

A STUDY ABOUT THE USE OF OWL 2 SEMANTICS IN RDF-BASED KNOWLEDGE GRAPHS

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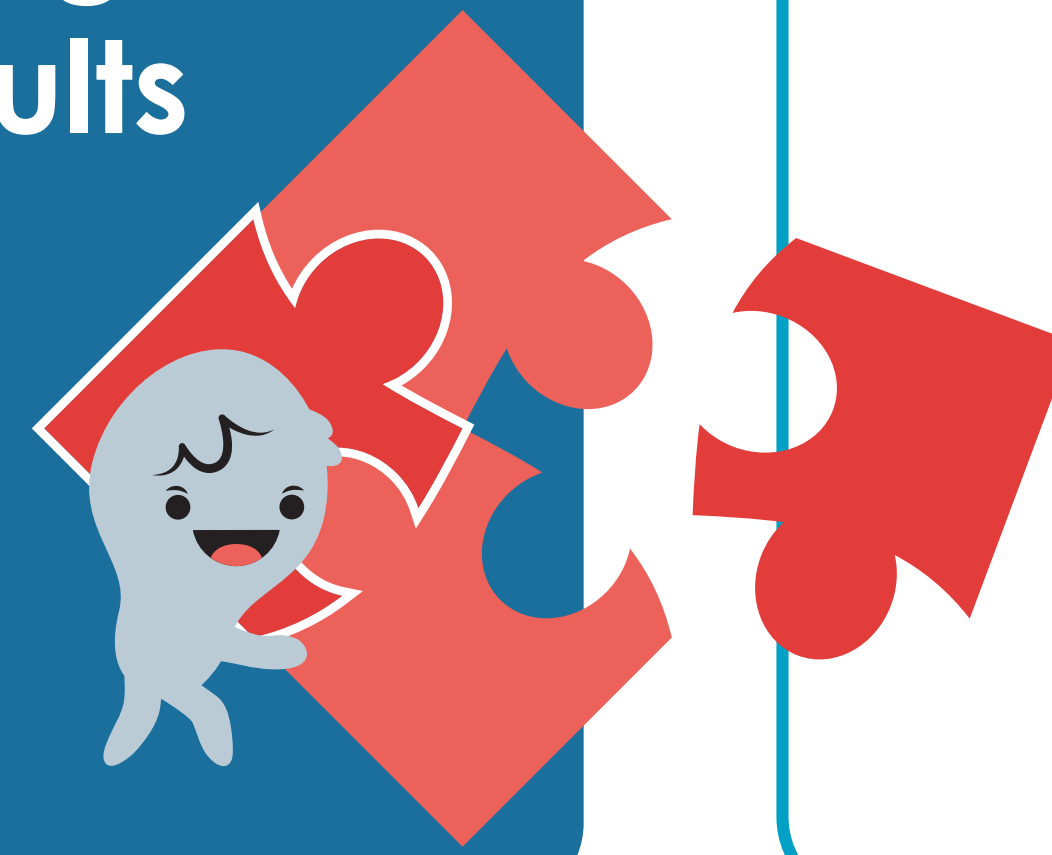


STUDY

1 MOTIVATION

Previous studies have shown that OWL 2 semantics is not always used in KGs. But, is this still the case today? Has progress been made?

Confirming or invalidating previous results in a new study.



2 SOURCES

LOD Cloud:

- Well-established graphs
- Metadata
- Field(s) of graphs
- Limited number of graphs

LOD Laundromat:

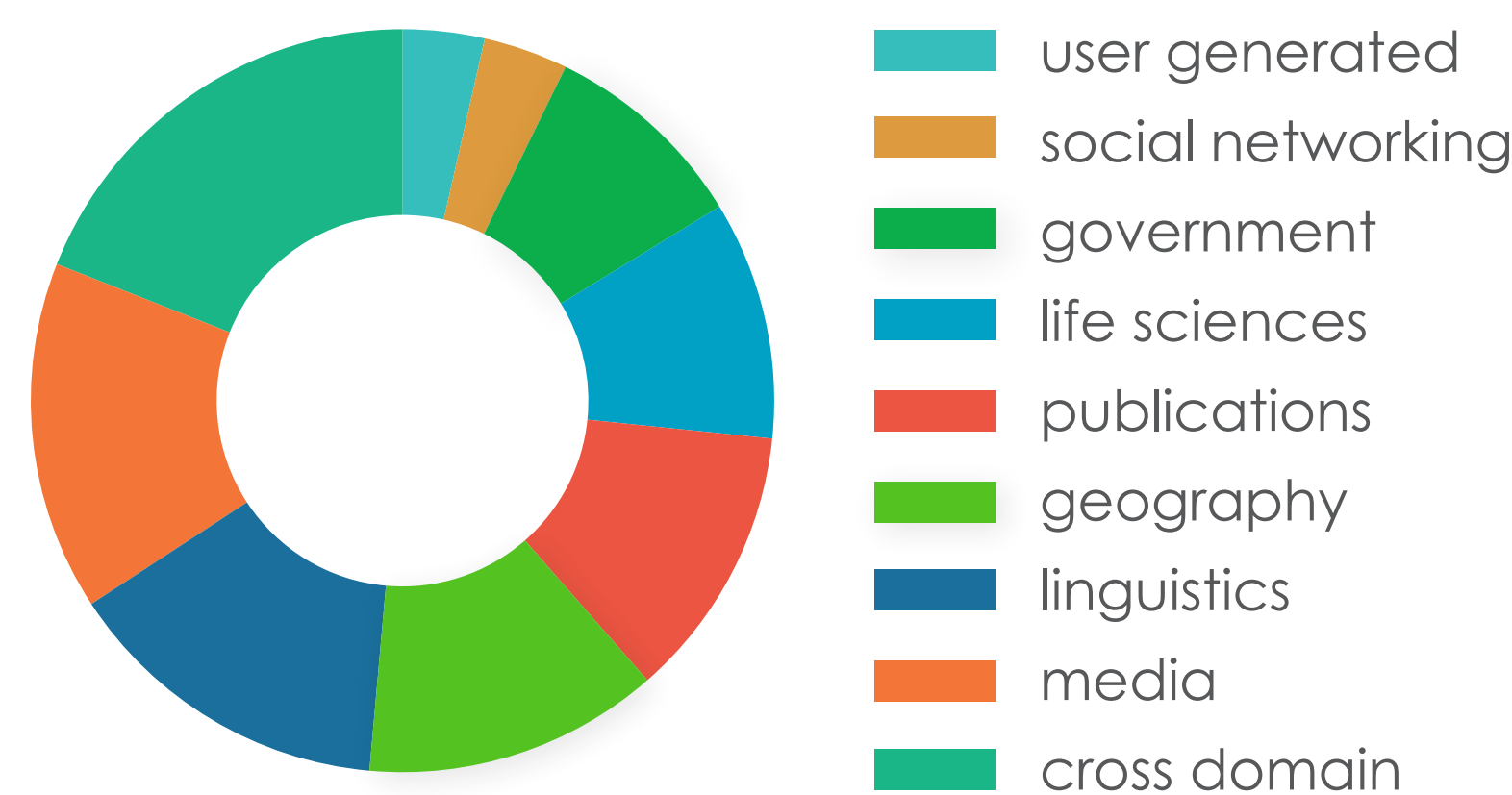
- A lot of data
- Ease of use
- Graphs distinguishable from each other
- Metadata

3 RESULT HIGHLIGHTS

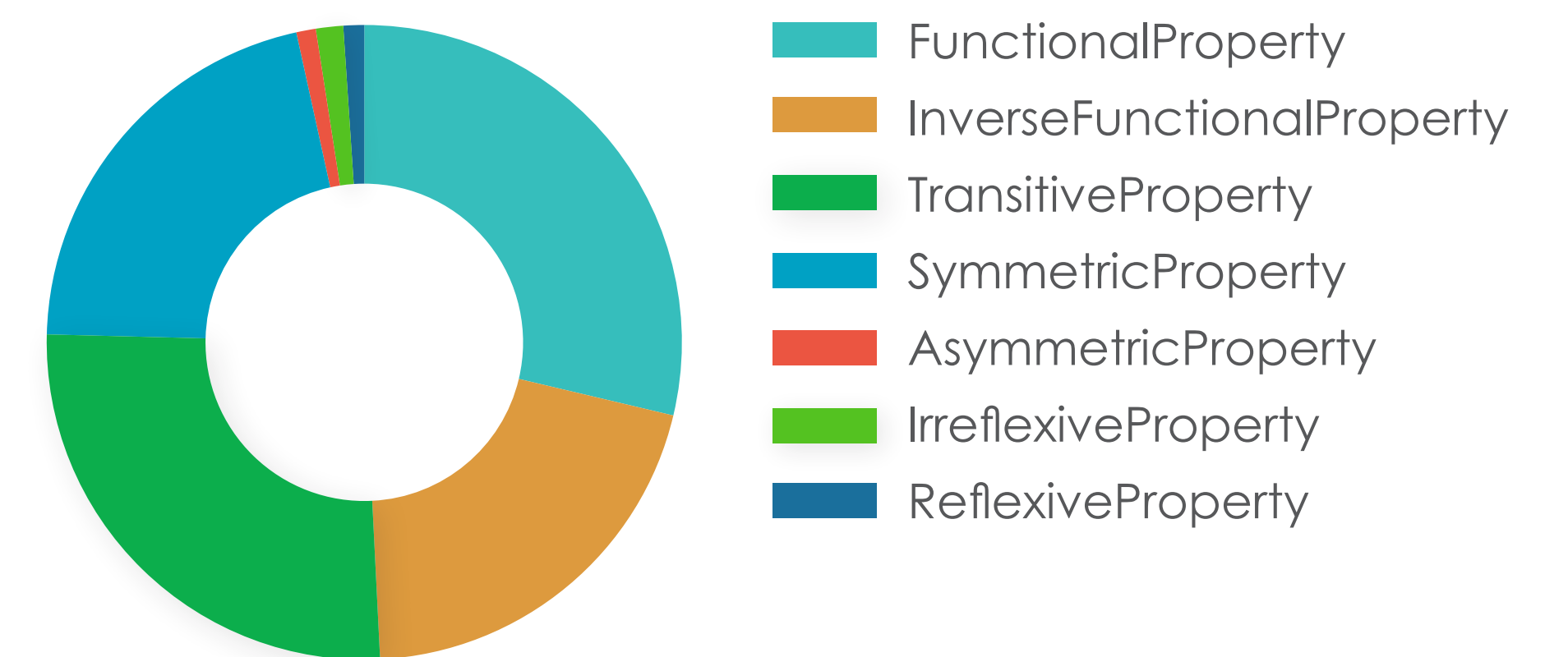
- Only 34% of large graphs use at least one semantic feature of OWL 2!
- Properties like `propertyDisjointWith` are almost not used.
- Cross domain graphs are among the top users of OWL 2 semantics.

More at https://github.com/PHParis/sem_web_stats

% OF DATASETS W/ ONE OWL FEATURE BY GRAPH TOPIC



OF DATASETS BY PROPERTY TYPE



1 MOTIVATION

How to choose between two knowledge graphs (KGs) covering the same domain but modeled differently? For example, the first KG could use complex OWL constructs, and the second one only very simple definitions.

Or

How to choose the appropriate tool for a given task, depending on (i) the techniques they use and (ii) the semantics contained in the knowledge graph(s)?



ANSWER :

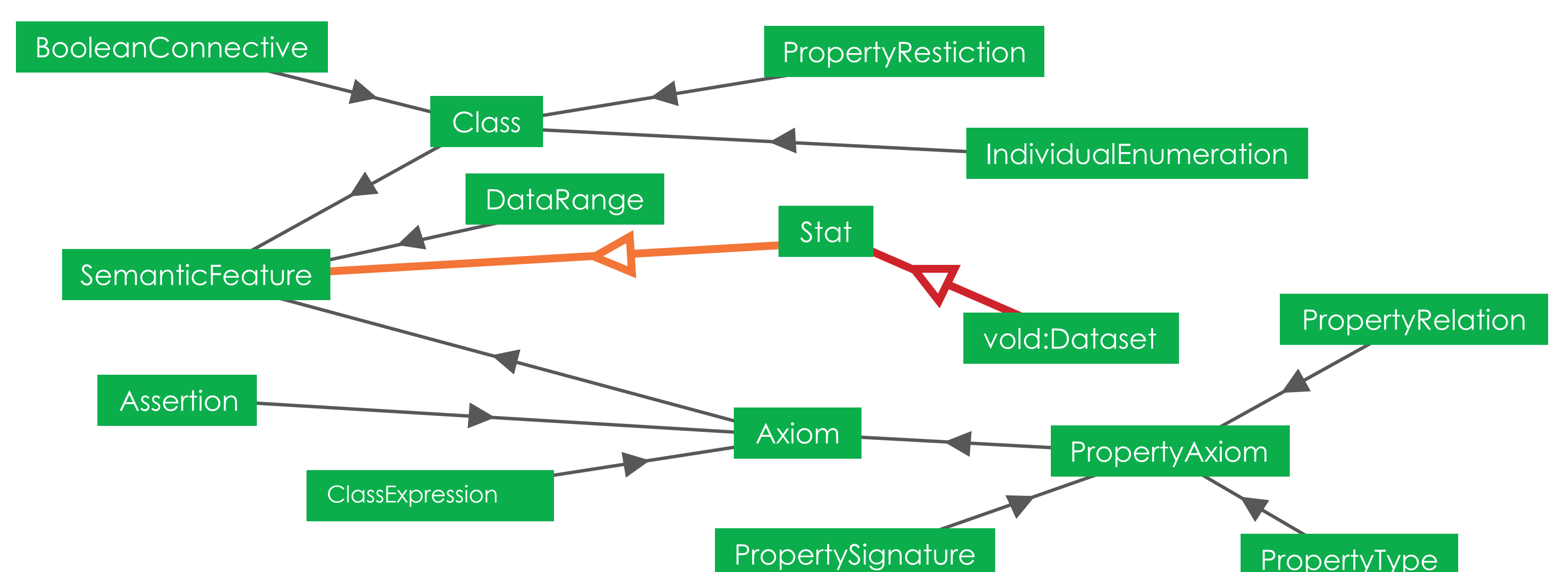
You need to explore the knowledge graph(s) to find out which classes or properties are defined with the desired semantic features! But this task is time-consuming and is difficult to perform automatically. We have the solution!

2 ONTOLOGY

An ontology to capture the semantics used in a knowledge graph:
<http://cedric.cnam.fr/isid/ontologies/OntoSemStats.owl>

Both users and data publishers will be delighted: the former will find their work easier and the latter will see their data used more often.

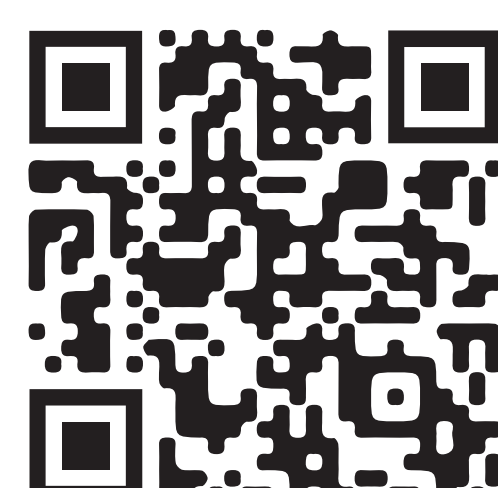
- : is-a (subsumption)
- : has statistic
- : has feature



3 TOOLS



To instantiate the ontology for a given SPARQL endpoint, we provide several tools! They are available on GitHub under GPL open-source license



<https://github.com/PHParis/OntoSemStatsWeb>

ONLINE LIVE DEMONSTRATOR
 •
 COMMAND-LINE
 •
 WEB API

Used technologies:



ONTOLOGY