Journal Articles as Ephemeral Texts

Ephemeral Media of Knowledge, 2024-05-22

Charles H. Pence

@pence@scholar.social

UCLouvain

ISP Institut supérieur de Philosophie

LIBST Louvain Institute of Biomolecular Science and Technology

Académie Royale de Belgique 1772

Outline

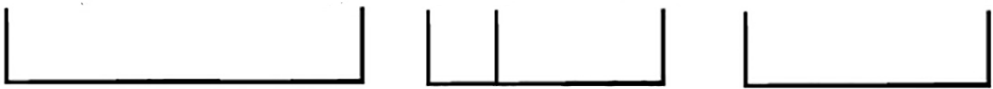
1. A contemporary problem: text and practice
2. Why publish in journals?
3. A shifting historical target

The take-home: Our tendency to read "the journal record" as a unified, static object runs afoul of the sense in which articles are a deeply historically transient medium.

Journal articles are often the paradigmatically “stable” data source

Anatomy of a Digital Object Identifier (DOI)

https://doi.org/ 10.7935 / K5H41PBP



Resolver service

Directory indicator
Assigned by DOI Foundation

Prefix
Assigned by DOI Registration Agencies (RAs) e.g. CrossRef, DataCite, etc.

Suffix
Assigned by RA Members
e.g., F1000 Research, California Digital Library (EZID)

[**Adapted from Austalian National Data Service (ANDS) Digital Object Identifier System and DOI Names (DOIs) Guide, http://www.ands.org.au/guides/doi]**

Web of Science 3 Search

MENU

Search › Results for Covid 19 OR coronavirus disease 2019 OR SARS-CoV-2 OR severe …

465,365 results from Web of Science Core Collection for:

Analyze Results | Citation Report

Covid 19 OR coronavirus disease 2019 OR SARS-CoV-2 OR severe acute respiratory syndrome coronavirus 2 (Title) or Covid 19 OR coronavirus disease 2019 OR SARS-CoV-2 OR severe

Add Keywords | Quick add keywords: + COVID-19 + SARS-COV-2 + PANDEMIC + CORONAVIRUS + COVID-19 PANDEMIC + CORONAVIRUS DISEASE 2019

Publications | You may also like...

Refine results

Search within results...

Quick Filters

- Highly Cited Papers 11,661
- Hot Papers 409
- Review Article 40,186
- Early Access 16,755
- Open Access 353,399
- Enriched Cited References 147,928
- Open publisher-invited reviews 1,191

0/465,365 | Add To Marked List | Export | Sort by: Relevance

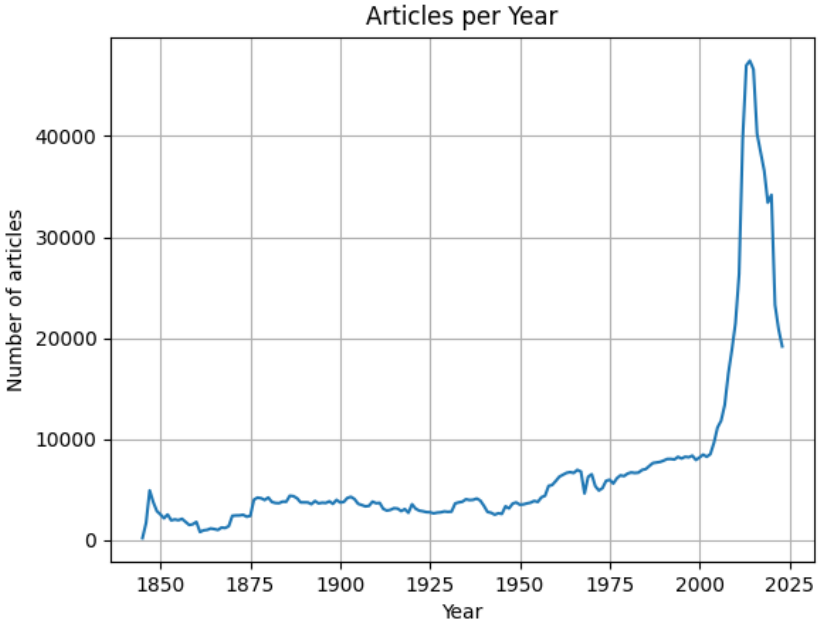
1 Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges

Lai, CC; Shih, TP; (...); Hsueh, PR

Mar 2020 | INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS 55 (3)

The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; previously provisionally named 2019 novel coronavirus or 2019-nCoV) disease (COVID-19) in China at the end of 2019 has caused a large global outbreak and is a major public health issue. As of 11 February 2020, data from the World Health Organization (WHO) have shown that more than 43 000 confirmed cases have been iden ... Show more

Findit@CUHK Library | Free Full Text From Publisher | View Full Text on ProQuest | •••


Articles per Year
Number of articles
0
10000
20000
30000
40000
1850
1875
1900
1925
1950
1975
2000
2025
Year

[A “professionalization”-based approach to the history of science] ignores, or at best treats as peripheral, the forms in which knowledge appeared, **assuming that publication in specialist periodicals was already established** as the only legitimate means for announcing new discoveries, thus downplaying other methods such as conversation, books, letters, and museum displays. (Secord 2009, p. 444)

> **...historians of science have tended to read specialist journals as historical sources rather than as historical phenomena in their own right, often taking the existence of journals for granted rather than viewing them as objects whose existence requires explanation. (Baldwin 2015, p. 11)**

Scientific Text and Scientific Practice

To use scientific texts for HPS:

scientific practice $\leftrightarrow$ scientific literature $\leftrightarrow$ useful generalizations $\leftrightarrow$ empirically informed HPS

From Literature to Generalizations

This is the task of digital humanities, with a healthy assist from corpus linguistics – though that latter connection often goes unnoticed!

Corpus Linguistics

- **sociolinguistics** — meaning is defined by past use within the corpus; “meaning does not concern the world outside the discourse” (Teubert 2005)
- **cognitive linguistics** — corpora let us test hypotheses about the use and meaning of concepts in language (the “entrenchment” of some uses of concepts as “grammatically acceptable”; Glynn 2014)

Corpus Linguistics

This won't be my topic today – but it's important to note that we probably *should* be paying more attention to it than we are...

Why Write Journal Articles?

From Practice to Text

How might we theorize about the reasons that scientists write journal articles?

From Practice to Text

How might we theorize about the reasons that scientists write journal articles?

There is a significant literature on this topic from the perspective of contemporary science.

A Low Bar

Journal articles have to be good for something, or scientists wouldn't spend time reading them together in journal clubs!

The “Logical” View

Articles are the vehicle by which scientists intend to justify their findings and conclusions to each other

The Structure of a Scientific Paper*

Frederick Suppe†‡
Department of Philosophy, Committee on the History and Philosophy of Science,
University of Maryland

Scientific articles exemplify standard functional units constraining argumentative structures. Severe space limitations demand every paragraph and illustration contribute to establishing the paper's claims. Philosophical testing and confirmation models should take into account each paragraph, table, and illustration. Hypothetico-Deductive, Bayesian Inductive, and Inference-to-the-Best-Explanation models do not, garbling the logic of papers. Micro-analysis of the fundamental paper in plate tectonics reveals an argumentative structure commonplace in science but ignored by standard philosophical

The “Sociological” View

Articles are intended to gain converts to the research program, the recorded history of a power struggle

The Manufacture of Knowledge

An Essay on the Constructivist and Contextual Nature of Science

by

KARIN D. KNORR-CETINA

Department of Sociology
University of Pennsylvania, Philadelphia

The “Fraud” View

Articles are fake, inductive presentations of the “real” scientific reasoning, which is actually Popperian or falsificationist

SCIENCE IN BOOKS

IS THE SCIENTIFIC PAPER FRAUDULENT?

Yes; It Misrepresents Scientific Thought

I HAVE chosen for my title a question: Is the scientific paper a fraud?

I ought to explain that a scientific "paper" is a printed communication to a learned journal, and scientists make their work known almost wholly through papers and not through books, so papers are very important in scientific communication. As to what I mean by asking "is the scientific paper a fraud?" Now, John Stuart Mill's deeper motive in working out what he conceived to be the essential method of science was to apply that method to the solution of sociological problems: He wanted to apply to sociology the methods which the practice of science had shown to be immensely powerful and exact. It is ironical that the application to sociology of the inductive method, more or less in the form in which Mill himself conceived it, should have been an almost entirely fruitless one.

The simplest application of the Millsian process of induction to sociology came in a rather strange movement called Mass Observation. The belief underlying Mass Observation was apparently this: that if one could only record and set down the actual raw facts about what people do and what people say in pubs, in trains, when they make love to each other, when they are playing games, and so on, then somehow, from this wealth of information, a great generalization would

I ought to explain that a scientific "paper" is a printed communication to a learned journal, and scientists make their work known almost wholly through papers and not through books, so papers are very important in scientific communication. As to what I mean by asking "is the scientific paper a fraud?" evidence until the "discussion" section, and in the discussion you adopt the ludicrous pretense of asking yourself if the information you have collected actually means anything.

Of course, what I am saying is rather an exaggeration, but there is more than a mere element of truth in it.

The conception underlying this style of scientific writing is that scientific discovery is an inductive process. What

A Shifting Historical Target

An assumption: the “modern” journal article

[Before the early twentieth century,] journals by no means constituted a uniquely appropriate medium for announcing a new claim to discovery, and if the category “scientific journal” existed at all, it did not correspond to [the modern conception]. When learned journals first emerged in the seventeenth century, they took after newspapers and gazettes, by design ephemeral and often in disrepute. (Csiszar 2018, p. 5)

One problem with these ideas is that they suppose that the format and uses of journals and papers have remained more or less constant throughout their existence. But this is not true. The *Philosophical Transactions* itself exemplifies the problem: few publications have taken on as diverse a set of formats and meanings as this publication has over its long history. (Csiszar 2018, p. 12)

The Objects which it is proposed to attain by this Periodical are, first, to place before the general public the results of Scientific Work and Scientific Discovery, and to urge the claims of Science to a more general recognition in Education and Daily Life; and secondly, to aid Scientific Men themselves, by giving early information of all advances made in any branch of natural knowledge throughout the world, and by affording them an opportunity of discussing the various scientific questions which arise from time to time. (advertisement for *Nature*, 1869)

In the nineteenth century, contributors began using *Nature* and its weekly turnaround time to debate scientific questions and to give abstracts of longer forthcoming papers in monthly or quarterly journals. In the early twentieth century, some contributors began employing a new strategy and used *Nature* for the immediate publication of interesting results before a paper was prepared or submitted elsewhere. (Baldwin 2015, p. 14)

How can we make our readings (whether close or distant) of these texts sensitive to these shifts in use and broader context?

Ways Out

1. Classifying articles by “type” in advance?
2. “Multi-modal” analyses, just for text?
3. How to balance close reading with digital work?

As journals became not only purveyors of scientific news but also archives of discovery, it became more common to conceive of science as a series of discrete discovery events localized in time and connected with an individual author. This raised other tricky questions about the status of collective knowledge. (Csiszar 2018, p. 8)

How can we analyze “articles” with different kinds of propositional content – claims to new discoveries, full justifications of scientific knowledge claims, summaries of other articles, debates among scientists, editorials, obituaries, prize notices…

Digital Literature Analysis for Empirical Philosophy of Science

Oliver M. Lean, Luca Rivelli, and Charles H. Pence

Empirical philosophers of science aim to base their philosophical theories on observations of scientific practice. But since there is far too much science to observe it all, how can we form and test hypotheses about science that are sufficiently rigorous and broad in scope, while avoiding the pitfalls of bias and subjectivity in our methods? Part of the answer, we claim, lies in the computational tools of the digital humanities, which allow us to analyse large volumes of scientific literature. Here we advocate for the use of these methods by addressing a number of large-scale, justificatory concerns—specifically, about the epistemic value of journal articles as evidence for what happens elsewhere in science, and about the ability of digital humanities tools to extract this evidence. Far from ignoring the gap between scientific literature and the rest of scientific practice, effective use of digital humanities tools requires critical reflection about

Questions?

charles@charlespence.net
https://pencelab.be
@pence@scholar.social

PENCE LAB

fnrs
LA LIBERTÉ DE CHERCHER