Hunting for Inconsistencies in Multilingual DBpedia with QAKiS

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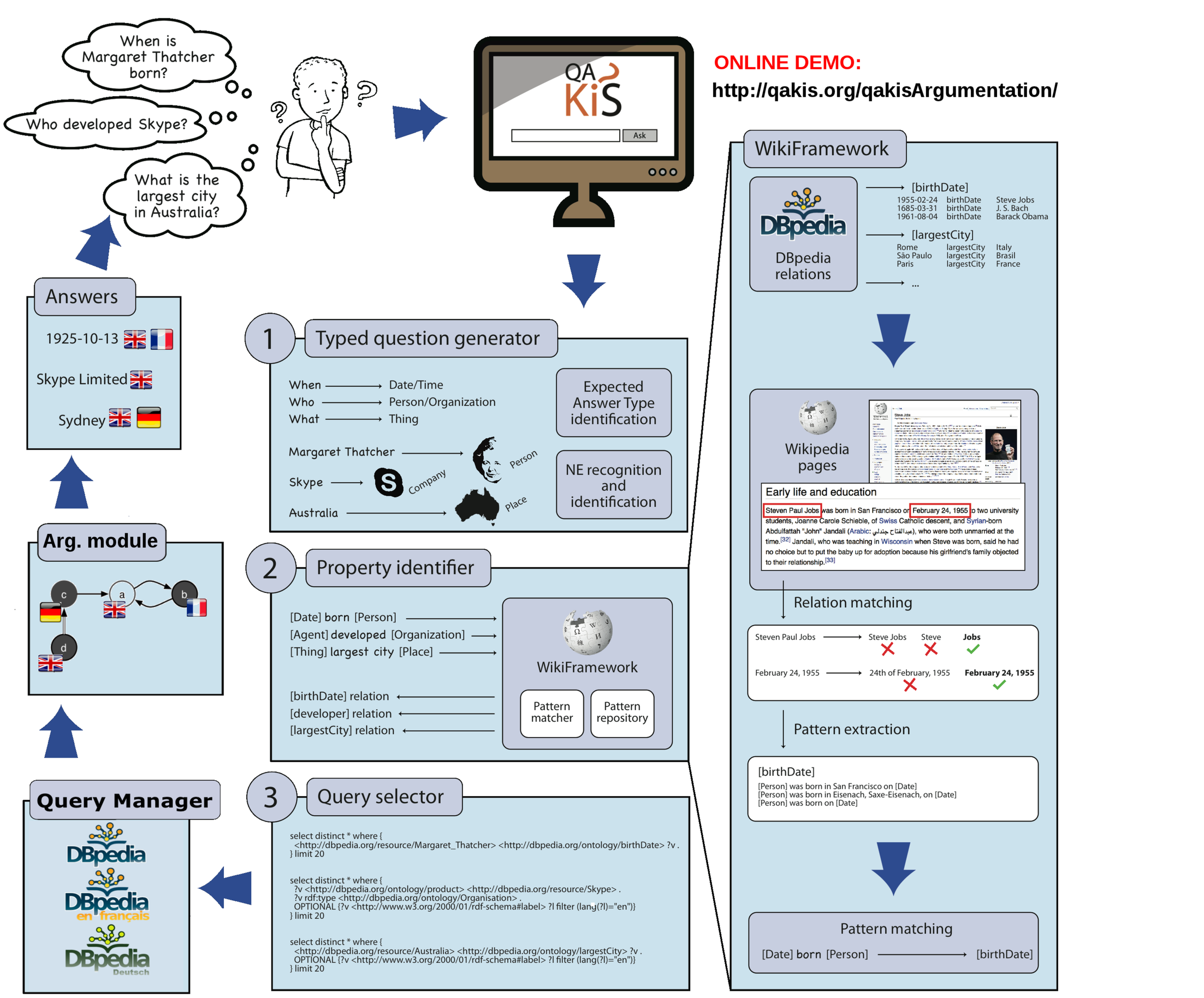
Scenario

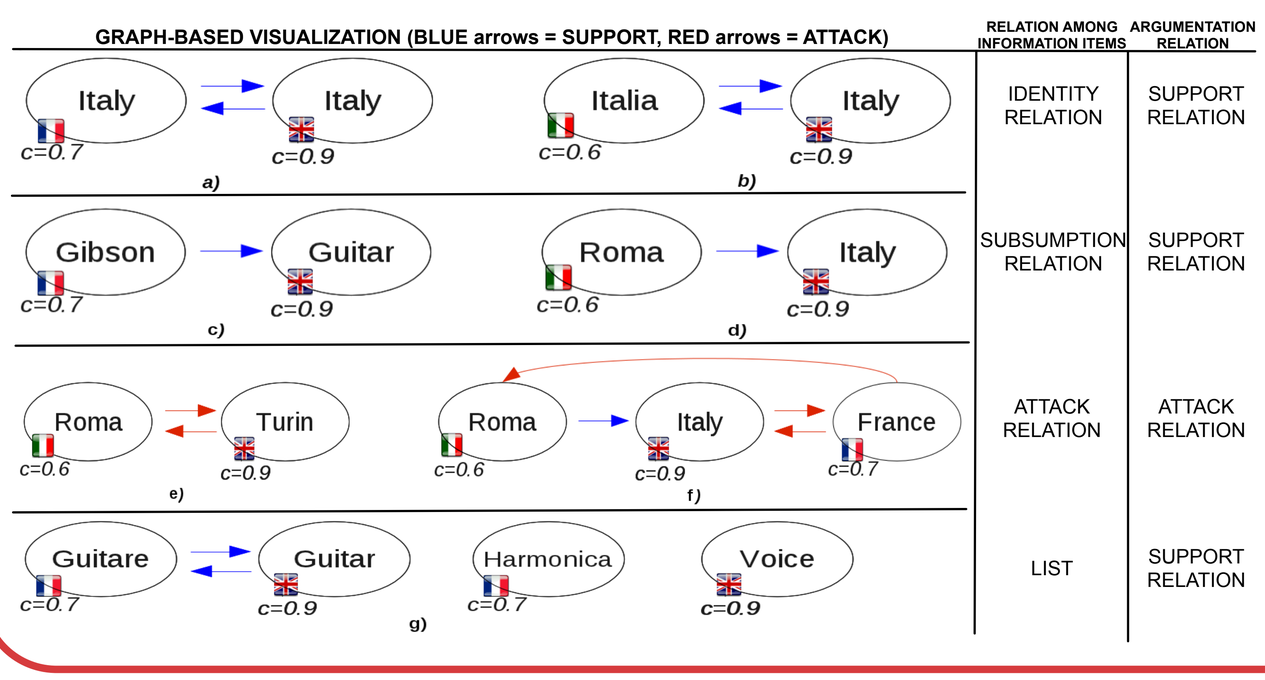
QAKiS: a system for **Question Answering over linked data**, that allows to query DBpedia multilingual chapters **using natural language**.

DBpedia multilingual chapters contain **different information** w.r.t. English version (e.g. more specificity on certain topics, and fill information gaps):
i) **different results** can be obtained **for the same query**
ii) the combination of these query results may lead to **inconsistent information** about the same topic.

To reconcile information obtained by distributed SPARQL endpoints, **an argumentation-based module is integrated into QAKiS to reason over inconsistent information sets, and to provide a unique and motivated answer to the user**.



Semantic relations and their mapping in argumentation



RELATION AMONG INFORMATION ITEMS	ARGUMENTATION RELATION
IDENTITY RELATION	SUPPORT RELATION
SUBSUMPTION RELATION	SUPPORT RELATION
ATTACK RELATION	ATTACK RELATION
LIST	SUPPORT RELATION

QAKiS ARGUMENTATION MODULE EVALUATION:
- **English**, **French** and **German** endpoints
- a priori confidence score assigned to the endpoints
- **bipolar fuzzy labeling algorithm** to calculate arguments' acceptability
- 25/58 QALD-2 questions (at least two endpoints providing an answer)

EXPERIMENT 1:

Input: the answers obtained from the different DBpedia endpoints, manually creating the SPARQL query

Performances (F-meas.) argument identification: 0.97; relation assignment: 0.72.

EXPERIMENT 2:

Input: NL questions submitted to QAKiS

Performances (F-meas.) argument identification: 0.72; relation assignment: 0.55 (the argumentation module is biased by QAKiS mistakes)