

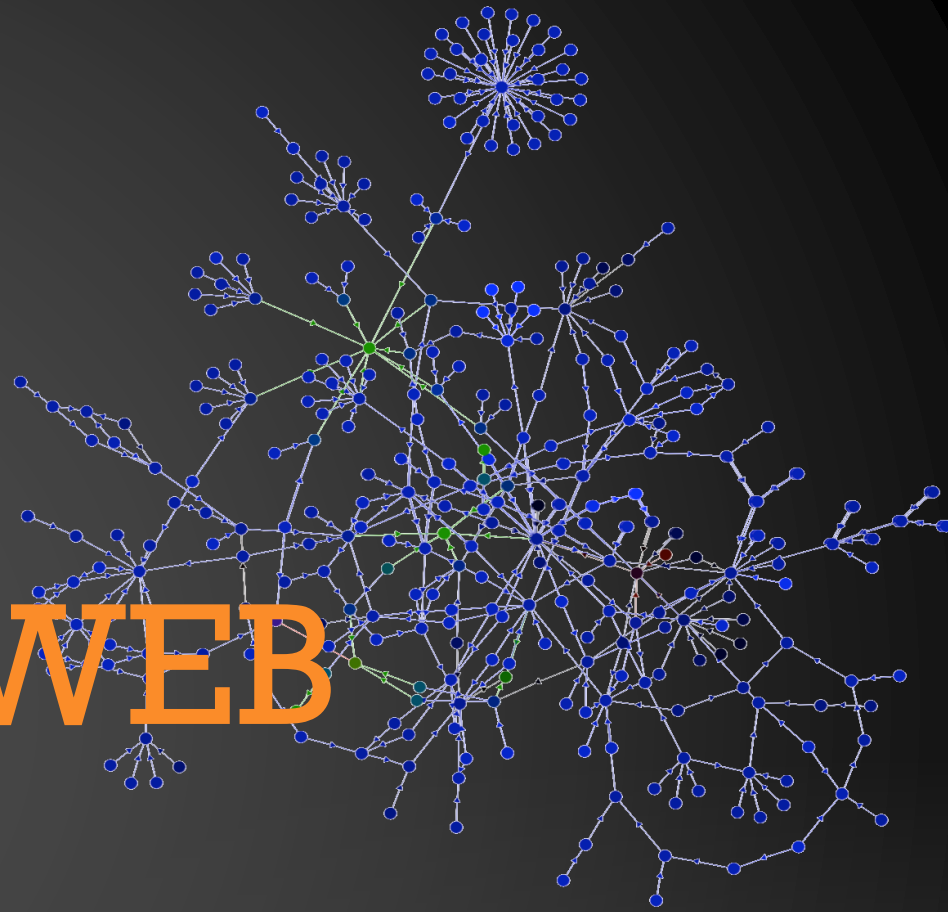
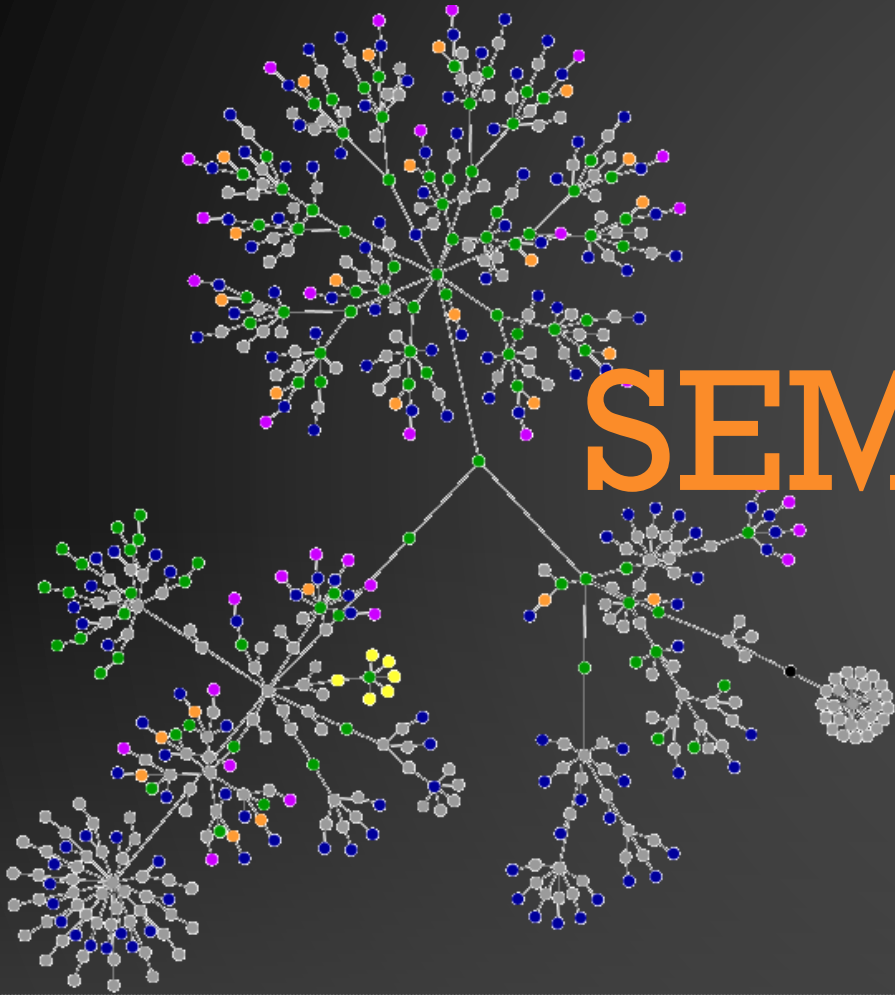
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De-blackboxing

# SEMANTIC WEB

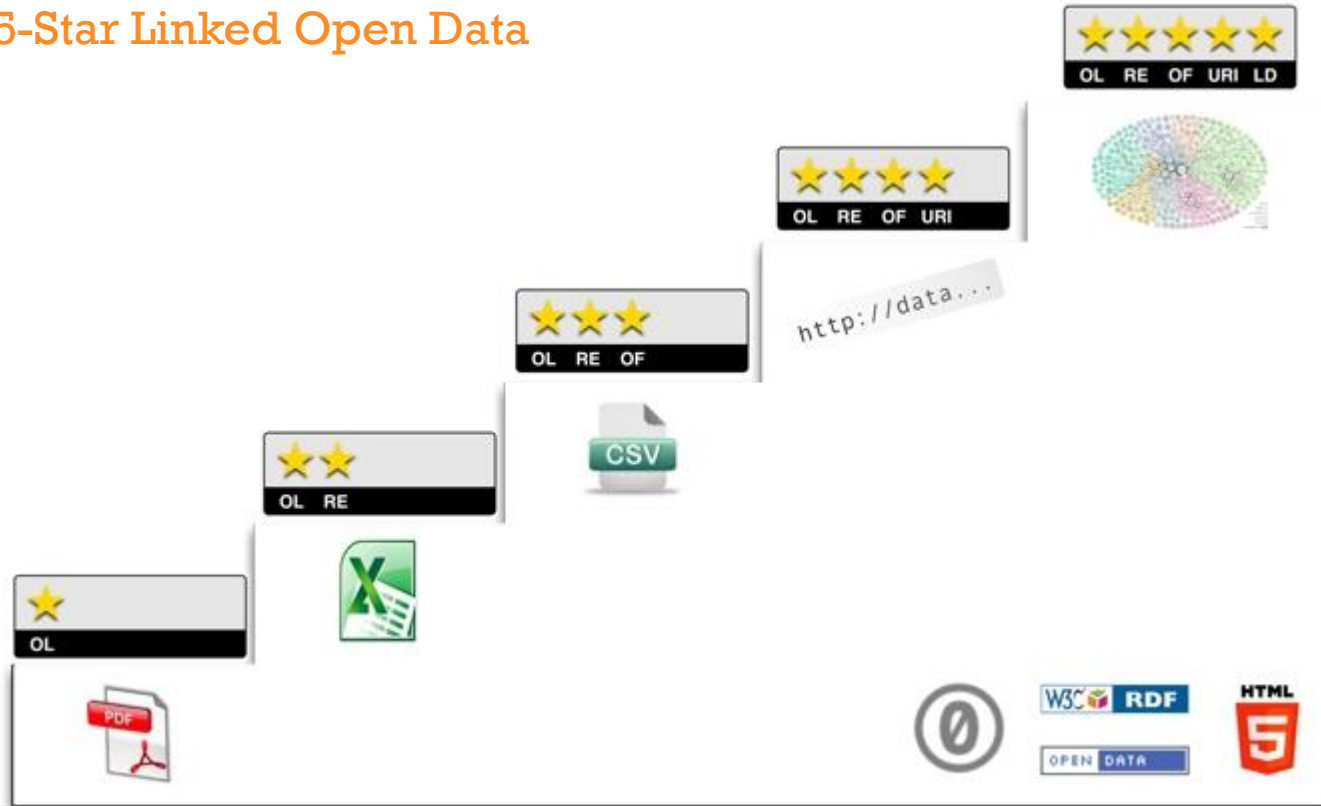
CHEN AND FERNANDA

NOV 30 2016



# FROM THE WEB OF DOCUMENTS TO THE WEB OF DATA

## 5-Star Linked Open Data



# WHAT IS SEMANTIC WEB

- Tim Bernes-Lee at WWW Geneva Conference, in 1994:
  - <https://www.w3.org/Talks/WWW94Tim/>

# IMAGINE A WEB IN WHICH...

Datasets are linked to third-party datasets

There are distributed social networks with interlinked descriptions of people across multiple Web sites

Cross-dataset queries can be performed using a common language

There are interlinked Application Program Interface (API) feeds

# THIS IS POSSIBLE WITH RDF

“RDF provides a common framework for expressing information so it can be exchanged between applications without loss of meaning... In short: RDF is “used to publish and interlink data on the Web”

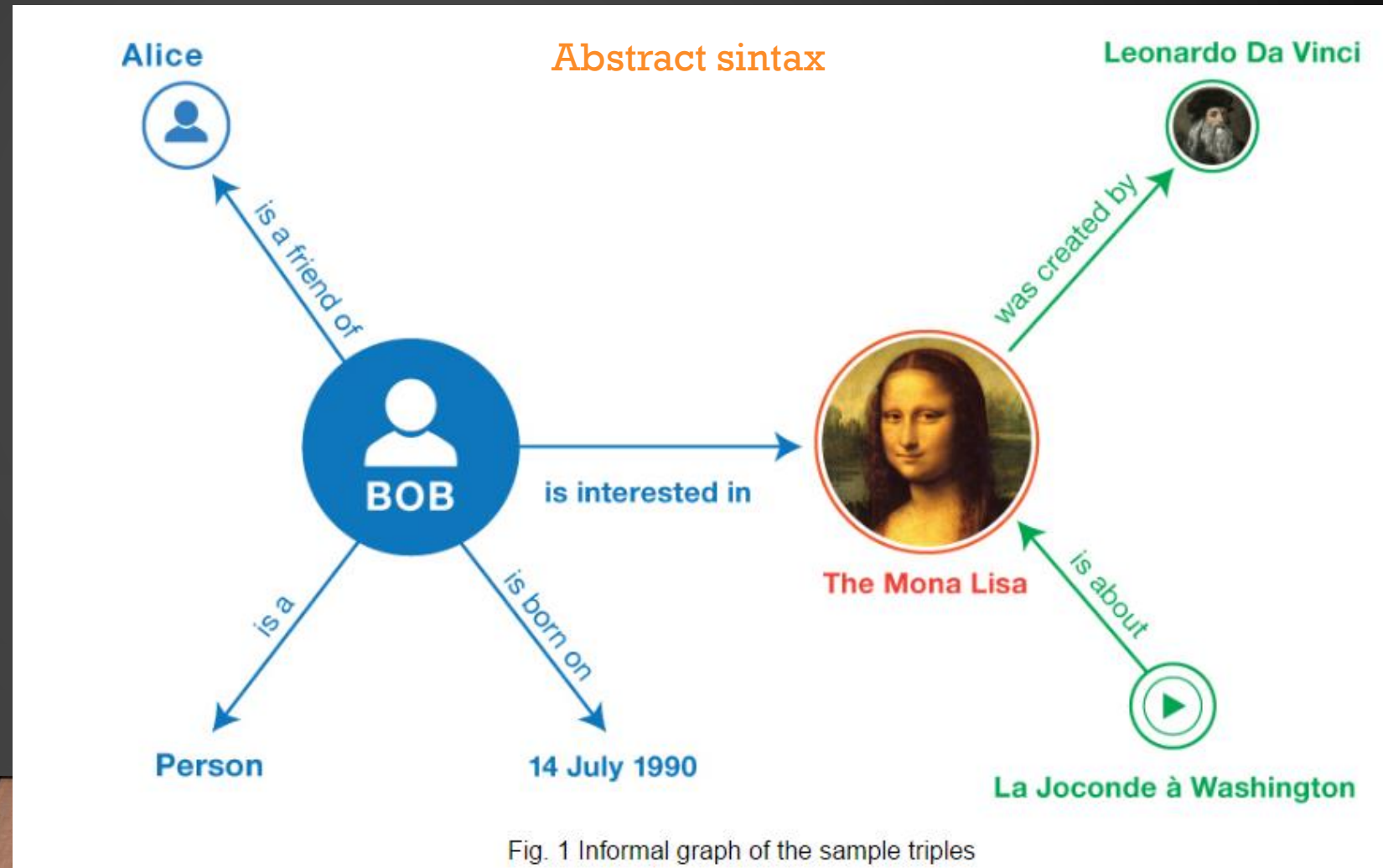
A statement in RDF follows the structure of triples:

<subject> <predicate> <object>

## EXAMPLE 1: Sample triples (informal)

```
<Bob> <is a> <person>.  
<Bob> <is a friend of> <Alice>.  
<Bob> <is born on> <the 4th of July 1990>.  
<Bob> <is interested in> <the Mona Lisa>.  
<the Mona Lisa> <was created by> <Leonardo da Vinci>.  
<the video 'La Joconde à Washington'> <is about> <the Mona Lisa>
```

# HOW MANY TRIPLES DO YOU SEE HERE?



# CREATING THE SEMANTIC: VOCABULARIES

- RDF is combined with vocabularies or other conventions to generate semantic information about the resources that have been described.
- RDF Schema language supports the creation of vocabulary, it means, it “allows one to define semantic characteristics of RDF data”.
- Examples of RDF vocabularies: FOAF (Friend-of-a-Friend), schema.org, SKOS,
- The value of a vocabulary comes from its re-use.

# EXAMPLE OF VOCABULARY

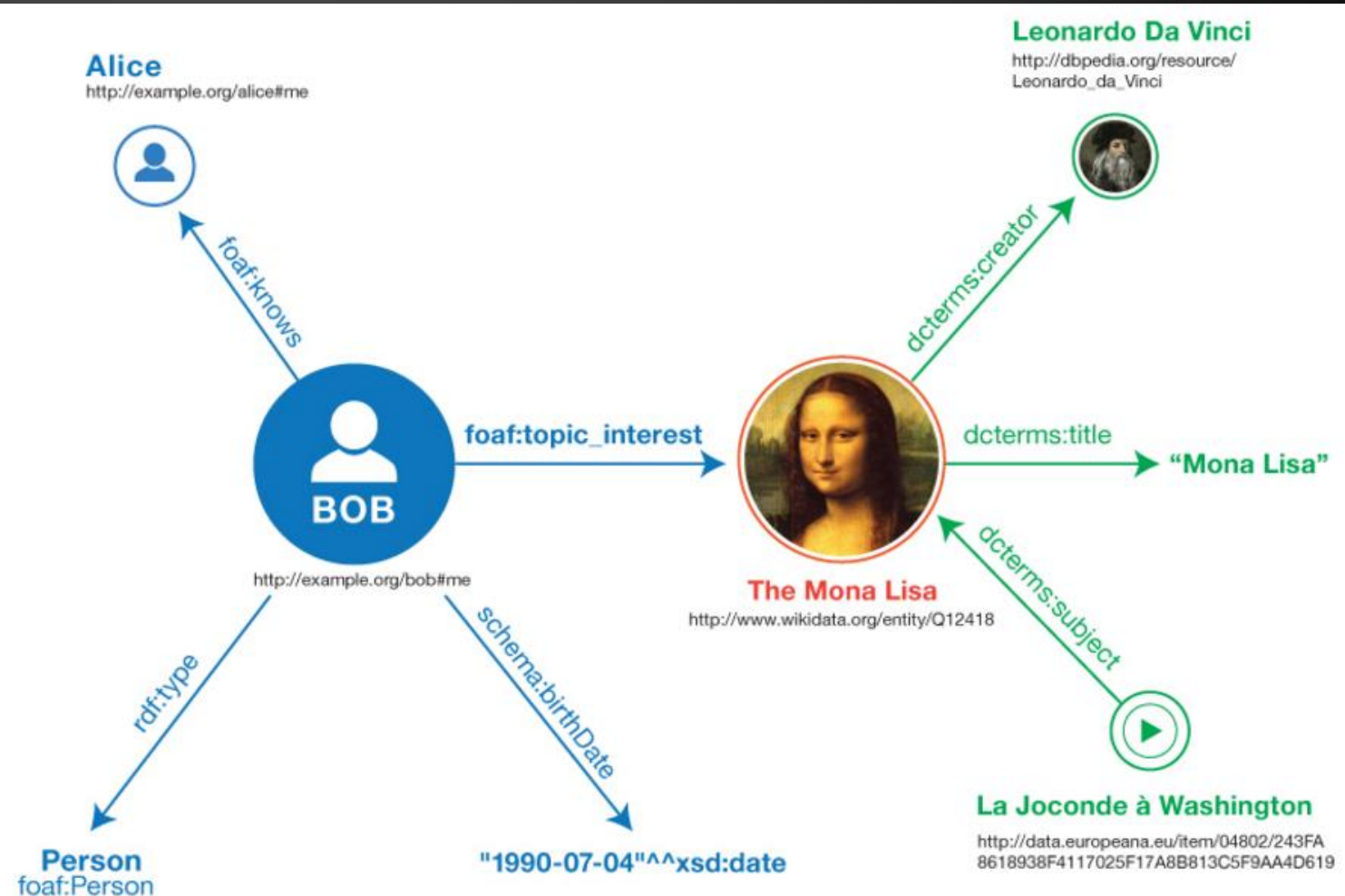


Fig. 4 RDF graph resulting from the N-Triples example



**MATHEMATICA**

**WHAT ARE THE PROS AND CONS?**