

Current Citations and a Future with Linked Data



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Citations and References

- Citation analysis is defined as the evolution and interpretation of the citations received by articles scientist universities, countries and other aggregates of scientific activity, used as a measure of scientific influence and productivity
- References are the views that come from external sources. These references safeguard the copyright of the author guaranteeing the law and show respect for the unwritten laws of scientific ethics

Advantages of Citations

- It is possible to make something, for example a paper or an author, known
- Abundance of scientific information on the Web
- Reuse of existing knowledge to implement and improve a new research topic
- Incorporate information into larger databases
- Articles are upgraded in quality, based on how often they are updated with the latest information
- Authenticity and quality of a researcher's work in the context of previous works

Disadvantages of Citations

- Same author's full name, but different scientific field
- It is not clear why the author cited a particular resource
- The author cites his/her previous work
- Citing an expert on the field, without having read his/her work
- Citation of electronic resources is favored

Bibliography

- Ding, Y., Konidena, D., Sun, Y., Chen, S., & Yan, E. (n.d.). Semantic Citation. Retrieved from <https://pdfs.semanticscholar.org/fbfa/00a88b98c108ed99c7114231258d901395c9.pdf>
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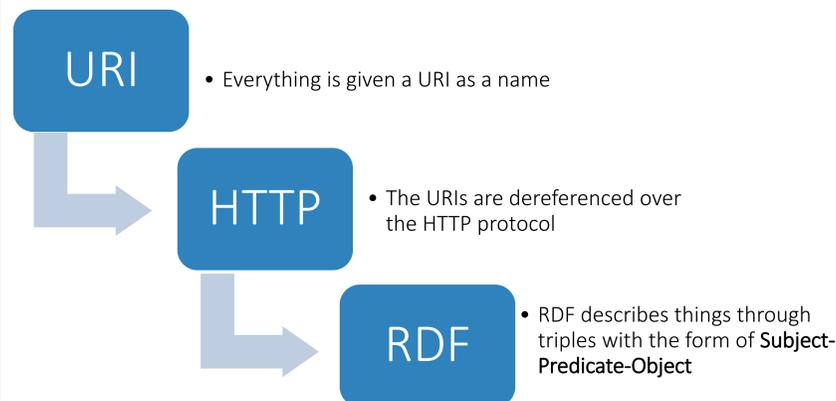
Linked Data

The Current Web focuses on links between documents (hyperlinks)

The Semantic Web focuses on links between the data that are contained in the documents (Linked Data)

"Linked Data refers to data published on the Web in such a way that it is machine-readable, its meaning is explicitly defined, it is linked to other external data sets, and can in turn be linked to from external data sets." (Bizer, Heath, and Berners-Lee 2009)

How Linked Data work:



Advantages:

- Interoperability
- Applications that use data from multiple sources

CiTO Ontology

Citation Typing Ontology

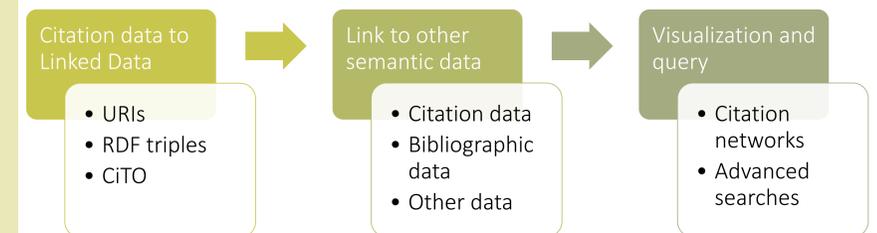
CiTO is a very useful tool in the process of converting citation data to Linked Data, since it's core objective is to describe *"the intent of the author when citing a particular publication"* (Shotton, 2010), something that is lacking from traditional citations. In addition, CiTO makes it possible to record the **citation frequency**, which describes the importance of a cited publication to the citing publication.

Other CiTO features:

- Peer review status
- Publication status

Citations to Linked Data

The process



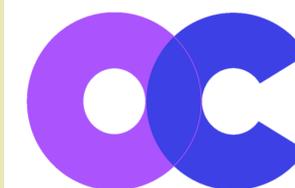
First, the **citation data** have to be **transformed to Linked Data**. The authors, publications, journals, etc., need to be assigned **unique URIs**. Then, with the use of **CiTO**, **RDF triples** are going to be created, that will **describe the relationships between the cited and the citing publication**. Next, these linked citation data will be **connected**, through RDF statements, **to other linked data**, such as citation data, bibliographic data or other kinds of data. When this is done, it will be possible to create **visualizations of citation networks** or other information relationships and connections, as well as perform more **advanced searches** to the citation data.

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<http://dx.doi.org/10.1186/2041-1480-1-S1-S6>  
cito:cites <http://dx.doi.org/10.1371/journal.pcbi.1000361>.
```

Advantages of turning Citation Data to Linked Data

- Citation data can be used by other applications
- It is possible to describe the reason a publication was cited
- Linked data weave a net of connections between citation information (authors, papers, journals, etc)
- Connection of citation data to existing Linked Open Data
- Ability to perform more complex searches
- Provide advanced metrics
- Visualization of citation networks

Projects



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