Introduction to the project

Silvio Peroni

silvio.peroni@unibo.it – https://orcid.org/0000-0003-0530-4305 – @essepuntato

Open Science (A.Y. 2020/2021)
Second Cycle Degree in Digital Humanities and Digital Knowledge
Alma Mater Studiorum - Università di Bologna

DIPARTIMENTO DI FILOLOGIA CLASSICA E ITALIANISTICA

Groups of the project

You have to form two groups of people – balancing the number of members so as to have an almost equal number of people per group

Important notice: a group is not in competition with the other bur rather it complements the other

You must decide a name to assign to your group – please, be creative

Setting up a GitHub space

Each member of a group must have a GitHub account – in case you do not have it yet, please create one

Each group will be assigned to a GitHub team I will create using the name of your group

I will create a specific folder on the GitHub repository of the course for each of the groups, to allow you to store all the material collected for the project

Digital Object Identifier

The Digital Object Identifier (DOI, https://doi.org) system provides an infrastructure for persistent unique identification of objects of any type (shape of the id: `10.XXXX/XXXXXXXXXX`)

A DOI is a digital identifier of an object rather than an identifier of a digital object, that means that it can be used to identify objects that are not born-digital, such as print books and articles

The DOI system is designed to work over the Internet, and a DOI is permanently assigned to an object to provide a resolvable persistent network link to current information about that object

A DOI can be resolved within the DOI system to values of one or more types of data relating to the object identified by that DOI, such as descriptive metadata

A Rest API is provided to query the system

International DOI Foundation. (2019). DOI® Handbook. https://doi.org/10.1000/182

Crossref

Crossref is a not-for-profit membership association which aims at promoting the development and cooperative use of new and innovative technologies to speed and facilitate scientific and other scholarly research

Crossref is one of the ten International DOI registration agencies, and allows its members to register the DOIs of their publications

Each DOI registered in the Crossref system is associated with a URL to the publication's webpage and accompanied with the metadata of the publications

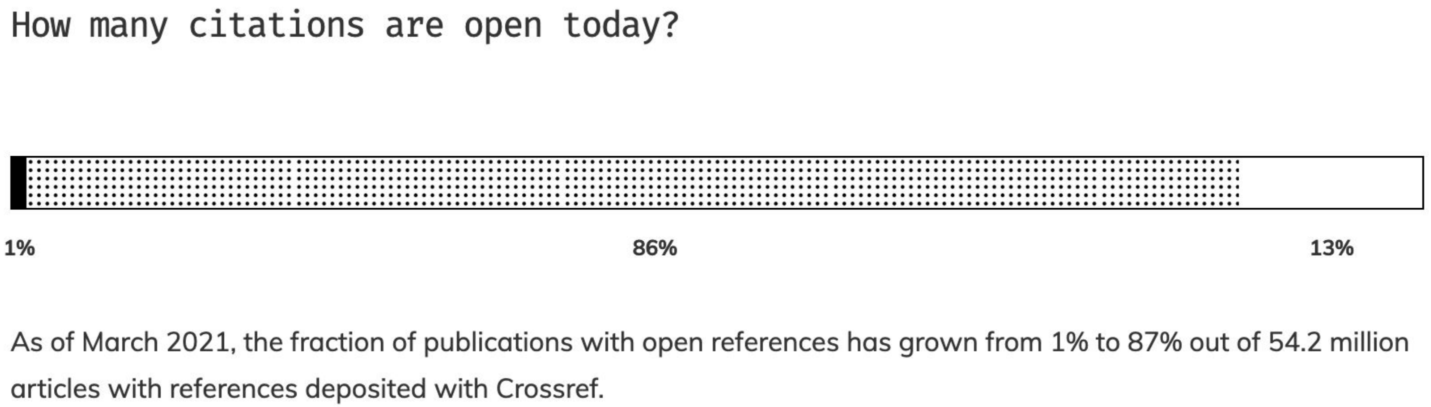
Crossref provides a REST API to retrieve data about the entities

Hendricks, G., Tkaczyk, D., Lin, J., & Feeney, P. (2020). Crossref: The sustainable source of community-owned scholarly metadata. Quantitative Science Studies, 1(1), 414–427. https://doi.org/10.1162/qss_a_00022

Initiative for Open Citations (I4OC)

The aim of the Initiative for Open Citations (I4OC, https://i4oc.org) is to promote the availability of data on citations

How: publishers ask to open their references, along with the other bibliographic metadata, that they send to Crossref

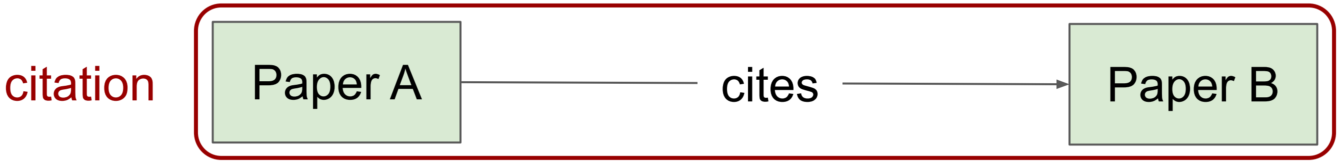


How many citations are open today?

As of March 2021, the fraction of publications with open references has grown from 1% to 87% out of 54.2 million articles with references deposited with Crossref.

What is an open citation

Citation: conceptual directional link from a citing entity to a cited entity



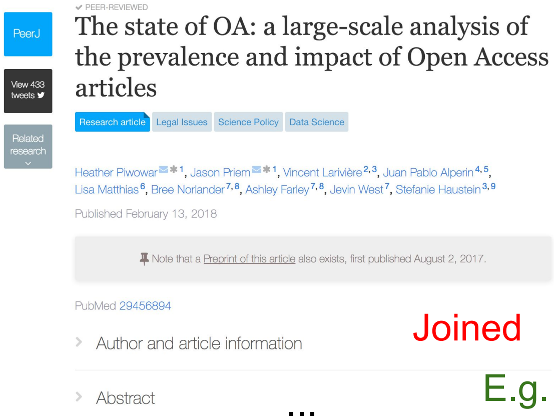
The citation data related to a particular citation must include:

- the *representation* of such a conceptual directional link
- the *basic metadata* of the citing entity and the cited entity, i.e. sufficient information to create or retrieve textual bibliographic references

A bibliographic citation is an open citation when the data needed to define the citation are: structured, separate, open, identifiable, available

Peroni, S., & Shotton, D. (2018). Open Citation: Definition. Figshare. https://doi.org/10.6084/m9.figshare.6683855

Open citations: characteristics



PeerJ

View 433 tweets

Related research

✓ PEER-REVIEWED

The state of OA: a large-scale analysis of the prevalence and impact of Open Access articles

Research article | Legal Issues | Science Policy | Data Science

Heather Piwowar*[1], Jason Priem*[1], Vincent Larivière[2,3], Juan Pablo Alperin[4,5], Lisa Matthias[6], Bree Norlander[7,8], Ashley Farley[7,8], Jevin West[7], Stefanie Haustein[3,9]

Published February 13, 2018

Note that a Preprint of this article also exists, first published August 2, 2017.

PubMed 29456894

› Author and article information

› Abstract

Joined

...

REFERENCES

Unstructured

Björk BC, Laakso M, Welling P, Paetau P. 2014. Anatomy of green open access. *Journal of the Association for Information Science and Technology* 65(2):237–250.

Antelman K. 2017. Leveraging the growth of open access in library collection decision making. In: Proceeding from ACRL 2017: at the helm: leading transformation.

Archambault É, Amyot D, Deschamps P, Nicol A, Provencher F, Rebout L, Roberge G. 2013. Proportion of open access peer-reviewed papers at the European and world levels–2004–2011. European Commission, Brussels

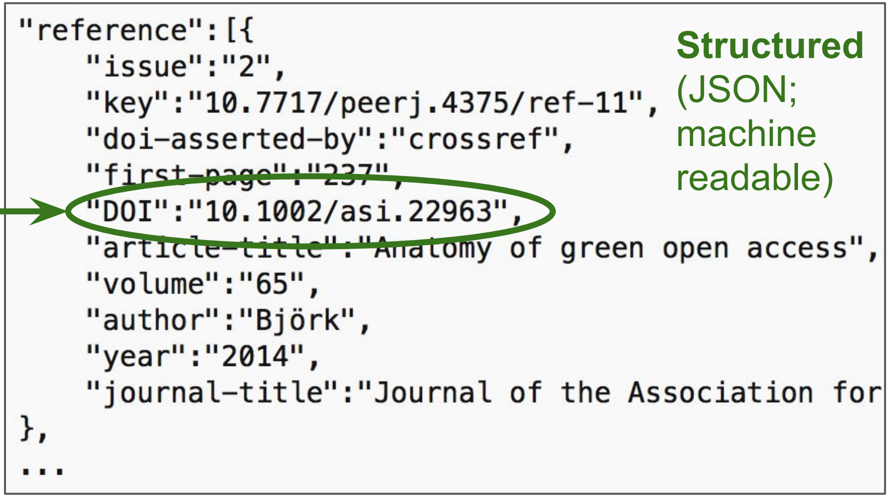
Archambault É, Amyot D, Deschamps P, Nicol AF, Provencher F, Rebout L, Roberge G. 2014. Proportion of open access papers published in peer-reviewed journals at the European and world levels–1996–2013. European Commission

Archambault É, Côté G, Struck B, Voorons M. 2016. Research impact of paywalled versus open access papers.

Identifiable

Available

E.g. HTTP + ID = metadata



```
"reference":[{
    "issue":"2",
    "key":"10.7717/peerj.4375/ref-11",
    "doi-asserted-by":"crossref",
    "first-page":"237",
    "DOI":"10.1002/asi.22963",
    "article-title":"Anatomy of green open access",
    "volume":"65",
    "author":"Björk",
    "year":"2014",
    "journal-title":"Journal of the Association for
},
...
```

Structured (JSON; machine readable)

https://api.crossref.org/works/10.7717/peerj.4375

Separate (e.g. via REST call to external services)

"Estimation of WOS costs is about $100,000 per year for large organizations [...] the cost of Scopus database is about 85-95% of the cost of WOS for the same organizations"
https://doi.org/10.5539/ass.v9n5p18

Closed

Open

"No claims of ownership to individual items of bibliographic metadata"
https://api.crossref.org

OpenCitations’ COCI

COCI, the OpenCitations Index of Crossref open DOI-to-DOI citations (https://w3id.org/oc/index/coci), is a collection of open citations in which citations are exposed as first-class data entities with accompanying properties

All the data available in COCI are derived from those accessible through Crossref

All the citation data are stored using Semantic Web technologies (RDF and OWL) and are compliant with a specific data model (see http://opencitations.net/model)

Currently COCI contains more than 759 million DOI-to-DOI citation links made available under that can be accessed and queried through a REST API

Heibi, I., Peroni, S., & Shotton, D. (2019). Software review: COCI, the OpenCitations Index of Crossref open DOI-to-DOI citations. Scientometrics, 121(2), 1213–1228. https://doi.org/10.1007/s11192-019-03217-6

Issues

All the data provided by the publishers to Crossref are not double-checked by Crossref, and they are provided to the public as such

Consequences: they may contain errors and mistakes that Crossref does not correct – it is up to the publisher to identify them and to send an updated version of its data to Crossref

While processing data in COCI, all the DOIs included in the reference list of the metadata of the articles in Crossref are checked using the doi.org REST API, in order to be sure that citations pointing to incorrect DOIs are excluded

Two main reasons a specified DOI in a reference is incorrect:

- It contains a factual mistake (e.g. an additional and unwanted character)
- It was not yet valid at the time of the COCI processing

Structure

Data about invalid DOI are available online stored in CSV, having the following two column structure

Valid citing DOI	Invalid cited DOI
10.14778/1920841.1920954	10.5555/646836.708343
10.5406/ethnomusicology.59.2.0202	10.2307/20184517
10.1161/01.cir.63.6.1391	10.1161/circ.37.4.509
…	…

Peroni, S. (2021). Citations to invalid DOI-identified entities obtained from processing DOI-to-DOI citations to add in COCI (1.0). Zenodo. https://doi.org/10.5281/ZENODO.4625300

Research questions

1. Which publishers were responsible (due to their incorrect metadata sent to Crossref) for the missing citations in COCI? To which publishers did such invalid citations point to (i.e. who published the cited articles)? How many invalid citations are currently valid?
2. What are the classes of errors that characterised invalid DOIs? Which classes of errors can be addressed through automatic processes so as to get the correct DOIs? How many correct DOIs and, consequently, citations have been obtained by applying such automatic processing?

Action items

The groups must agree on which research question to address, since they cannot address the same research question

You have to provide a structured abstract presenting your work – yes, even if it is not yet completed! It will be updated by you daily everytime you need

A structured abstract is just a very brief document describing your research

This exercises oblige you to think about your research before addressing it

Please follow the template proposed by Emerald Publishing to sketch the structured abstract, un upload a first version of it in your GitHub folder in a file named “abstract.md”

End

Introduction to the project

Silvio Peroni
silvio.peroni@unibo.it – https://orcid.org/0000-0003-0530-4305 – @essepuntato

Open Science (A.Y. 2020/2021)
Second Cycle Degree in Digital Humanities and Digital Knowledge
Alma Mater Studiorum - Università di Bologna