ExFaKT: Explaining Facts over Knowledge Graphs and Text

Motivation: Knowledge Graphs (KG) Completion

Fact validation is an important step in KG completion, yet it is tedious and time-consuming.

Fact Extraction
Crowdsourcing

Automated Search

Human Reviewers

Fact Validation

Easy

France

World Cup

Leonardo DiCaprio

influencedBy(<Ch._Nolan>, <G._Lucas>)

Hard

Marissa Mayer

Larry Page

Christopher Nolan

George Lucas

Reporting bias

Prominent entities

Frequent relations

Generating Comprehensive Explanations

ExFaKT generates human-understandable explanations for the candidate fact by collecting supporting evidence from KGs and textual sources.

Inference Rules

• Horn rules in the form of (H ← B₁,...,Bₙ)
• Simulate human Reasoning
• Automatically mined or manually specified

KG

• Explicit source of facts
• Reliable but incomplete

Text

• Implicit source of data
• Rich but noisy

Approach

ExFaKT rewrites the query into easier-to-spot subqueries using an optimized top-down strategy.

ExFaKT doubles the recall of extracting explanations while preserving the precision.

Experimental Results

● https://www.mpi-inf.mpg.de/impact/exfakt