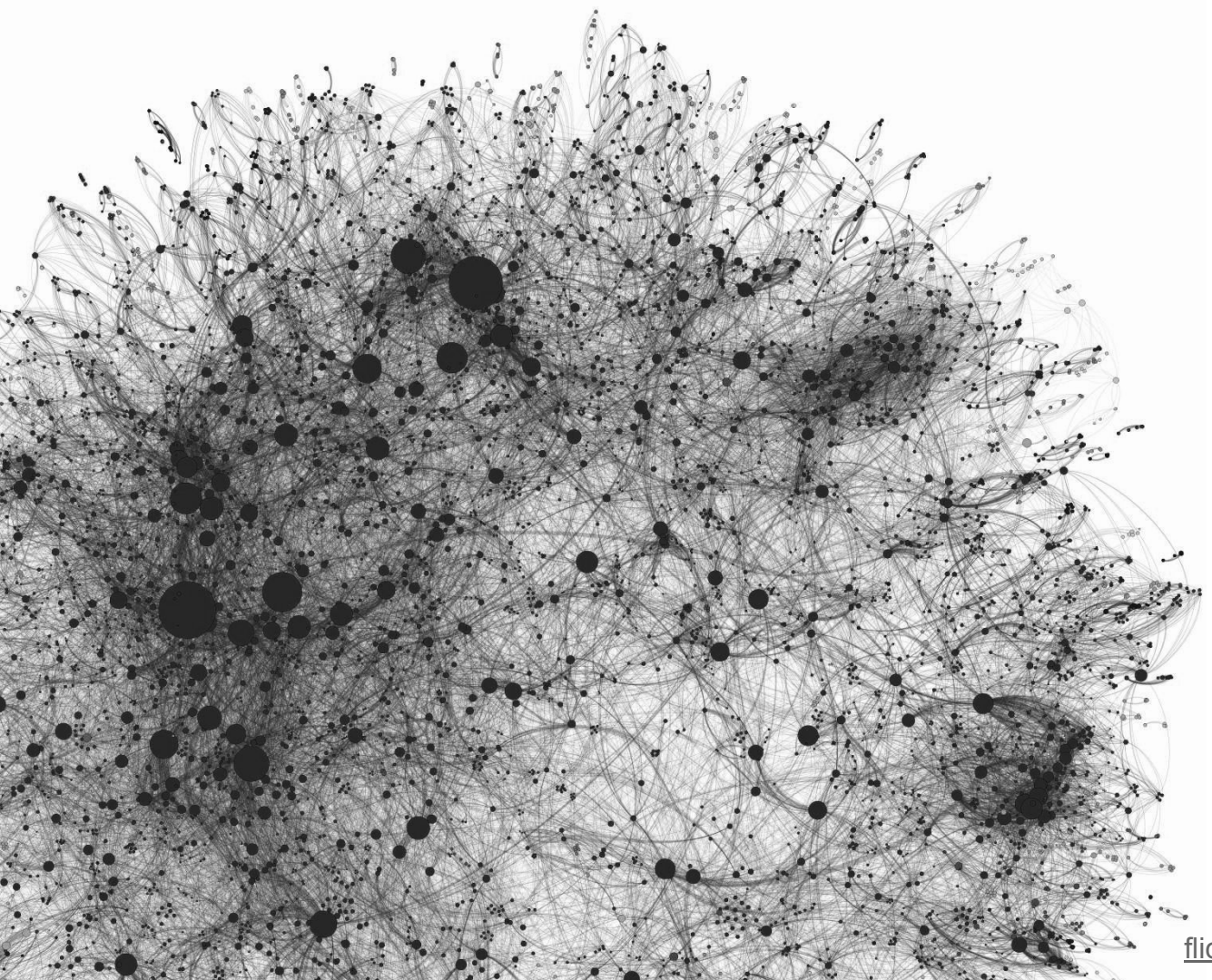
Remixing the graph

Dario Taraborelli

Workshop on Open Citations • Bologna, 3 September 2018

why the citation graph
should belong to the public



provenance


impact
SPACE X

funding

proprietary citation indexes

Scopus®

Scopus is the largest abstract and citation database of peer-reviewed literature: scientific journals, books and conference proceedings.

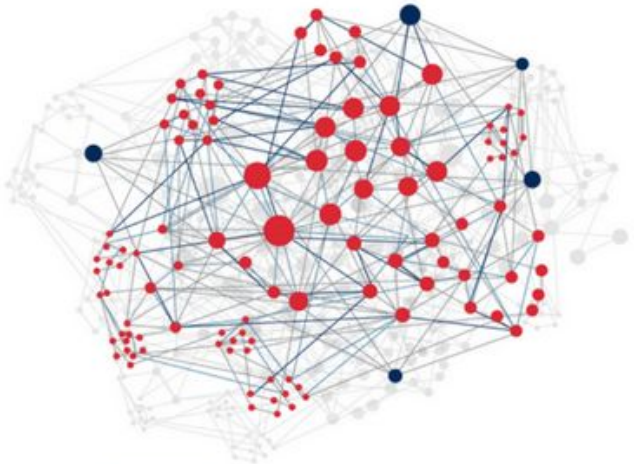
Web of Science is the **most comprehensive** *resource – we value both quality & quantity.*

We are **independent and unbiased**.

semi-proprietary citation indexes

Google Scholar

Dimensions



Semantic Scholar

SN SciGraph

Microsoft Academic Graph

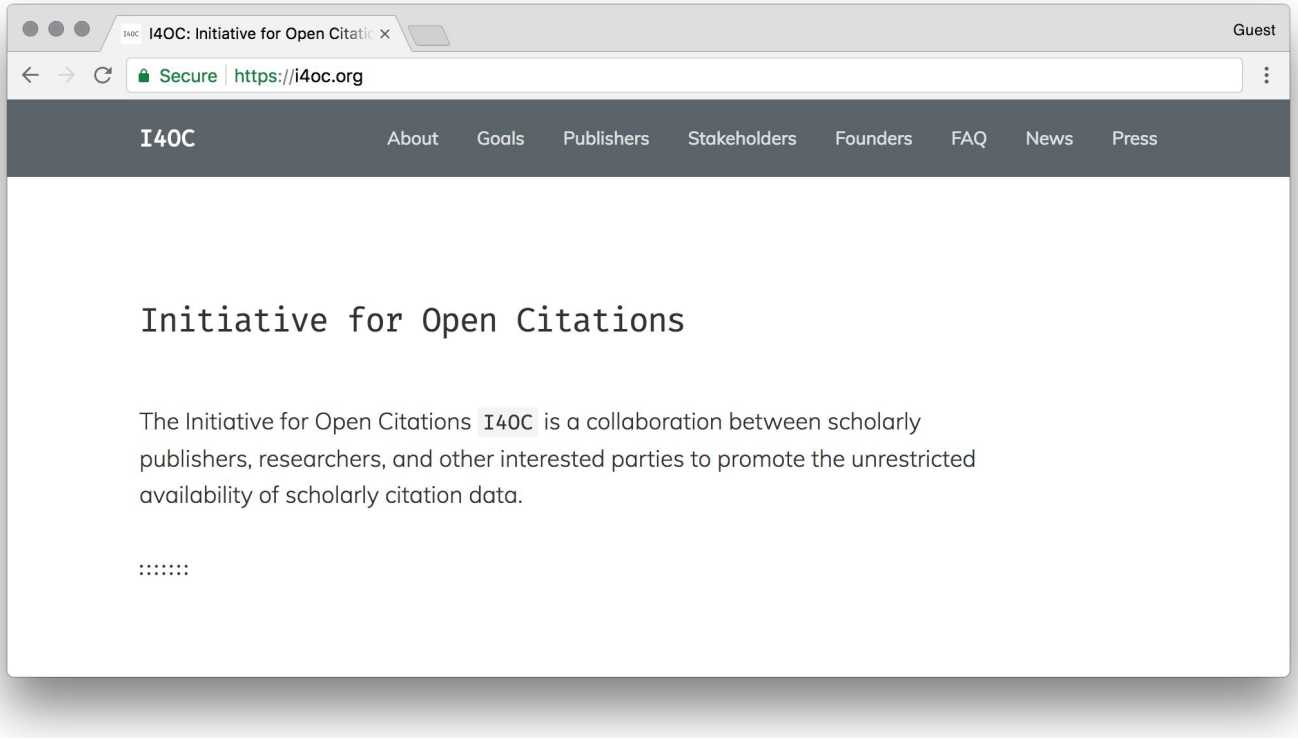

FYS

WikiCite
@Wikicite

"It is a scandal that mass access to citation data is still in the hands of a small group of closed-access players". –@dshotton #WikiCite

5:25 AM - 23 May 2017

The Initiative for Open Citations (I4OC)



The Initiative for Open Citations (I4OC)

The aim of this initiative is to promote the availability of data on citations that are **structured**, **separable**, and **open**.

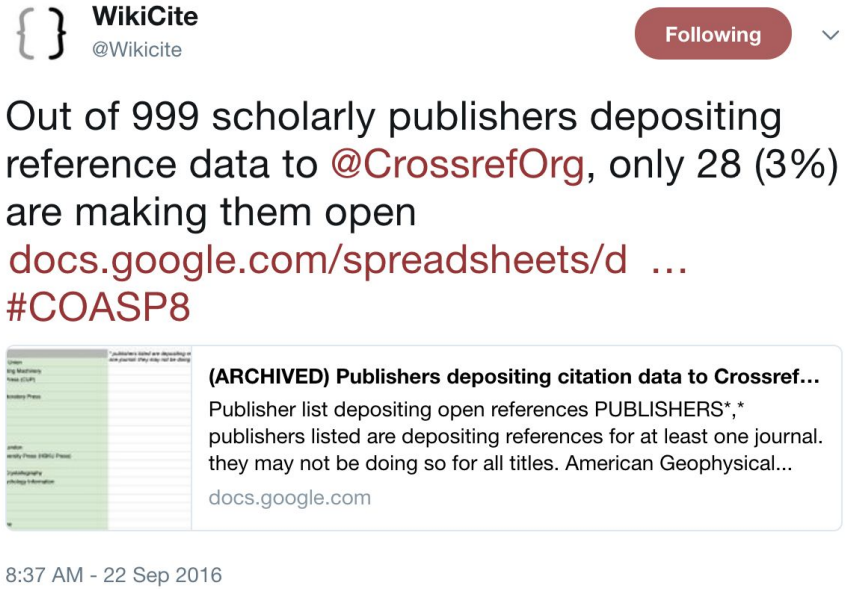
Structured means the data representing each publication and each citation instance are expressed in common, machine-readable formats, and that these data can be accessed programmatically. **Separable** means the citation instances can be accessed and analyzed without the need to access the source bibliographic products (such as journal articles and books) in which the citations are created. **Open** means the data are freely accessible and reusable.

How it came together

The starting point
Most publishers already deposit their reference data with Crossref

The default state for the data is *closed*

The challenge
Could we persuade a group of influential publishers to release their data all at once?



Making the case

It’s easy and doesn’t cost anything
All you need to do is to send an email to support@crossref.org

The goal cannot be achieved alone
A comprehensive network of all scholarship can only be achieved if data is pooled

Publishers also benefit
Better discovery tools mean that content will be found and used more

Making it happen

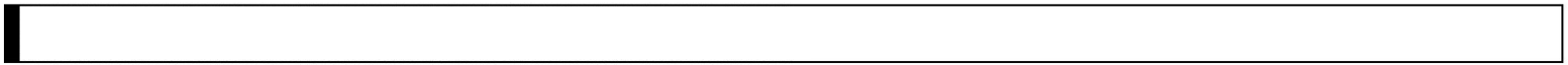
Focus on publishers depositing the most data
Contacted the top-20 publishers asking for agreement in principle and permission to share their decision

Agree a deadline
Everyone has time to prepare their comms and to be part of a big splash

Leverage the early adopters
As soon as we had a few publishers on board, others quickly followed

Progress

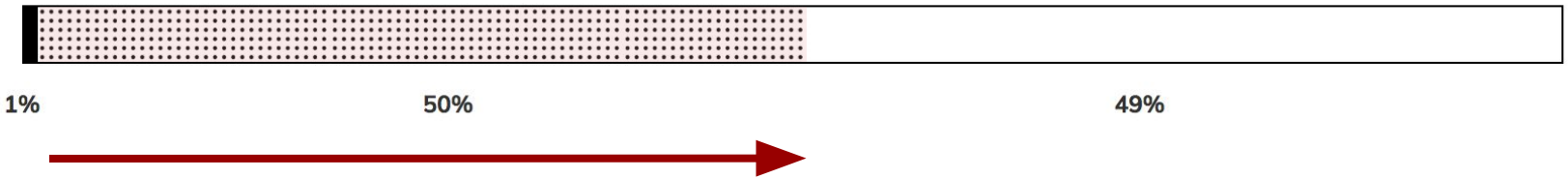
How many citations are open today?



1%

Progress

How many citations are open today?



Progress

20 million

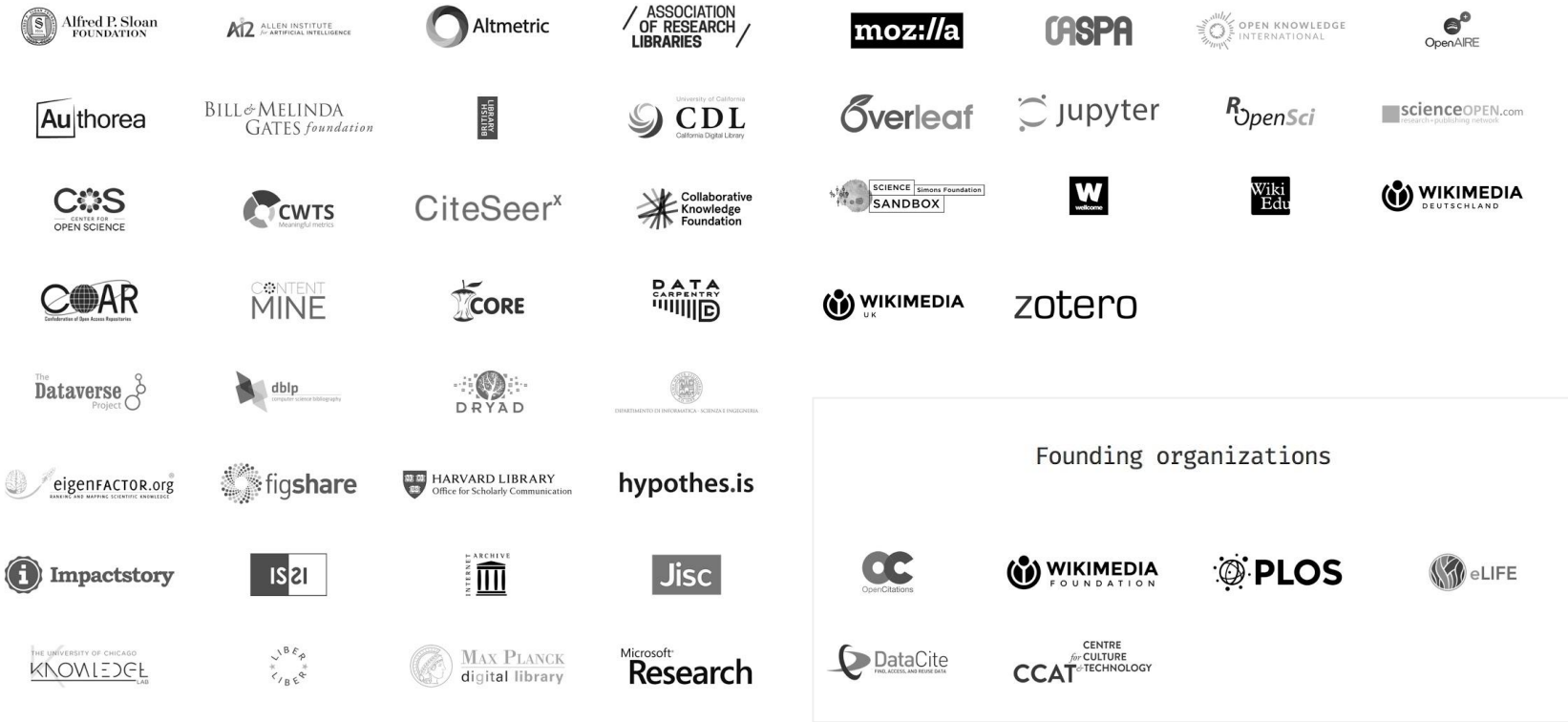
DOI records with open references

Progress

584 million

open reference data points

Stakeholders



STAKEHOLDERS OF THE **INITIATIVE FOR OPEN CITATIONS** • https://i4oc.org/#stakeholders

Stakeholders

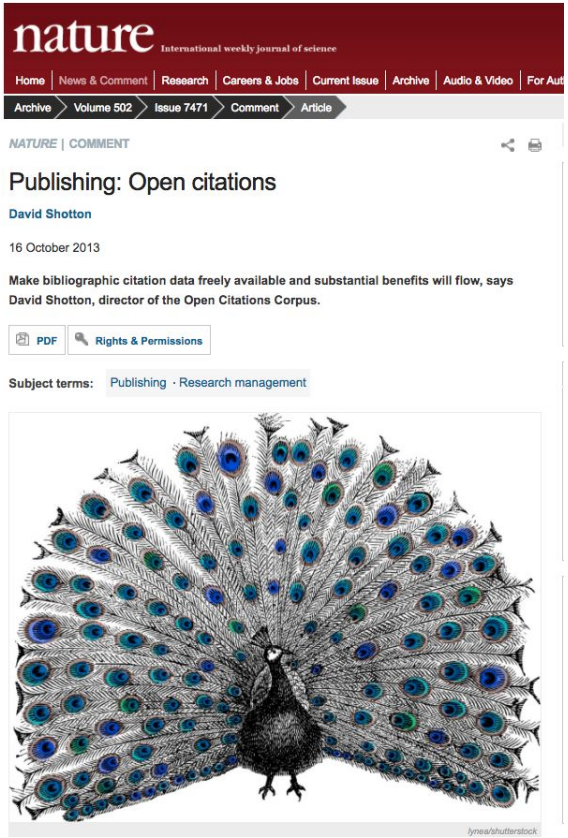
FRENCH **NATIONAL PLAN FOR OPEN SCIENCE** • http://bit.ly/FranceOpenScience

Data reuse

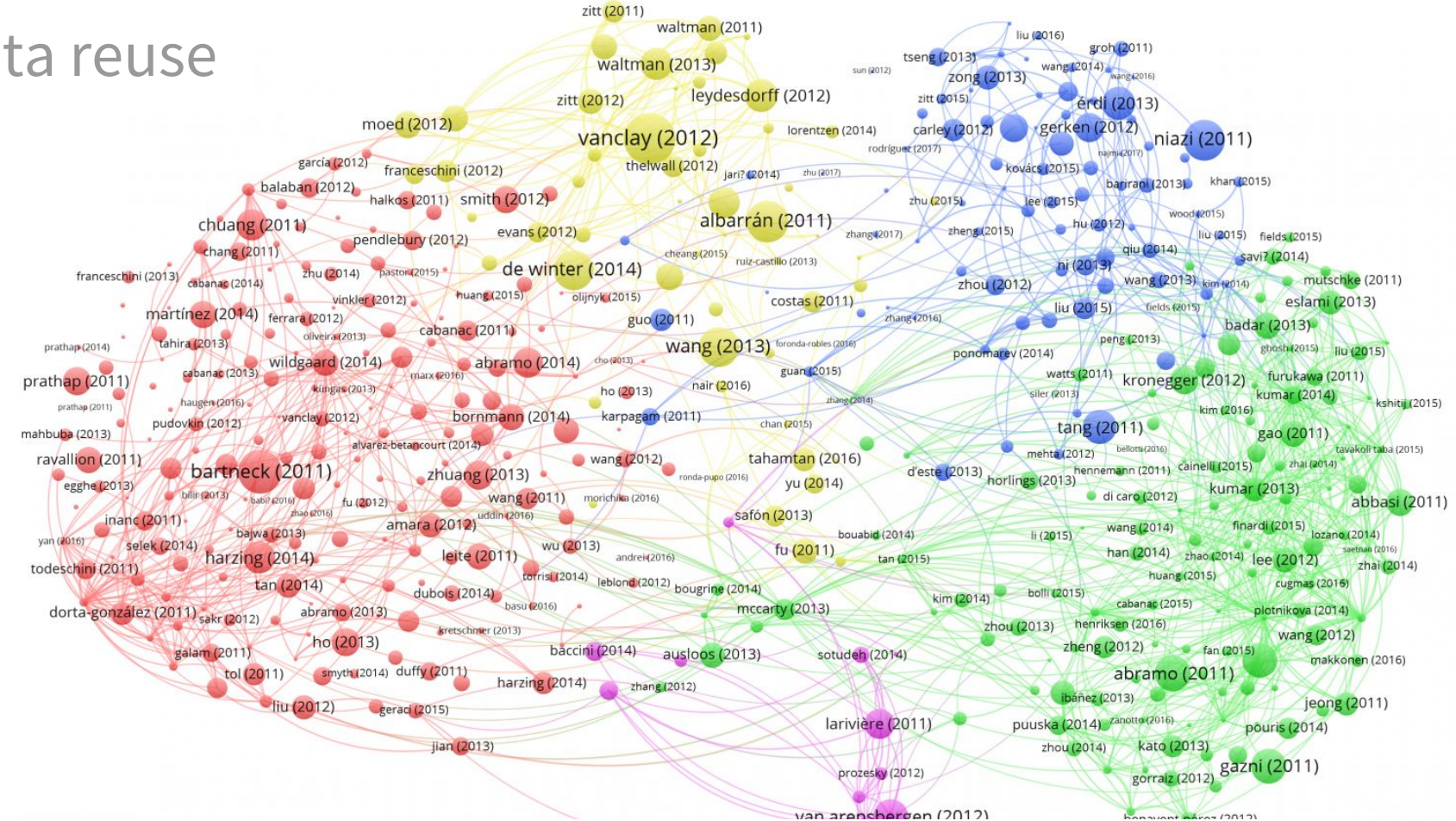
The Open Citations Corpus

A broad and open collection of citation information from many sources

David Shotton and Silvio Peroni



Data reuse

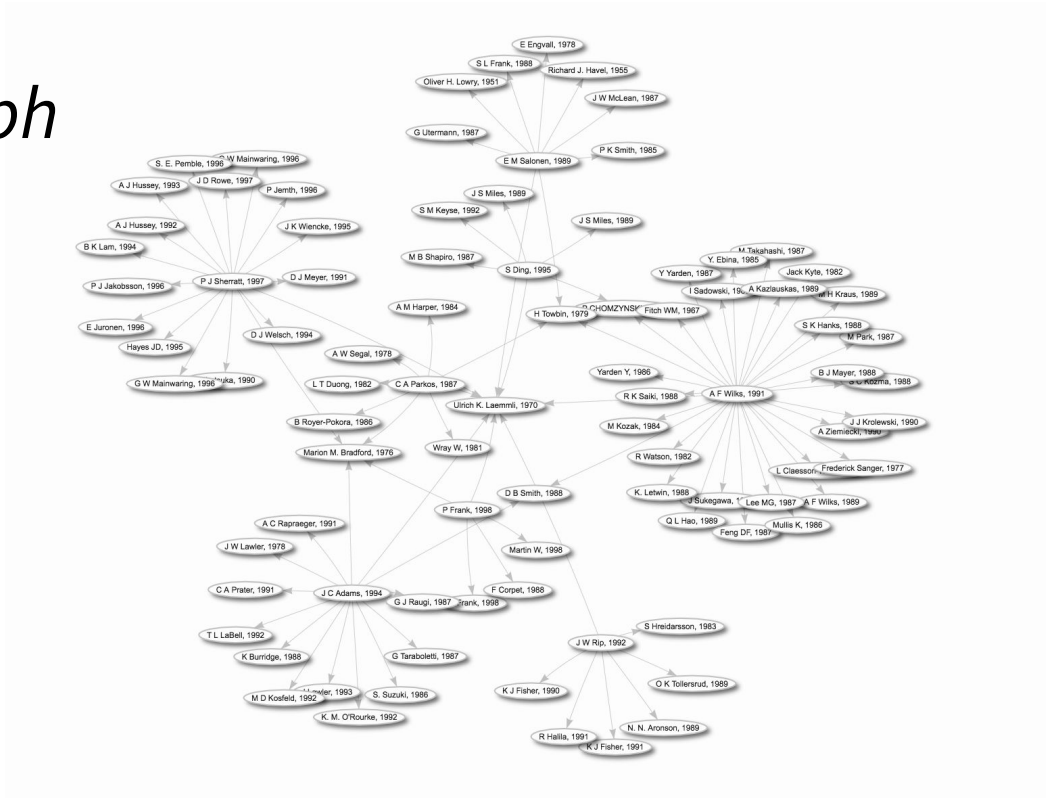


VISUALIZING FREELY AVAILABLE CITATION DATA USING **VOSVIEWER** • https://www.cwts.nl/blog?article=n-r2r294

Data reuse

The Wikidata Citation Graph

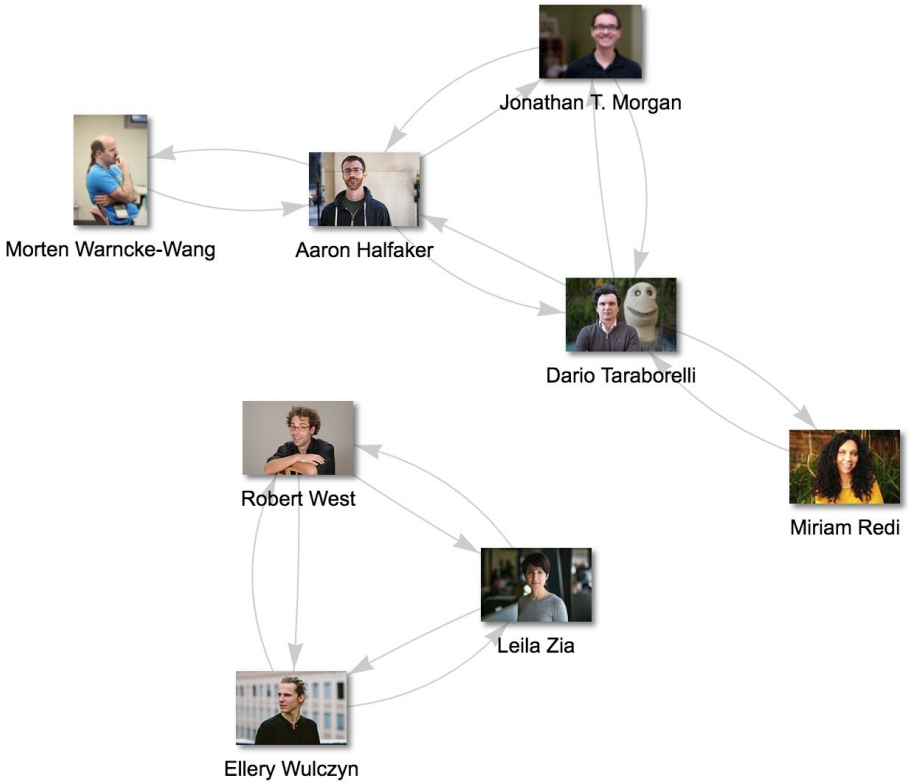
98 million citation links
using the *cites* (P2860) property in Wikidata



PARTIAL CITATION GRAPH FOR **ULRICH K. LAEMMLI (1970)** • http://tinyurl.com/y7acpqzd

Data reuse

The Wikidata Citation Graph



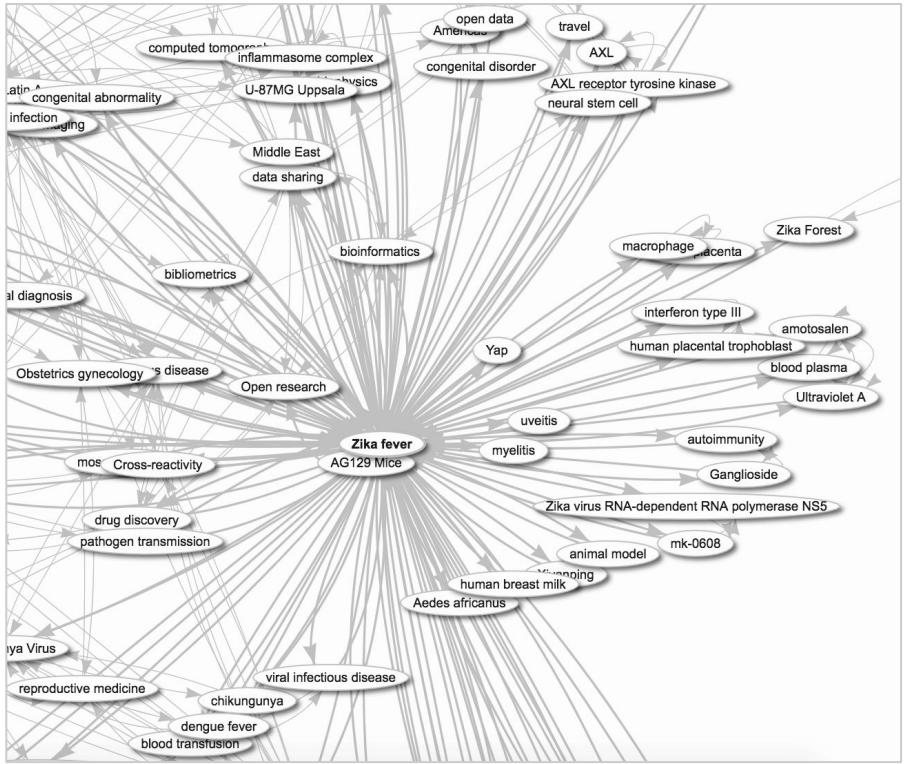
co-citations / co-authorship relations in Wikidata

PARTIAL COAUTHOR GRAPH FOR **WIKIMEDIA RESEARCH** • http://tinyurl.com/yawp4bz7

Data reuse

The Wikidata Citation Graph

the complete, **annotated scholarly publication** [corpus](#) on Zika virus (Q202864)



CO-OCCURRING TOPIC GRAPH FOR **ZIKA VIRUS** • http://tinyurl.com/l9c9d9m

Data reuse

Identify Wikidata statements or Wikipedia sentences:

citing journal articles by *physicists at Oxford University in the 1970s*
citing *a journal article that was retracted*
lacking citations from sources in a local language

Identify citations to a scholarly work:

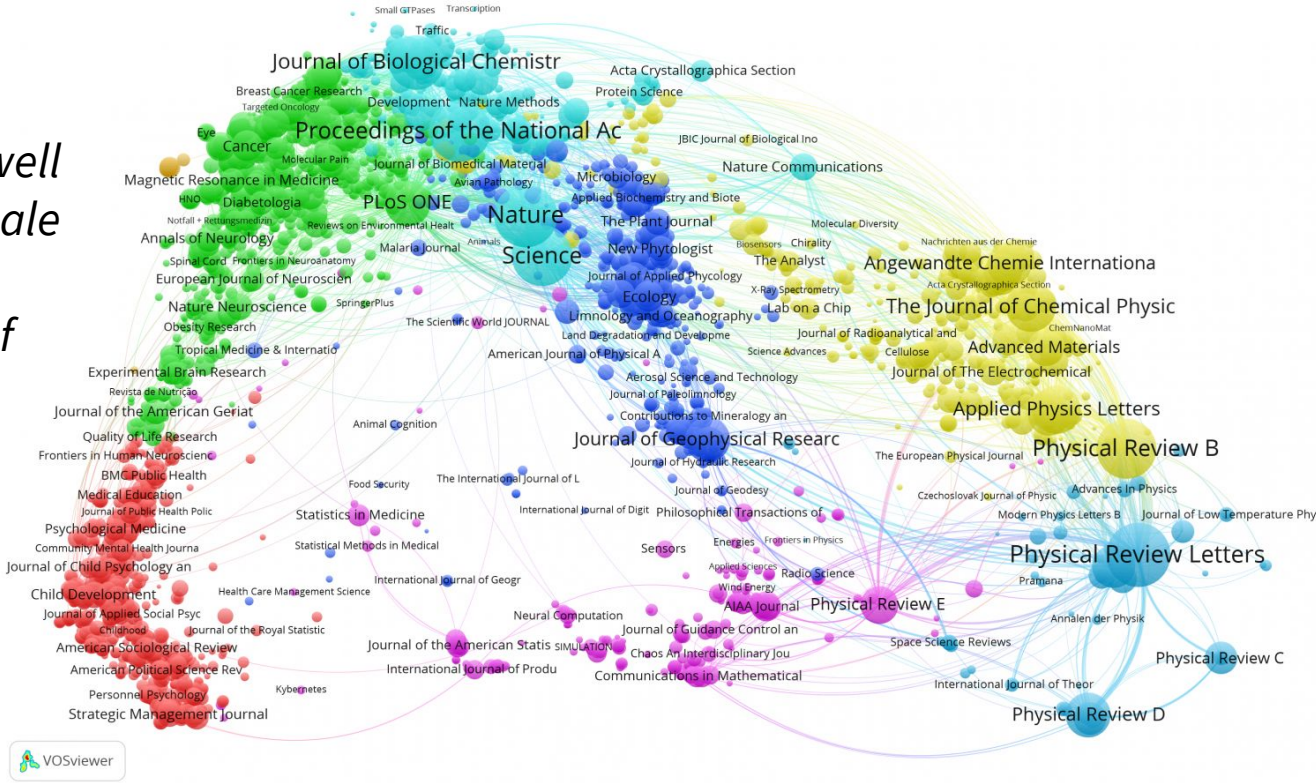
by *female biologists*
by *scientists whose PhD is in a different field than the field of the cited work*
by *authors whose work was funded by a private funder*
by *authors born in the same country as the main topic of the cited work*

SOURCE-RELATED SPARQL QUERIES SUPPORTED IN WIKIDATA
meta.wikimedia.org/wiki/WikiCite_2016/Report/Group_5

The road ahead

Towards an open graph for scholarship

“The visualization shows a structure of science that is well known from earlier large-scale bibliometric visualizations, which were based on Web of Science or Scopus data.”



VISUALIZING FREELY AVAILABLE CITATION DATA USING **VOSVIEWER** • https://www.cwts.nl/blog?article=n-r2r294

Who benefits from this

- Authors will have consistent, machine-readable access to references for all their publications;
- Researchers will be able to use this resource to study the dissemination of methods and scientific ideas, the genesis and provenance of scholarly knowledge;
- Funders will be able to rely on a public resource to develop transparent and reproducible evaluation metrics, and new tools to assess the academic and societal impact of research they fund;
- Publishers will benefit from the increased discoverability of publications that this data provides, and tools built on it.
- The public will be able to use this data to trace knowledge back to its sources or reuse it in open knowledge repositories such as Wikipedia and Wikidata.

OPENING UP RESEARCH CITATIONS: A Q&A WITH DARIO TARABORELLI • http://bit.ly/2hfnC3b

 advocating for open citations

Data quality and coverage

Over 1.1 billion references in Crossref

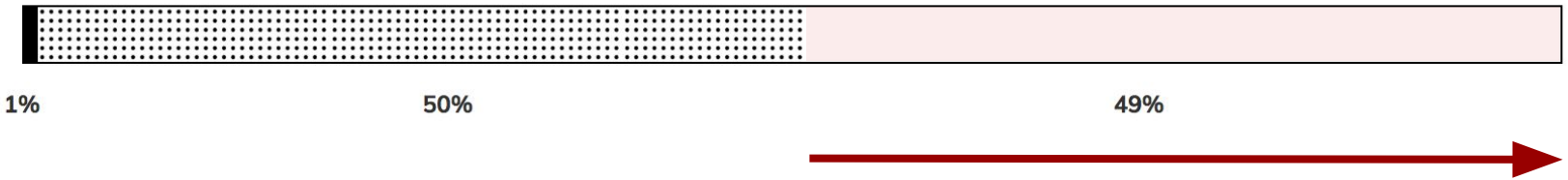
Only 56% of open references have DOIs
(and can be linked to another record)

what about other citations?

Acknowledgment: Daniel Ecer, Data Scientist, eLife. See https://elifesci.org/crossref-data-notebook

Data quality and coverage

How many citations are open today?




WILEY


Taylor & Francis Group
an informa business


ROYAL SOCIETY
OF CHEMISTRY

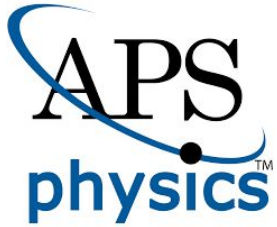

CAMBRIDGE
UNIVERSITY PRESS


SPRINGER
NATURE


SAGE
Publishing


PLOS


SciELO


APS
physics


AIP
American Institute
of Physics


DE
G


DE GRUYTER


AIAA
American Institute of
Aeronautics and Astronautics


emerald
PUBLISHING

The road to 100%

Largest publishers among the top 20 DOI depositors *not distributing open references* (as of September 2018)

- ⛔ Elsevier
- ⛔ IEEE
- ⛔ Wolters Kluwer Health
- ⛔ IOP Publishing
- ✓ ~~Oxford University Press~~
- ⛔ American Chemical Society

building on open citations

{} wikicite

Berkeley, 27-29 November 2018

Thank you

D. Taraborelli (2018) *Remixing the graph*.
Workshop on Open Citations, Bologna, 3 September 2018

Acknowledgments

The I4OC founders (i4oc.org/#founders) • the I4OC stakeholders (i4oc.org/#stakeholders) and participating publishers (i4oc.org/#publishers) • Daniel Ecer for data analysis of the Crossref corpus • the WikiCite and Wikidata community (meta.wikimedia.org/wiki/WikiCite).

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