Entity Embedding Analogy for Implicit Link Discovery

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Objectives
- Create an interoperable platform for the aggregation of museum data
- Develop steering indicators for museums
- Build tools for personalizing visitor experience

Approach

A. Adapt neural language model
B. Transform RDF graph into sequences of entities and relations (sentences)
C. Train the model and generate entity vectors

Evaluation

Dataset
- Build context graph for Paris Musées
  - 11 sites: 448,930 entities, 228,5 relations, 512,230 triples
  - Random walks with BFS: d={4,8}
- Add all direct neighbours: d=2
- Train Skip-Gram model

Ground Truth
- Analogy between entities in the KG (each entry corresponds to a parallelogram with one unobserved triple in the KG)
- For each museum entity, collect a list of well-known artists
- Use conventional metrics: Mean Reciprocal Rank (MRR) and Hits@{3,5,10}

Results

Museums for which we exploit known triples <museum, artist>
- For m_i, find a_j such that <m_i, a_j> a correct triple
- Where : <m_i, a_j> exist

Longer path (D=8) gives better results