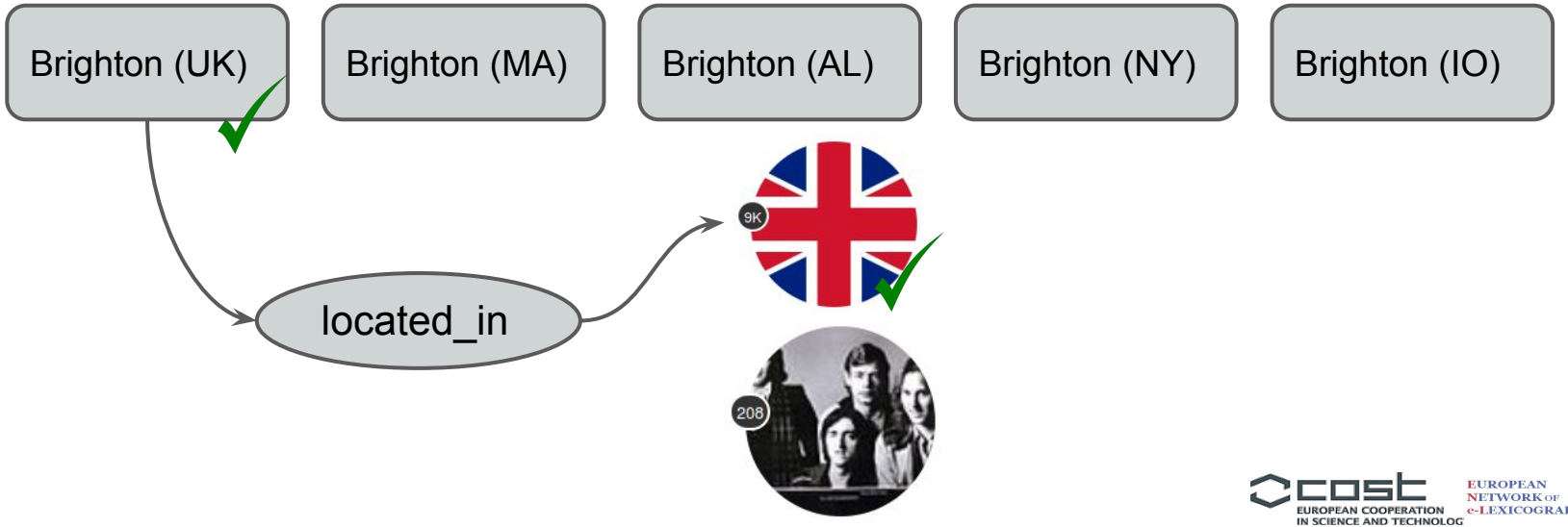


Knowledge Base Unification - (1) Disambiguation

- Brighton is located in the UK
- Rooney plays for The Red Devils
- NLP is a subfield of AI
- …

Knowledge Base Unification - (1) Disambiguation

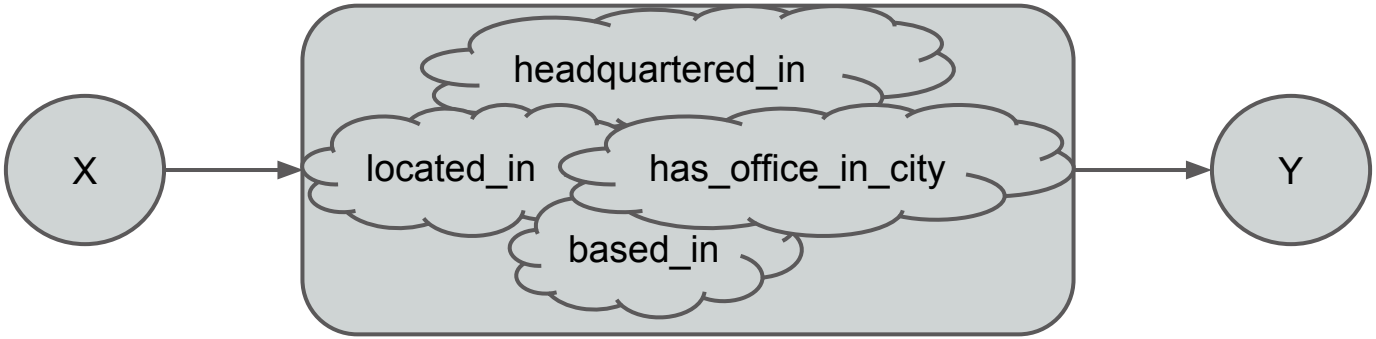
- Brighton is located in the UK



Knowledge Base Unification - (2) Relation Alignment

- X is located in Y
- X is headquartered in Y
- X is based in Y
- X has office in city Y
- ...

Knowledge Base Unification - (2) Relation Alignment



Knowledge Base Unification - Resource Statistics

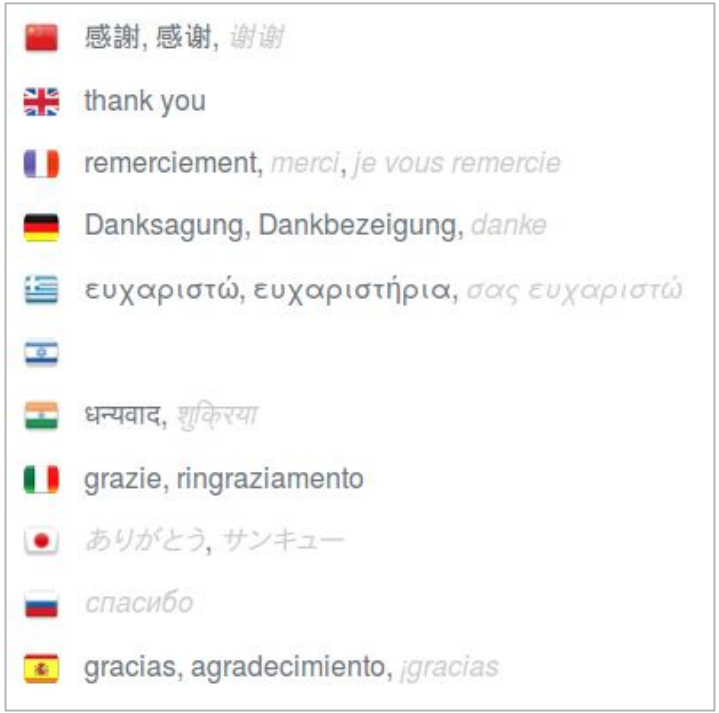
- Still haven't decided on release details
- Currently:
  - .95 alignment confidence:
    - 1105 relation synsets
    - Avg. Size 6.11
    - Not a single *singleton* synset.

Reference

- System description, experiments and evalution details:

Delli Bovi, C., Espinosa-Anke, L. and Navigli, R. (2015). **Knowledge Base Unification via Sense-based Embeddings and Disambiguation**. In *Proceedings of EMNLP 2015*. Lisbon, Portugal.

Thanks!


感謝, 感谢, 谢谢
thank you
remerciement, merci, je vous remercie
Danksagung, Dankbezeigung, danke
ευχαριστώ, ευχαριστήρια, σας ευχαριστώ
धन्यवाद, शुक्रिया
grazie, ringraziamento
ありがとう, サンキュー
спасибо
gracias, agradecimiento, ¡gracias

Q&A?

- Use disambiguated relation triples for enriching existing lexicographic resources?
- As a knowledge benchmark to assess fitness of dictionary examples?
- As a provider for hierarchical structure of domain-specific glossaries or dictionaries?