Anchor-Flood: Results for OAEI-2009

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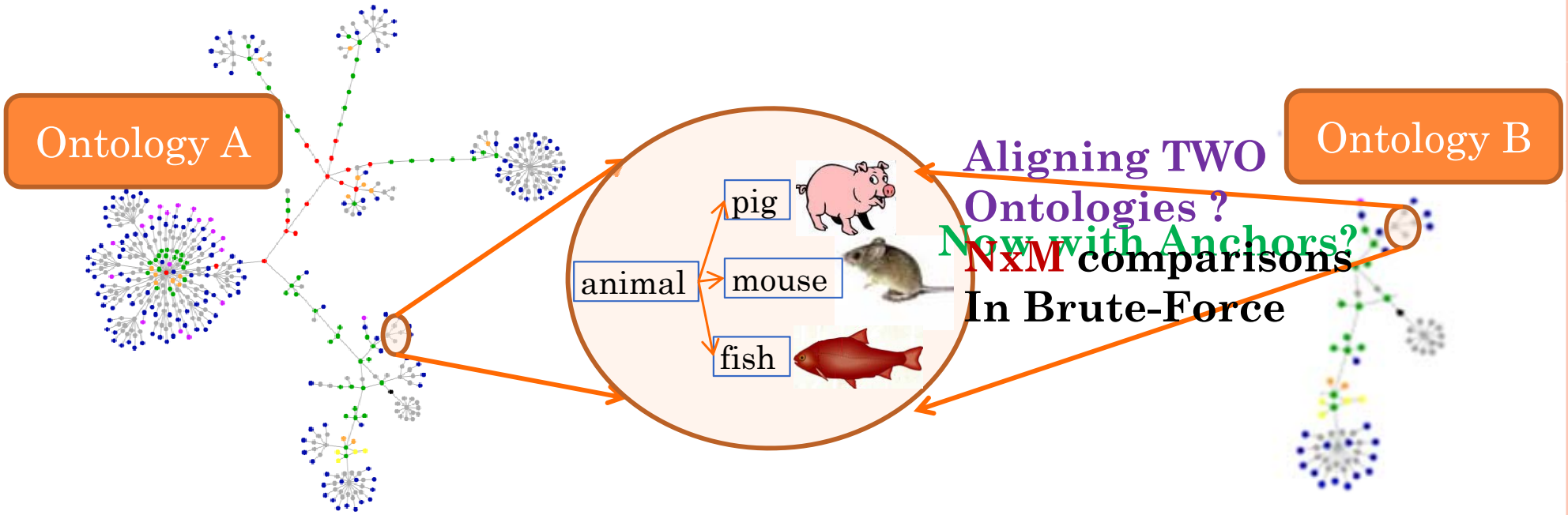
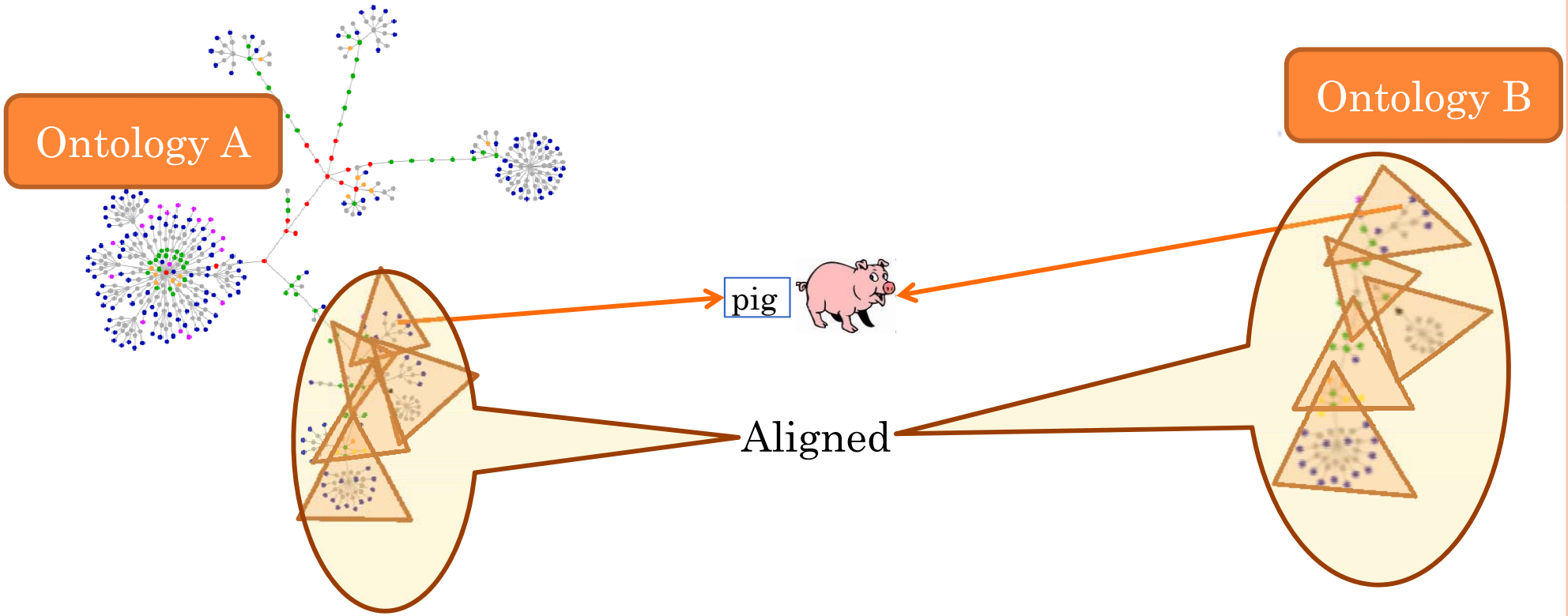
Ontology Alignment: An Example

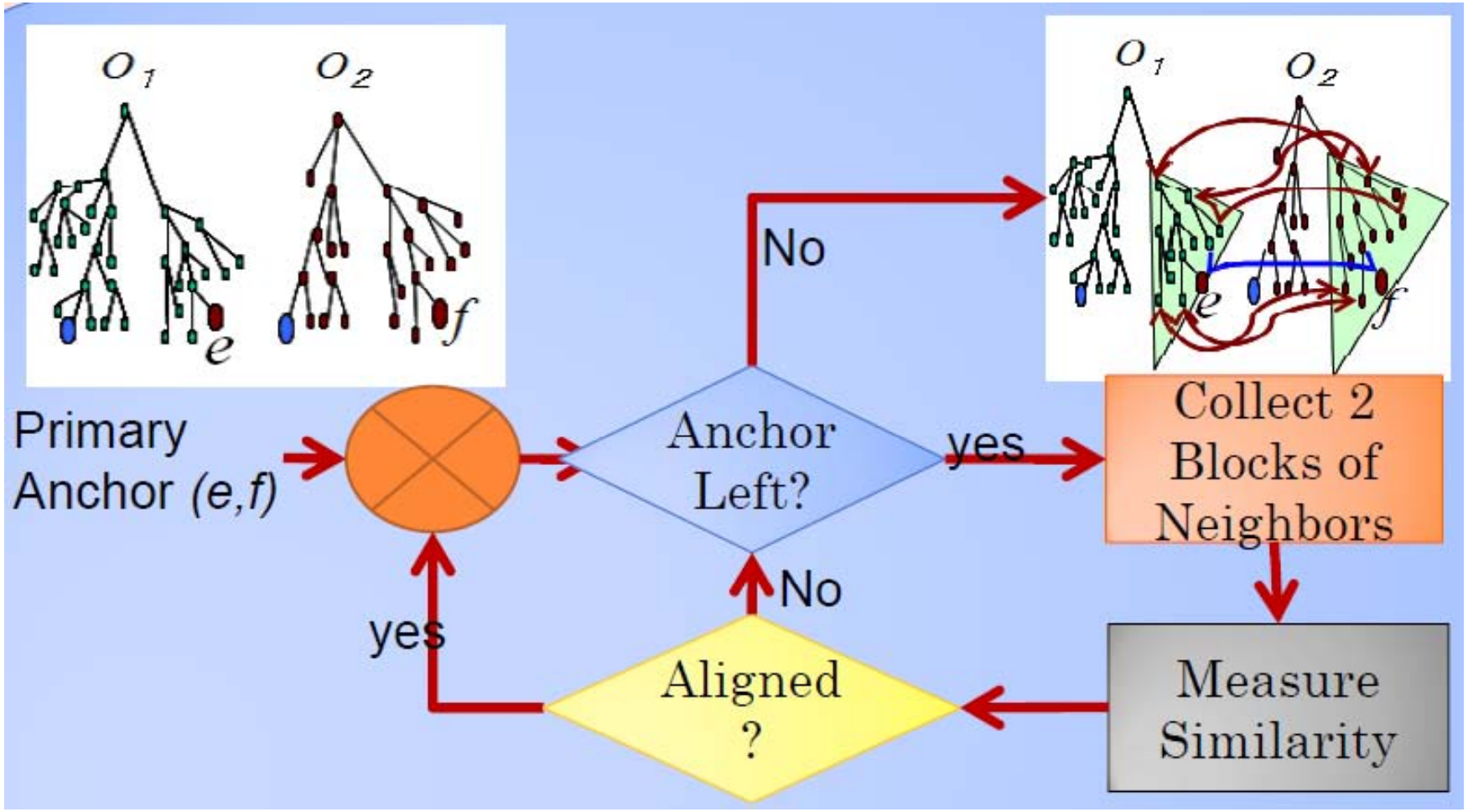


Our Ontology Alignment Technique



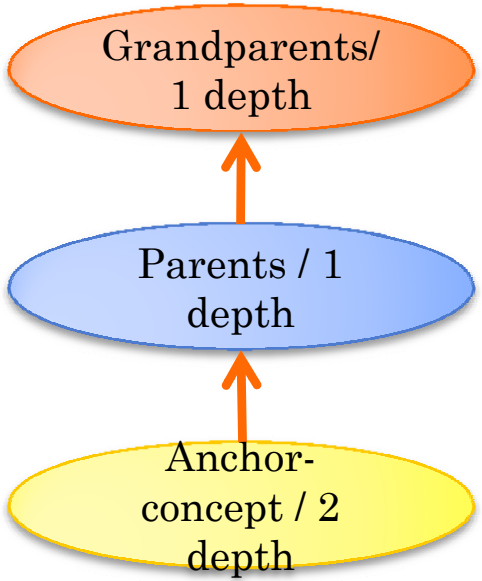
Anchor-Flood works faster !!

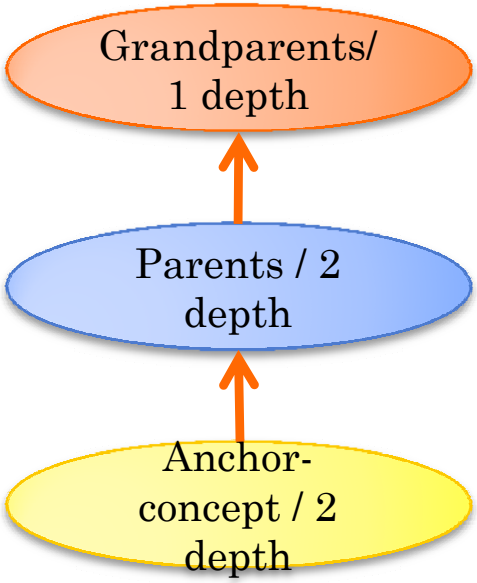
Anchor-Flood Algorithm



Findings

- Block Size vs. Elapsed Time
  - Two depth children from anchor-concept *c*+ one depth children from *parents(c)* + one depth children from *grandparents(c)* on anatomy track
    - Elapsed time approx. 15 sec.
    - Decreasing recall
    - Good precision





- Two depth children from anchor-concept *c*+ two depth children from *parents(c)* + one depth children from *grandparents(c)* on anatomy track
  - Elapsed time approx. 4 min.
  - Increase recall
  - Decrease precision

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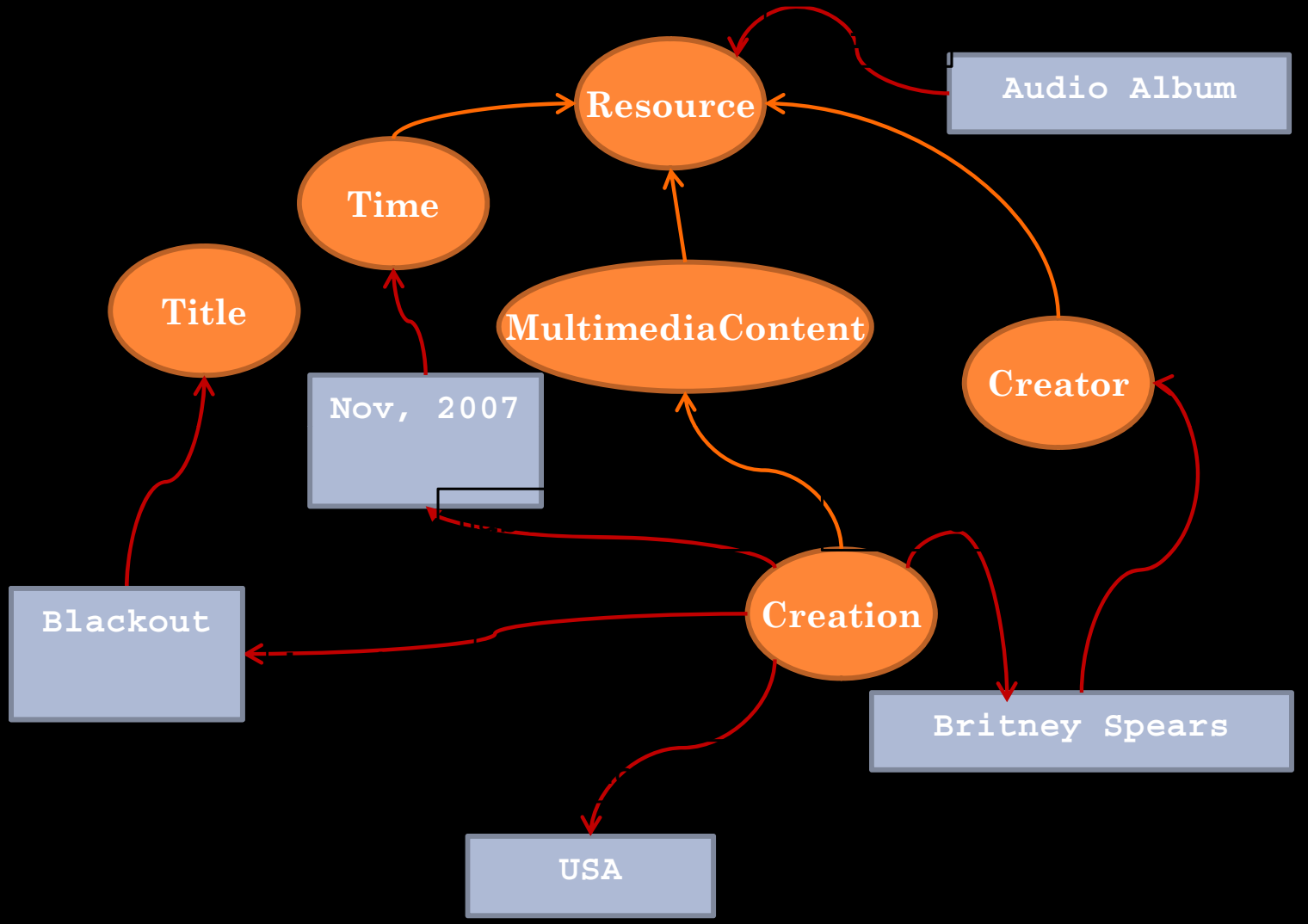
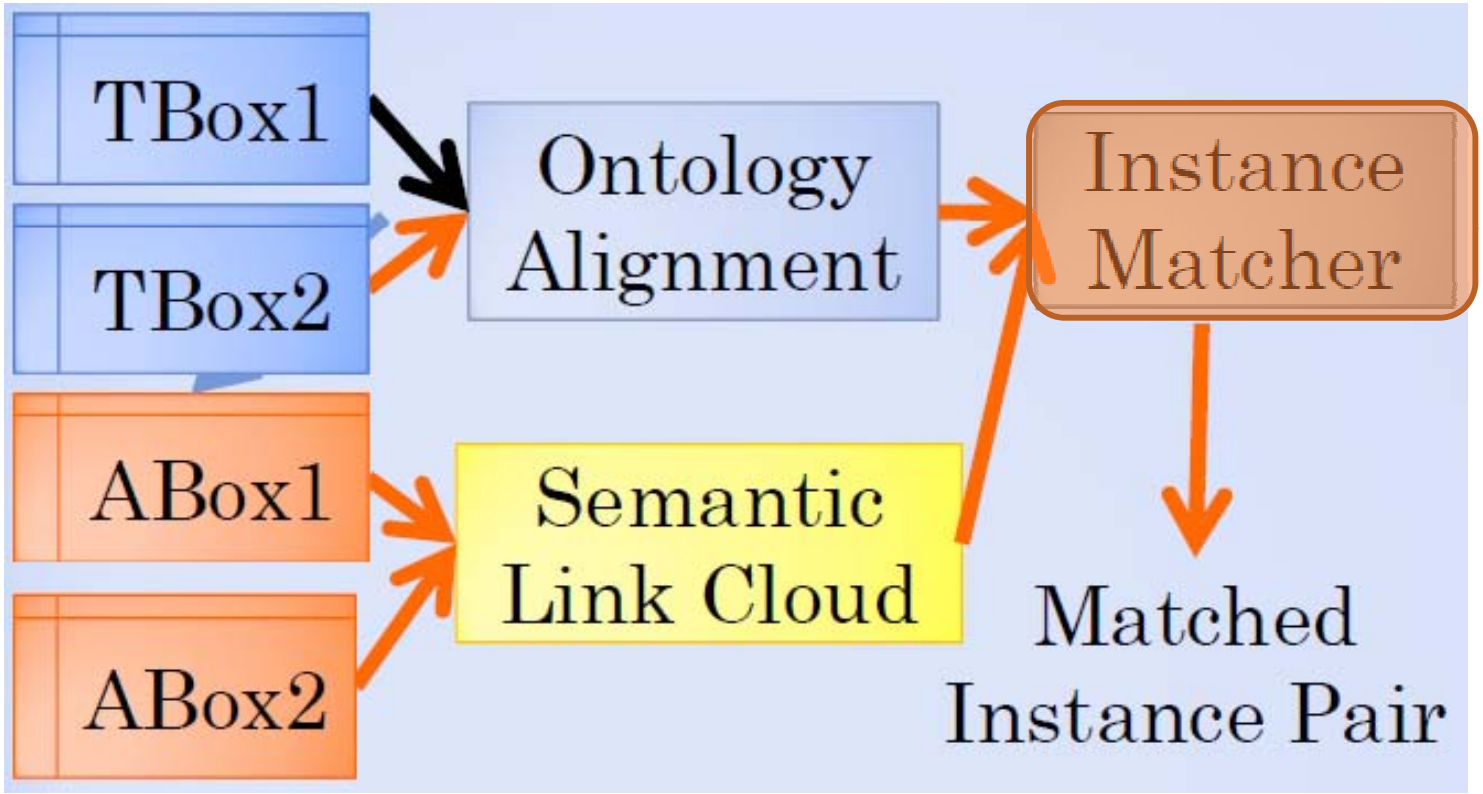
Semantic Link Cloud: Our Uniqueness



Instance Matching Algorithm



Instance Matcher

Algorithm *InstanceMatch* (ABox ab_1, ABox ab_2, Alignment A)

1. for each $\boldsymbol{ins_i} \in \boldsymbol{ab_1}$
2. $\text{cloud}_i = \text{makeCloud}(\text{ins}_i, \text{ab}_1)$
3. for each $\boldsymbol{ins_j} \in \boldsymbol{ab_2}$
4. $cloud_j = makeCloud(ins_j, ab_2)$
5. if $\exists a(c_1, c_2) \in A | \ (c_1 \in Block(ins_2.type) \wedge c_2 \in Block(ins_1.type))$
6. if $\text{Sim}_{\text{struct}}(\text{cloud}_i, \text{cloud}_j) \geq \delta$
7. $\text{imatch} = \text{imatch} \cup \text{makeAlign}(\text{ins}_i, \text{ins}_j)$

Results

- Please visit OAEI-2009 website for the detail results of *aflood*, stands for Anchor-Flood

Conclusions and Future Work

- Anchor-Flood algorithm run faster due to its unique way of divide and conquer
- For Instance Matching, we used Semantic links associated to each of the Instances.

Future Work

- To consider Semantic Similarity among concepts of a taxonomy to reduce the size of block and hence to decrease the runtime and to increase the efficiency.
- Improve the runtime of Instance Matching

- You can download our system through-

www.kde.ics.tut.ac.jp/~hanif/res/2009/anchor_flood.zip

- Related Paper: Md.H. Seddiqui and M. Aono, An Efficient and Scalable Algorithm for Segmented Alignment of Ontologies of Arbitrary Size, Web Semantics (to be published)

Thank you

Challenges

- Varying Block Size
  - Increase block size by the neighbors of sufficient depth
  - Decrease block size by considering semantic similarity
- Varying threshold