

Fact Validation Ensemble Learning

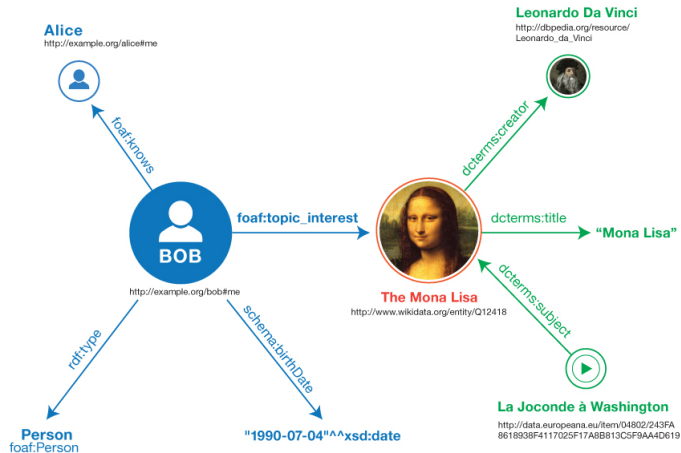
Summer Semester 2022

Michael Röder



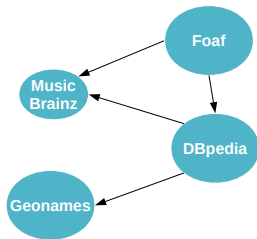
Data Science Group
Paderborn University

February 7, 2022



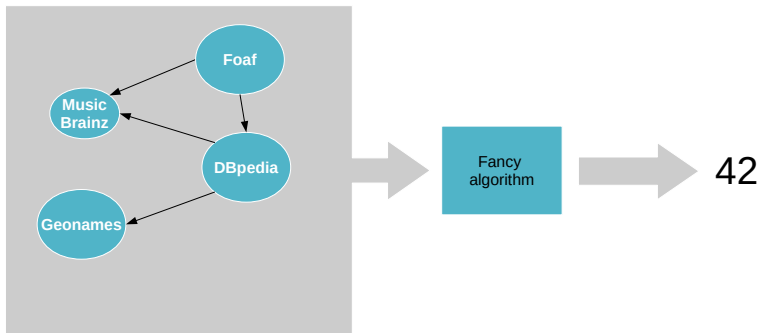
Fact Validation

Motivation



Fact Validation

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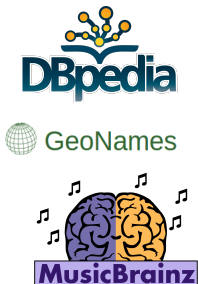
Fact Validation

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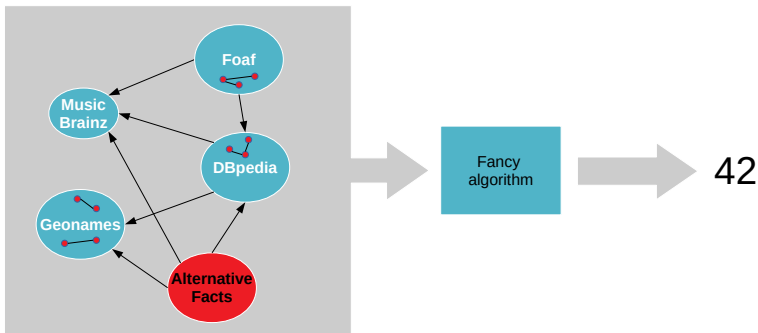


Linking
algorithm



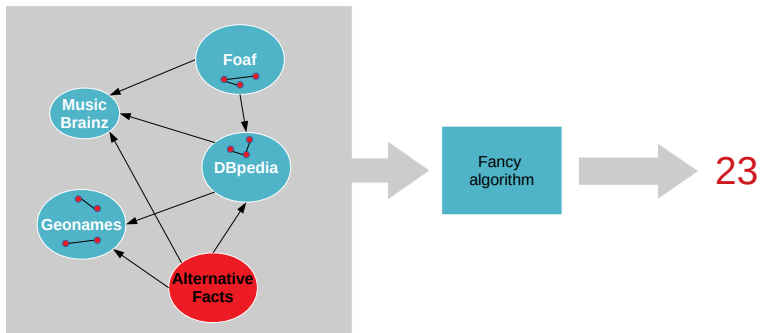
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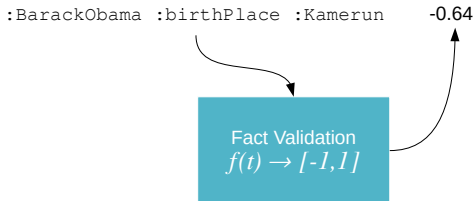
Fact Validation

Motivation

Fact Validation
 $f(t) \rightarrow [-1, 1]$

Fact Validation

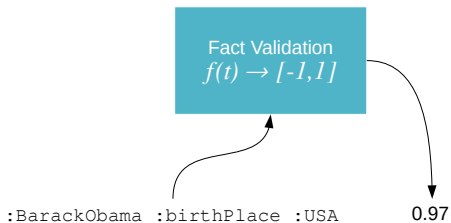
Motivation



Fact Validation

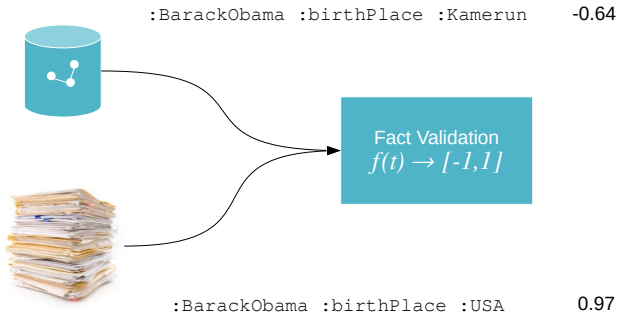
Motivation

:BarackObama :birthPlace :Kamerun -0.64



Fact Validation

Motivation



Fact Validation

Approaches

- ▶ COPAAL
- ▶ ESTHER
- ▶ Knowledge Streams
- ▶ Knowledge Linker
- ▶ Relational Knowledge Linker
- ▶ Predicate Path Mining
- ▶ Katz
- ▶ PathEnt
- ▶ ...

Summary

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 - ▶ **Solution:** Train and evaluate a meta classifier on the system's results.
-
- ▶ Get and set up implementations of Fact Validation systems
 - ▶ Gather and create relevant benchmark datasets
 - ▶ Implement a meta classifier for Fact Validation
 - ▶ Run a detailed evaluation

Further Information

Publications:

- ▶ A.A. Morim da Silva, M. Röder, and A. Ngomo: [Using Compositional Embeddings for Fact Checking](#), 2021.

Github projects:

- ▶ <https://github.com/dice-group/copaal>
- ▶ <https://github.com/dice-group/esther>
- ▶ <https://github.com/shiralkarprashant/knowledgestream>

Technologies:

- ▶ Java, Maven, Python (for existing systems)
- ▶ Knowledge about graph theory, RDF and machine learning is helpful