SourceRank: Trust and Relevance based Ranking of Web Databases for the Deep Web

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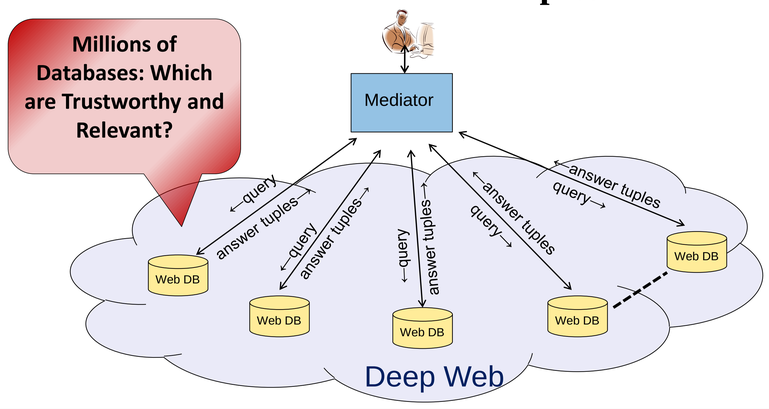
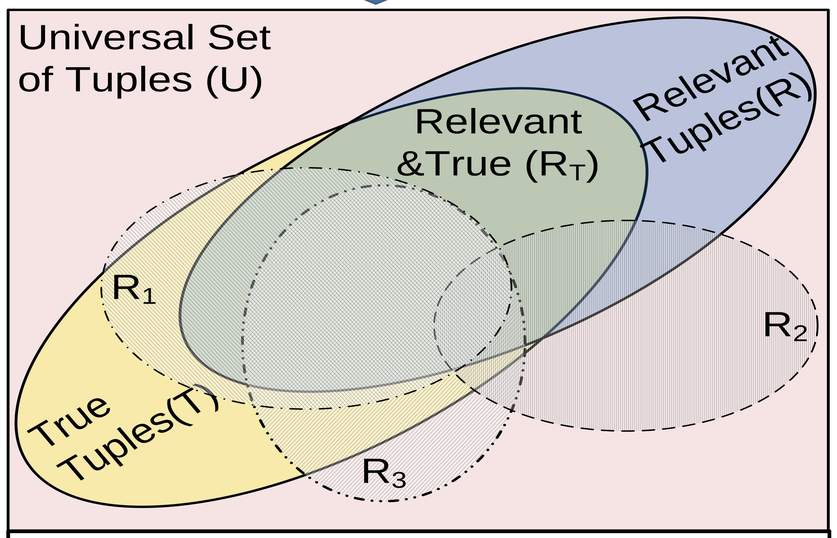
Source Selection in Deep Web



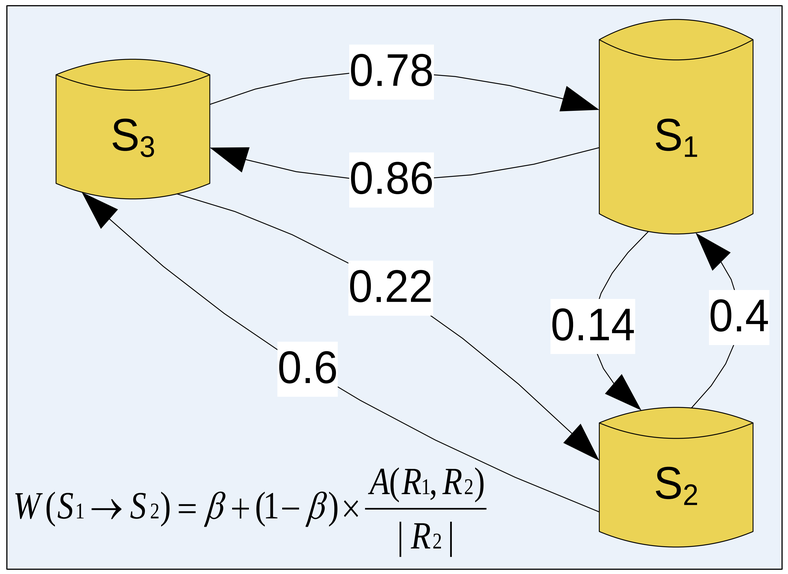
Agreement Implies Trust & Relevance



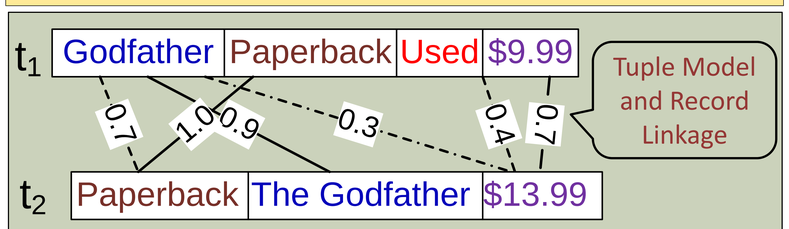
Let $t_1, t_2 \in R_T$, $f_1, f_2 \in U - R_T$ and P_a be the agreement probability. Assuming independent selection,

$$U >> R_T \Rightarrow P_a(t_1, t_2) >> P_a(f_1, f_2)$$

Agreement between the sources is modeled as an Agreement Graph.



SourceRank is calculated as the stationary visit probability of a weighted random walk on the database vertex in the agreement graph.



Computing agreement requires record linkage

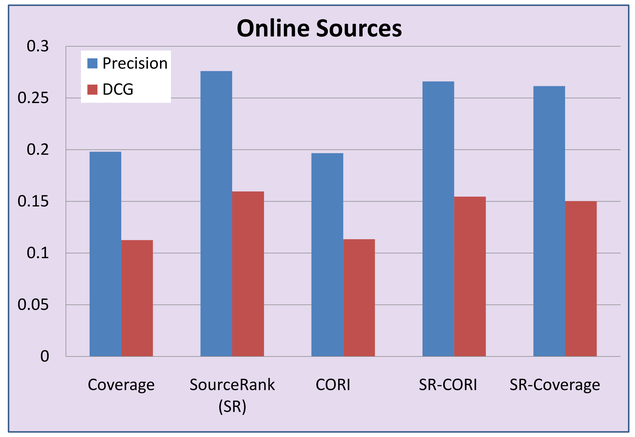
- Value similarity : SoftTFIDF with Jaro-Winkler.
- Attribute importance is calculated based on mean inverse document frequency of the token values.
- Domain Independent.
- Predefined schema mapping is not assumed.
- Quadratic Time complexity on Sources.

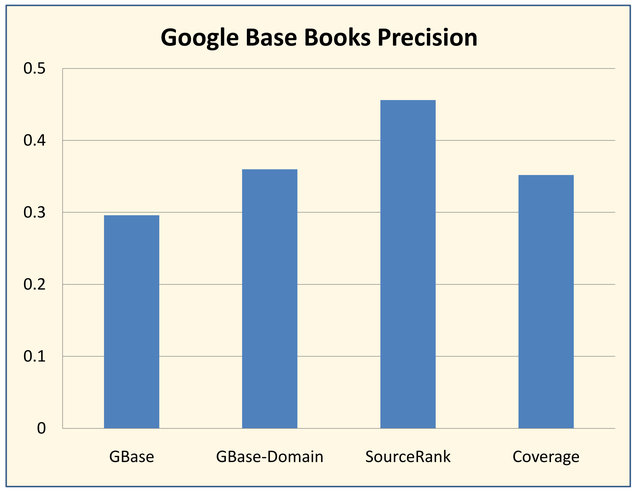
Sampling Databases

- Graph is computed based on samples from the databases.
- Non-Cooperative Query Based Sampling.

URL: *http://factal.eas.asu.edu*

Evaluated on Google base and online Sources. Comparison with Google Product Search





Trustworthiness is evaluated as the decrease in ranks of corrupted sources.