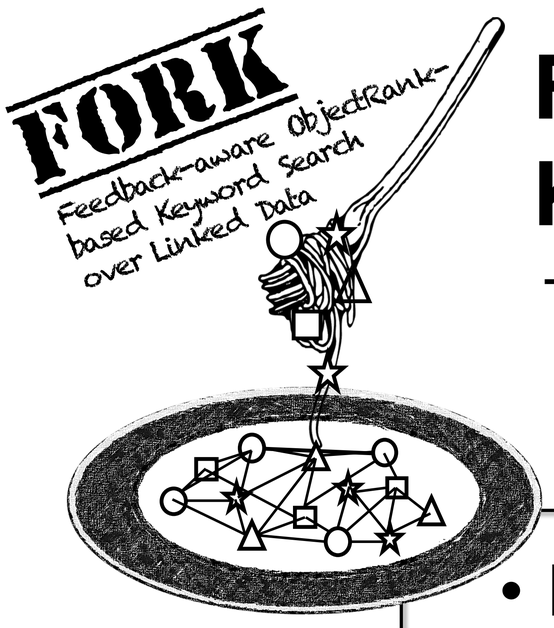

FORK: Feedback-aware ObjectRank-based Keyword Search over Linked Data

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Highlights

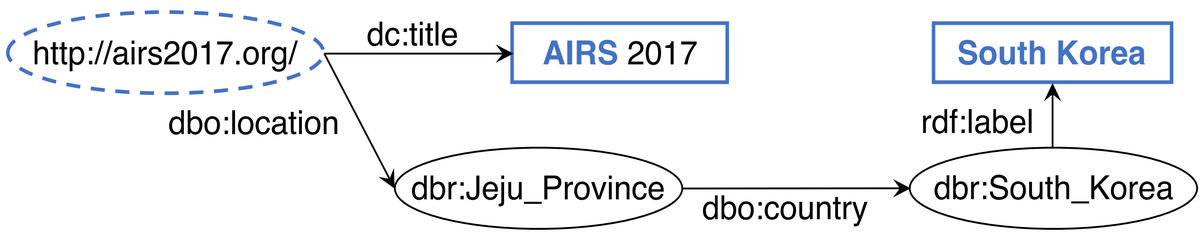
- FORK
  - ObjectRank-based keyword search over Linked Data (LD)
  - Relevance feedback-based authority transfer weights learning
- Experiments
  - Ensure weights are learnt properly.
  - Best-learnt ObjectRank achieves the best accuracy.

Keyword Search over LD

- User-friendly search method.
- Find entities related with input keyword query.

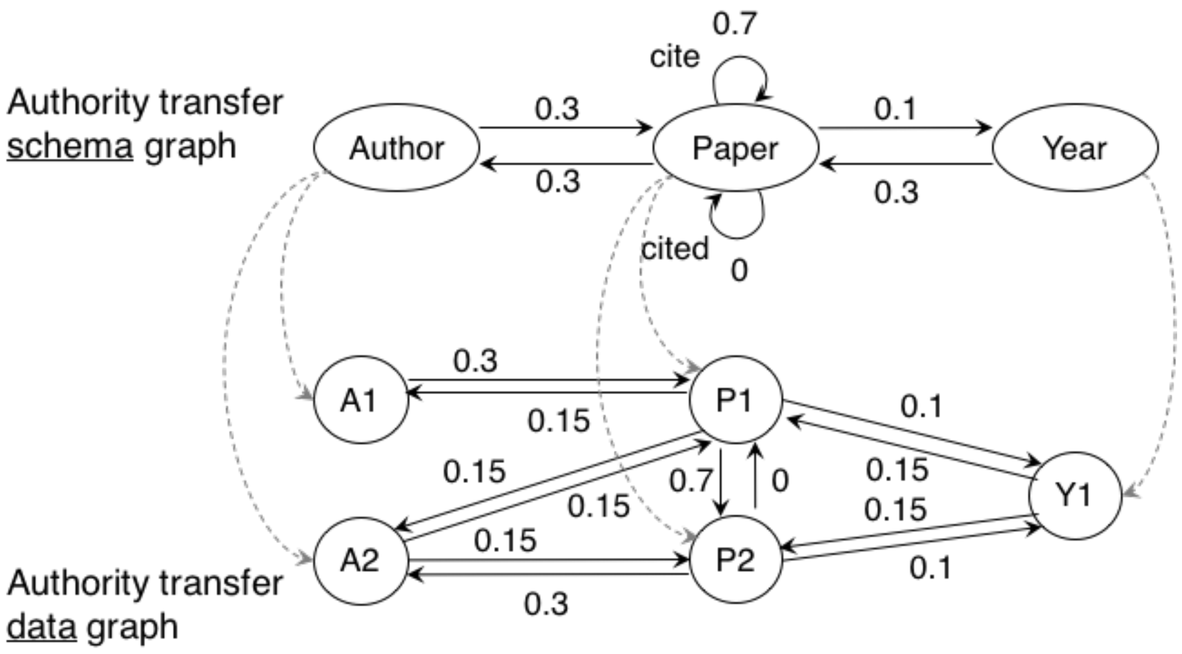
("AIRS", "South Korea") → http://airs2017.org/

Keyword query → Results



Data as RDF graph

ObjectRank [4]



Global ObjectRank (Precomputed)

$$\mathbf{r}_g^{(t+1)} = dA\mathbf{r}_g^{(t)} + \frac{1-d}{|O|}\mathbf{e}$$

Query-specific ObjectRank (Compute when query comes)

$$\mathbf{r}_q^{(t+1)} = dA\mathbf{r}_q^{(t)} + \frac{1-d}{|S(q)|}\mathbf{s}$$

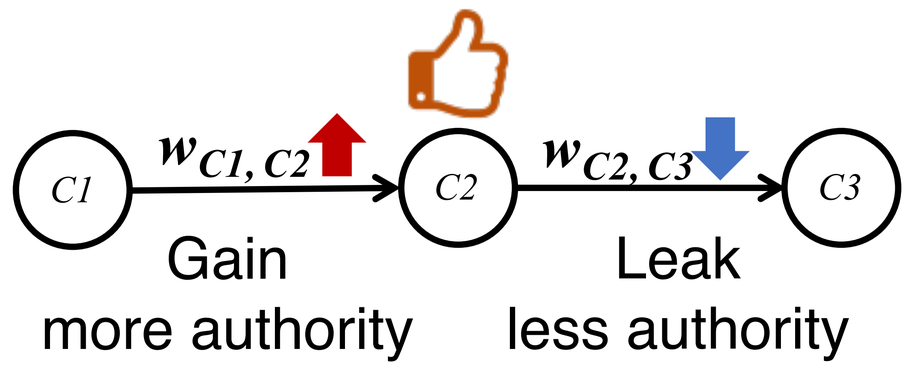
Overall ObjectRank scores for given query q (u is weighing parameter)

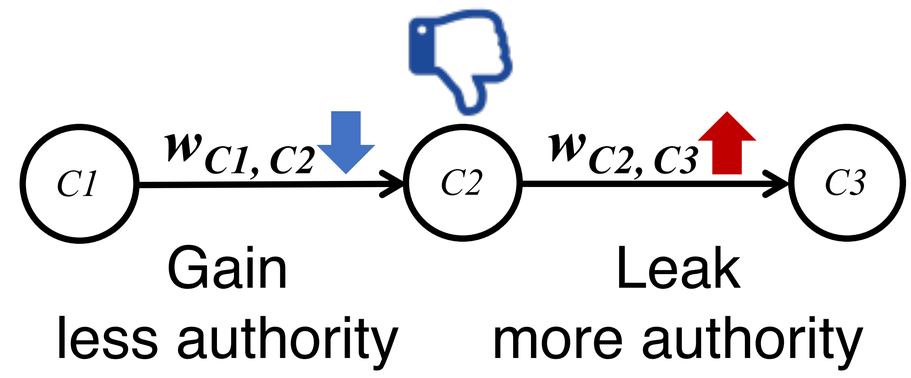
$$\mathbf{r} = \mathbf{r}_g \circ (\mathbf{r}_q)^u$$

[4] Balmin, A., Hristidis, V., Papakonstantinou, Y.: ObjectRank: Authority-Based Keyword Search in Databases. In: VLDB 2004. pp. 564–575 (2004)

Relevance Feedback

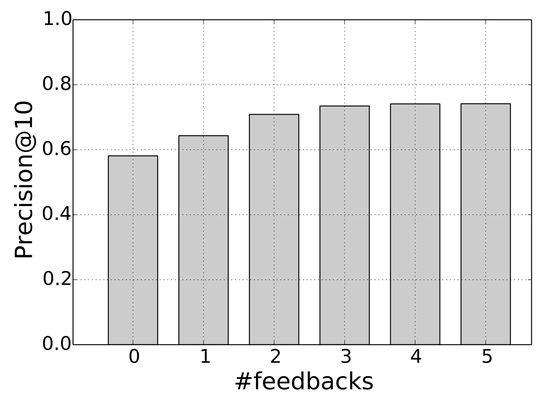
Input: relevance judgements on (top-k) search results
Output: modified edge weights on schema graph



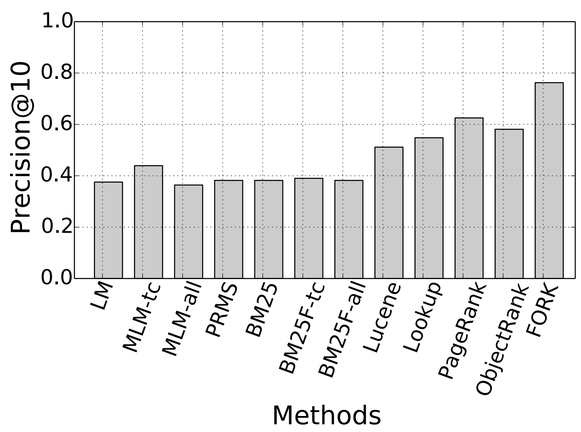


Evaluation

(a) FORK improves ranking.
(b) Best-learnt ObjectRank is the best.



(a)



(b)

Dateset
- Data: DBpedia 3.9
- Entity search benchmark [6]

Measurement: Precision@10

[6] Balog, K., Neumayer, R.: A Test Collection for Entity Search in DBpedia. In: SIGIR 2013. pp. 737–740 (2013)