



OAI II – The CERN-UNIGE Workshop on Innovations in
Scholarly Communication

Geneva, June 20, 2019

Copyright Sovereignty and Implications for New Limitations and Exceptions for Science

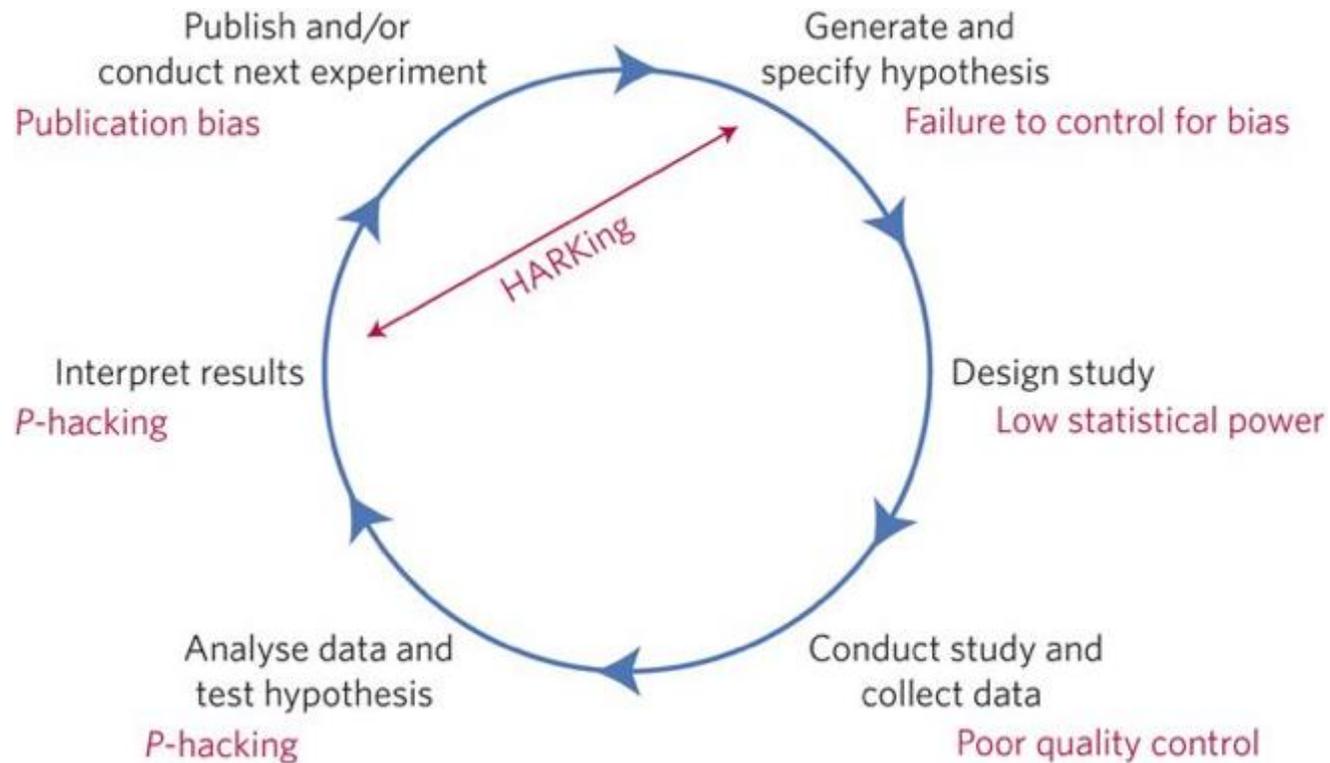
Ruth L. Okediji

Jeremiah Smith, Jr. Professor of Law

Harvard Law School

Co-Director, Berkman Klein Center for Internet & Society

threats to the reliability of scientific research



- lack of replication
- hypothesizing after results are known (“HARKing”)
- poor study design
- p-hacking
- publication bias
- lack of data sharing

how ownership of scientific data is secured

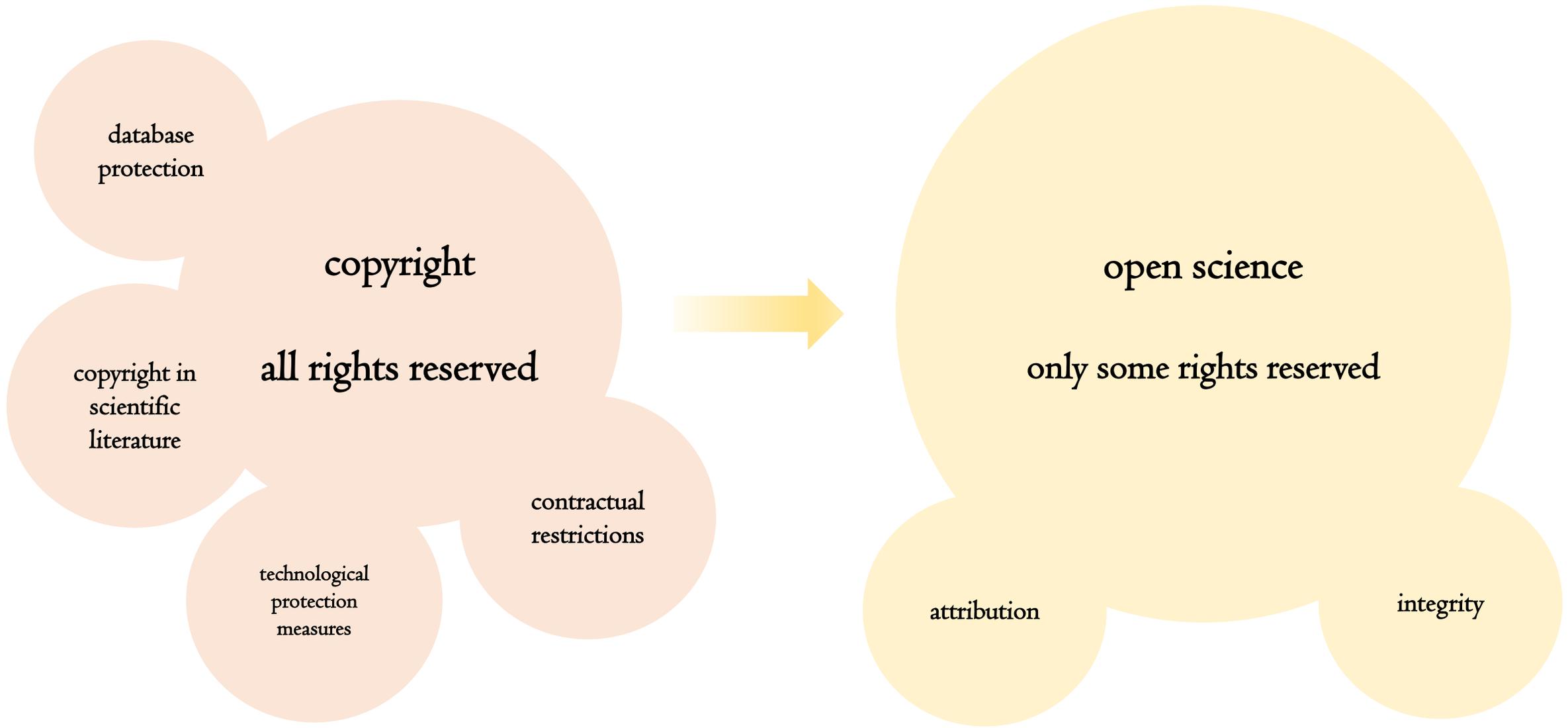
- **copyright law** provides thin protection to original compilations of data
- the **EU Database Directive** offers copyright protection to original databases (“which, by reason of the selection or arrangement of their contents, constitute the author's own intellectual creation”) and *sui generis* protection to non-original databases (where there has been a “substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or re-utilization”)
- **private contracts** secure access to certain individuals / institutions and exclude the public from access
- **technological protection measures** (TPMs) preclude unauthorized access and use, and the WIPO Copyright Treaty (Art. II) mandates “adequate legal protection and effective legal remedies” against their circumvention

what is open science and what are the benefits?

open science practice	benefit(s)
open data: raw data freely available for use, reuse, redistribution	<ul style="list-style-type: none">• facilitates replication studies > enhances reproducibility / reliability of research• facilitates follow-on research (e.g. integrating different data sets) >> foster more collaboration
publication of all data regardless of whether it meets significance thresholds	<ul style="list-style-type: none">• increase transparency for funders and consumers of scientific research• encourage a pluralistic approach to statistics, rather than sole reliance on p values• help others to avoid chasing futile avenues of research
pre-registration of hypotheses and methods (study design) before results are known	<ul style="list-style-type: none">• reward quality of methodology (controllable) not quality of outcomes (uncontrollable)• reduce pressure to achieve “positive” results for publication for career advancement >> reduce publication bias
open access: free, unrestricted access to primary research literature	<ul style="list-style-type: none">• facilitate follow-on research >> bridge North-South research divide• more academic citations >> larger audience >> more societal impact• facilitate text and data mining (TDM)• foster a culture of greater scientific education and literacy >> increase public engagement with scientific research >> evidence-based policy (e.g. climate change, public health)

open data means better science

- current barriers to maximum dissemination of scientific data:
 - inability to access data
 - restrictions on usage applied by publishers or data providers
 - publication of data in a form that inhibits capture and modification (e.g. PDF)
 - reluctance of scientists to release data that could be used to publish additional papers
 - confusion around permissibility of re-use due to absence of licensing / clear terms of use
- what does “open” data mean?
 - **availability and access** >> available as a whole, at reasonable cost, in a convenient and modifiable form
 - **reuse and redistribution** >> provided under clear terms that permit reuse and redistribution, including mixing with other datasets, in machine-readable form
 - **universal participation** >> available to everyone to use, reuse and redistribute, without discrimination as to field or endeavor



database
protection

copyright

copyright in
scientific
literature

all rights reserved

technological
protection
measures

contractual
restrictions

open science

only some rights reserved

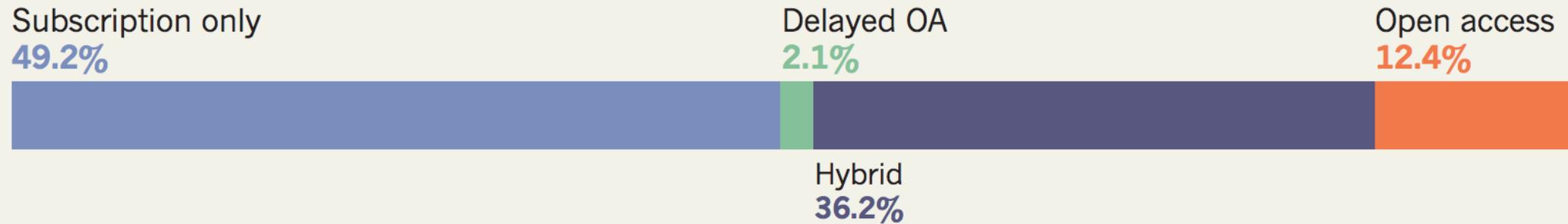
attribution

integrity

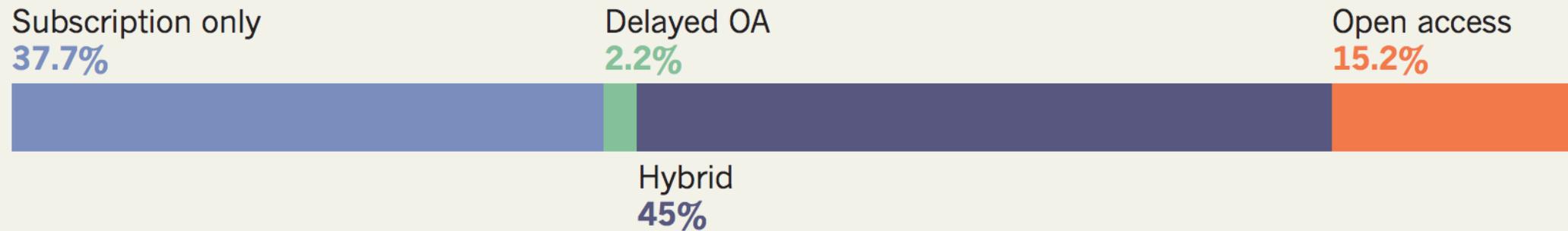
PUBLISHING MODELS

Worldwide, the proportion of subscription-only journals* shrank between 2012 and 2016, giving way to more open-access (OA) and hybrid journals.

Proportion of journals published 2012



Proportion of journals published 2016



*From Scopus database. Hybrid journals are subscription titles that allow authors to make individual papers open for a fee. Percentages do not add up to 100% because of rounding.

International intellectual property law

- 1994 **TRIPS** extends the three-step test to all exclusive pecuniary rights covered by Berne
- 1996 **WIPO Copyright Treaty** introduces a high-protectionist regime
- 1996 **EU Database Directive** provides sui generis protection to non-original databases with a “substantial” data investment
- 1998 **Digital Millennium Copyright Act** (DMCA) creates an exclusive “right of access” and TPMs limit user enjoyment of lawful exceptions and limitations
- 2001 **EU InfoSoc Directive** permits "use for the sole purpose of illustration for teaching or scientific research," so long as the source is indicated, and "to the extent justified by the noncommercial purpose to be achieved” (Art. 5(3))

Open access movement

- 2000: **BioMed Central** and **PubMed Central** (open access publisher and digital repository) founded
- 2002 **Budapest Open Access Initiative** (“[t]he only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited”)
- 2002 first **Creative Commons** licenses issued
- 2003 **Bethesda Statement** on open access publishing
- 2003 **Berlin Declaration** on Open Access to Knowledge in the Sciences and Humanities
- 2008 **NIH Public Access Policy**: research resulting from NIH funding must be freely and publicly available through PubMed Central within 12 months
- 2014 **Gates Foundation Open Access Policy** launched
- 2017 **UnpayWall** browser extension launched

current state of play

Jurisdiction	Open science approach	Consequence(s)
EU	<ul style="list-style-type: none"> • Plan S: After 1 January 2021, scientific research funded by public grants provided by national and European research councils and funding bodies must be published in OA journals or on OA platforms 	<ul style="list-style-type: none"> • Authors retain copyright and should publish under an open license, preferably CC-BY; OA publication fees will be covered by funder or universities
US	<ul style="list-style-type: none"> • Plan U: Universal access to scientific and medical research via funder preprint mandates (e.g. Chan-Zuckerberg Initiative) • University of California drops \$11m Elsevier subscription • California passes AB 2192 	<ul style="list-style-type: none"> • By decoupling the dissemination of manuscripts from the slow journal process, preprints in arXiv and bioRxiv accelerate follow-on research • AB 2912 mandates that all scientific research funded by California be made available to the public no later than one year after publication
UK	<ul style="list-style-type: none"> • Wellcome Trust updated their OA policy to align with Plan S (changes apply from 1 January 2021) 	<ul style="list-style-type: none"> • All Wellcome-funded research must be freely available through PubMed Central (PMC) and Europe PMC at time of publication, published under CC-BY, and authors must retain copyright • Preprints must be published before peer review under CC-BY where there is a significant associated public health benefit
Netherlands	<ul style="list-style-type: none"> • 2015 Dutch Copyright Contract Act, Art. 25fa makes open access an author's right 	<ul style="list-style-type: none"> • restricts the assignability of copyright (the freedom to waive it) (cannot be overridden by contractual provisions)

Europe: new text and data mining exception

- Art. 3(1) of the **EU's new copyright directive** states that “Member States **shall** provide for an exception to the rights provided for in Article 5(a) and Article 7(1) of Directive 96/9/EC, Article 2 of Directive 2001/29/EC, and Article 15(1) of this Directive for reproductions and extractions made by research organisations and cultural heritage institutions in order to carry out, **for the purposes of scientific research, text and data mining** of works or other subject matter to which they have lawful access”
- Art. 3(2): “Copies of works or other subject matter made in compliance with paragraph 1 shall be stored with an appropriate level of security and may be retained for the purposes of scientific research, including for the verification of research results.”
- Art. 3(3): “Rightholders shall be allowed to apply measures to ensure the security and integrity of the networks and databases where the works or other subject matter are hosted. Such measures shall not go beyond what is necessary to achieve that objective.”
- Art. 3(4): “Member States shall encourage rightholders, research organisations and cultural heritage institutions to define commonly agreed best practices concerning the application of the obligation and of the measures referred to in paragraphs 2 and 3 respectively.”

what more could we do?

- **amend the InfoSoc Directive** to include a codification of the idea-expression dichotomy >> most basic science consists of facts and ideas, not copyrightable expression
- make the **exception for scientific research** in Article 5(3)(a) of the InfoSoc Directive mandatory and binding on all member states
- **remove the ambiguity** of the exception for scientific research in Article 5(3)(a) of the InfoSoc Directive by rephrasing it to read “use solely for the purposes of teaching or scientific research” >> remove references to “illustration” and “to the extent justified by the non-commercial purpose”
- create a **specific exemption for scientific research** in copyright and database protection laws that is preemptory, mandatory, non-waivable, immune from contractual overrides and TPMs
- introduce a “**reverse notice and takedown**” regime to permit bypassing of TPMs to facilitate enjoyment of lawful exceptions for scientific research

what happens to publishers?

- scientists primarily seek moral rights (attribution and integrity) whereas scientific publishers seek the monopoly profits that copyright law provides >> this fundamental tension is exacerbated by the assignment of copyright from scientific authors to publishers
- digital technologies have reduced the costs of scientific publication and digital platforms have reduced the utility of publishing intermediaries >> compensation for technical services (e.g. electronic indexing, marketing, distribution) should not extend to exclusive rights to control downstream uses and reuses of the scientific research
- possible solutions?
 - restrict transfer of copyrights in publicly funded research to publishers >> authors retain copyright through Creative Commons license (e.g. CC-BY) and publishers are granted a non-exclusive license to publish
 - require, as a condition of public funding, that research be freely available in public repositories (open access publishing conditions)
 - authors (and data providers) receive attribution but provide open access to works
 - make open access an author's right

**When Copyright Law and Science Collide:
Empowering Digitally Integrated Research
Methods on a Global Scale**

Jerome H. Reichman and Ruth L. Okediji

*Forthcoming
University of Minnesota Law Review
May 2012*



Thank you.

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