

Another World is Possible

Or How I Stopped Worrying and Learned to Love Bibliometrics

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Outline

1. It starts with a question...
2. Broader context for bibliometrics
3. Research
4. Conclusions

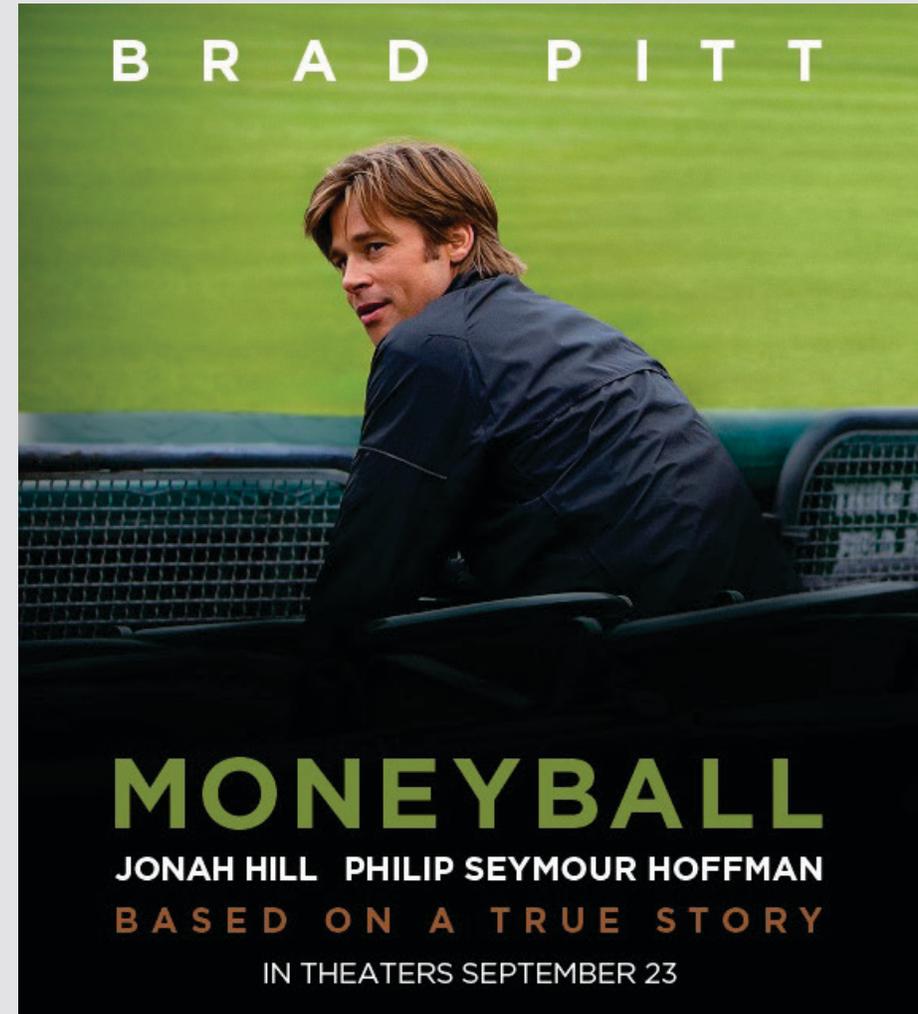
1 It all starts with an (innocent?) question

Imagine getting this questions from your dean, provost, or a faculty committee:

- Can our institution/school/department increase our prestige by hiring in certain subfields?

Translating the question

- Can we use metrics to find “good value” fields to hire in? Are there bargain scholars out there?
- Are there “market inefficiencies” – subfields that produce highly cited or well-placed work, but aren’t already so prestigious that they are difficult to hire in?



Notes for previous slide:

In our case, a law school version of the Oakland A's moneyball approach to building a baseball team.

There's a lot to unpack here

- The question assumes a lot about the relationships between:

Prestige

Institutional goals

Scholars

Individual articles

How can we navigate this space?



The Shipwreck, JMW Turner

It's not a reference question!

- At least not in my institution...
- The library is already participating in these efforts:
 - Advising on scholarly communication
 - Promoting faculty scholarship
 - Working directly on the school's marketing and communications efforts
- Your institution needs your perspective on these issues!

Notes for previous slide:

We probably all have different perspectives on these issues. I know mine are not always fully formed or easy to articulate, but I do know they are different from some of the ideas embedded in this question.

2 A broader context for bibliometrics

- Emphasis on scholarly assessment is not an isolated trend
 - Part of a broader trend towards measurement and accountability
 - But also part of a cultural moment

Notes for previous slide:

“Elsevier is a global information analytics business that helps institutions and professionals advance healthcare, open science and improve performance for the benefit of humanity”

<https://www.elsevier.com/>

TRENDING ON RT [Halloween: An Oral History](#) [Best '90s Horror Movies](#) [Halloween Reviews](#) [Netflix Horror Movies](#)

TOP 100 MOVIES OF ALL TIME



BEST OF ROTTEN TOMATOES

Movies with 40 or more critic reviews vie for their place in history at Rotten Tomatoes. Eligible movies are ranked based on their Adjusted Scores.

Genre:

Sorted by Adjusted Score

Rank	Rating	Title	No. of Reviews
1.	98%	The Wizard of Oz (1939)	111
2.	100%	Citizen Kane (1941)	78
3.	99%	Get Out (2017)	327
4.	97%	Mad Max: Fury Road (2015)	387
5.	99%	The Third Man (1949)	77
6.	98%	Moonlight (2016)	337
7.	100%	The Cabinet of Dr. Caligari (Das Cabinet des Dr. Caligari) (1920)	50

CARMELO RATING	1-WEEK CHANGE	TEAM	CONFERENCE	REGULAR SEASON			PLAYOFFS		
				PROJ. RECORD	PROJ. POINT DIFF/G	CHANCE OF MAKING PLAYOFFS	PLAYOFF CARMELO ADJUSTMENT	CHANCE OF MAKING FINALS	CHANCE OF WINNING TITLE
1746	-5	 Warriors 2-0	West	64-18	+9.0	>99%	+16	61%	48%
1658	+3	 Raptors 3-0	East	58-24	+6.2	>99%	+5	40%	14%
1658	-4	 Rockets 1-1	West	55-27	+5.3	98%	+8	16%	10%
1629	-4	 Celtics 2-1	East	54-28	+4.8	98%	+4	22%	7%
1624	-12	 Jazz 1-1	West	53-29	+4.9	97%	-3	6%	3%
1617	-8	 Thunder 0-2	West	51-31	+4.1	93%	+5	7%	4%
1597	-20	 76ers 2-1	East	51-31	+3.6	96%	-3	12%	4%
1591	+4	 Nuggets 2-0	West	51-31	+4.0	91%	-4	4%	2%
1588	+33	 Bucks 2-0	East	51-31	+3.6	96%	-3	11%	2%
1581	-1	 Lakers 0-2	West	47-35	+2.3	79%	+11	3%	1%
1568	-1	 Wizards 0-2	East	47-35	+2.5	88%	+4	7%	2%
1562	+7	 Pelicans 2-0	West	47-35	+2.3	79%	-4	2%	<1%
1558	-1	 Timberwolves 1-2	West	45-37	+1.6	69%	-1	1%	<1%

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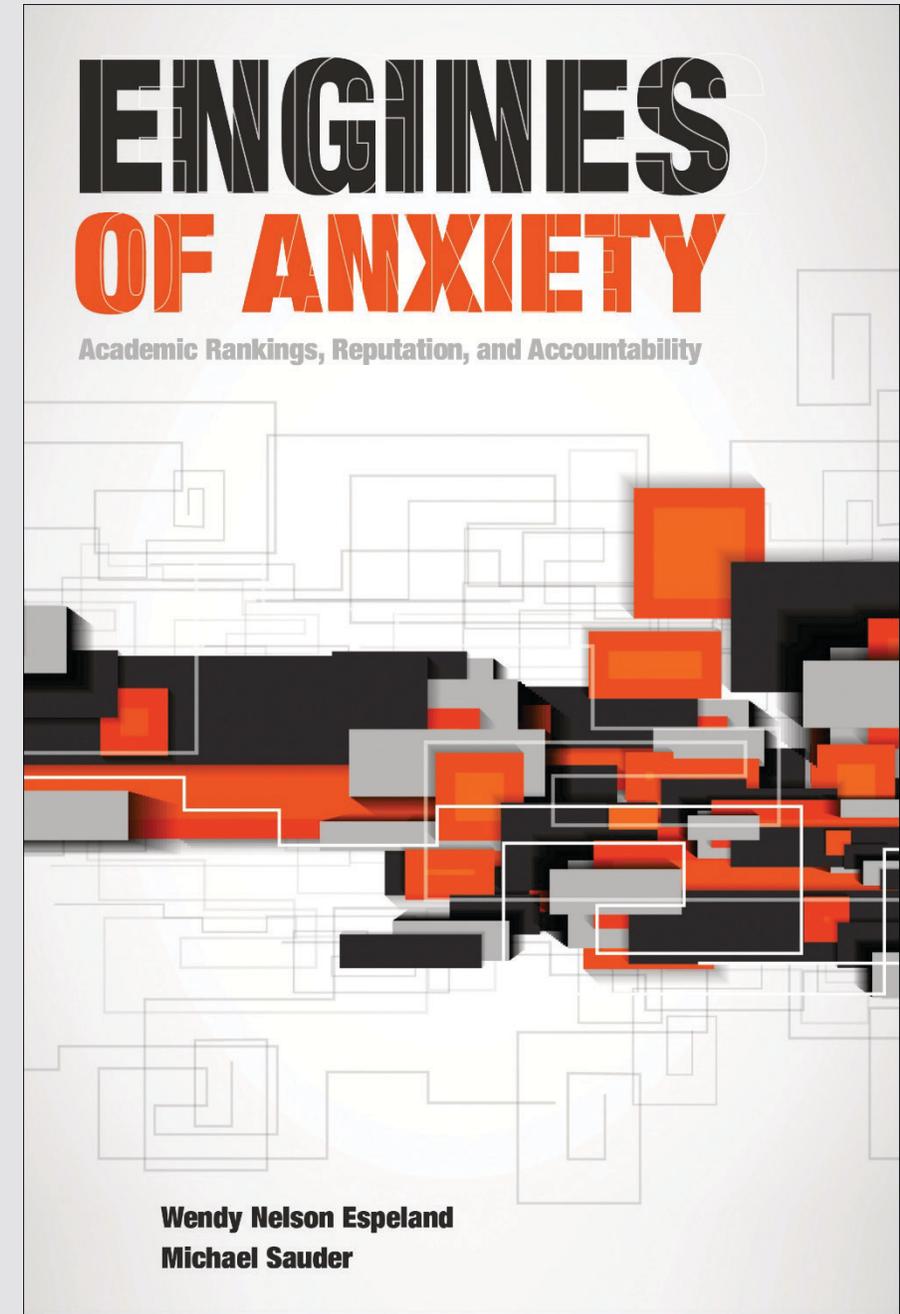
I know I'm a nerd, but I also know I'm not the only one who now consumes this kind of math and pseudo-math as entertainment.

But it's not always fun

- Metrics/analytics/data has become part of how we understand the world:
 - Politics
 - The economy
 - Social interaction?
 - Privacy?
 - Education!
 - Scholarship!

Metrics don't just measure

- Engines of Anxiety: Academic Rankings, Reputation, and Accountability
 - Wendy Nelson Espeland & Michael Sauder
- Uses the U.S. News & World Report Law School Rankings as a case study in how rankings and measures create meaning



Metrics create meaning

- Commensuration
- Self-fulfilling prophecies
- Reverse engineering
- Narrative

Commensuration

- “Commensuration renders all forms of difference as a matter of more or less rather than of kind”
 - Engines of Anxiety, p.29

[lets compare apples and oranges](#),
frankieleon, CC BY



Self-fulfilling prophecies

- Fine or artificial distinctions between similar things become real in the minds of observers

[Ivor - Tarot Consultant](#),
Christine Matthews, CC BY-SA



Notes for previous slide:

How accurate are measures? What does 1 or 2 points on the LSAT mean?

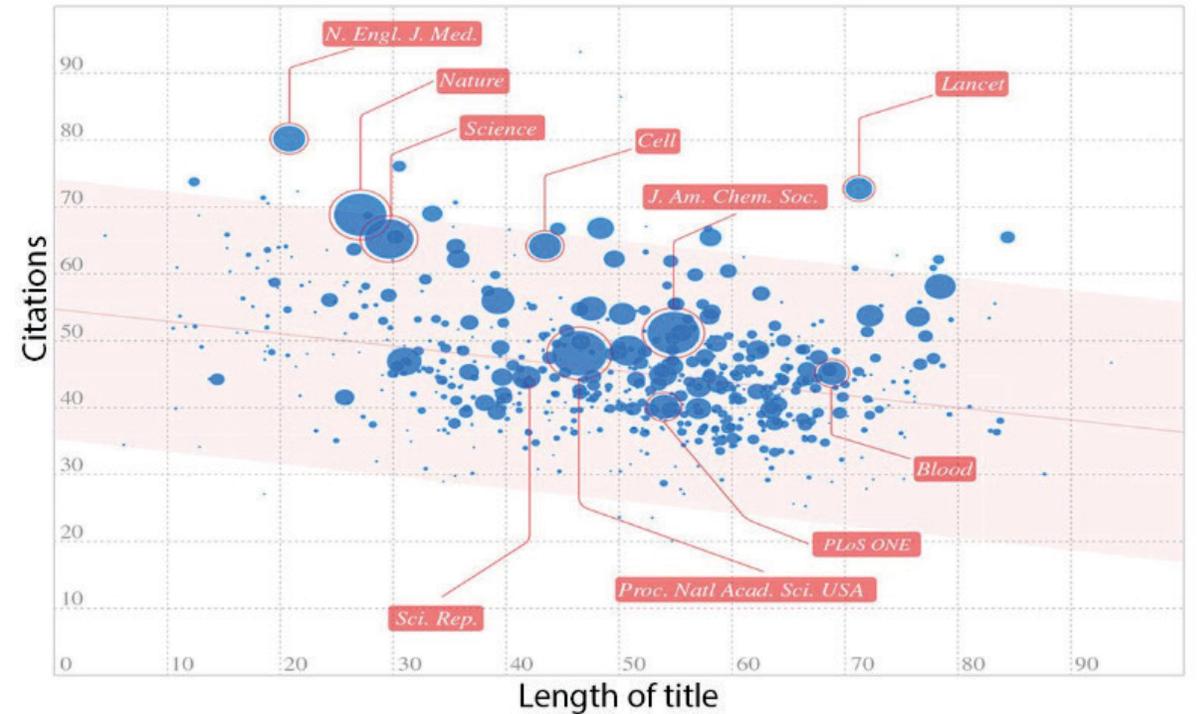
Reverse engineering

- Practices and behaviors change in response to metrics

SHARE



63



With a few exceptions, studies published in journals that tend toward shorter paper titles get more citations annually than those published in journals with longer paper titles. A. LETCHFORD ET AL., R.SOC. OPEN SCI. 2 (2015)

In brief, papers with shorter titles get more citations, study suggests

By Dalmeet Singh Chawla | Aug. 25, 2015, 7:00 PM

<https://www.sciencemag.org/news/2015/08/brief-papers-shorter-titles-get-more-citations-study-suggests>

Narrative

- Metrics and rankings become parts of the stories we tell about individuals and institutions
- Success or failure in metrics is described in moral terms

LAW SCHOOLS, RANKINGS

In The Wake Of Rankings Drop, Berkeley Law Sees Budget Slashed

Please see the update to this story.

By KATHRYN RUBINO

Aug 15, 2017 at 2:00 PM

<https://abovethelaw.com/2017/08/in-the-wake-of-rankings-drop-berkeley-law-sees-budget-slashed/>

Commensuration

- Citation is not just one thing:
 - [Core elements in the process of citing publications: Conceptual overview of the literature](#)
 - [A taxonomy of motives to cite](#)
- Metrics erase the differences between fields and scholarly modes of practice:
 - [A challenge to metrics as evidence of scholarship](#)

Notes for previous slide:

This framework helps to organize and contextualize criticisms of current bibliometric approaches

Self-fulfilling prophecies

- What if past citation accurately predicts future citation?
 - [Quantifying long-term scientific impact](#)
- Citation data is used in relevance algorithms for research, e.g. Google Scholar.
- Sometimes articles must be cited due to their popularity and perceived importance in a field
 - [Core elements in the process of citing publications: Conceptual overview of the literature](#)

Reverse engineering

- Bibliometrics are subject to distortion through reverse engineering. The more important metrics become, the more likely they are to be subject to reverse engineering:
 - [Citations, impact factors and shady publication practices: how should the lasting clinical and social value of research really be measured?](#)
 - [Towards the discovery of citation cartels in citation networks](#)
 - [The network of law reviews: Citation cartels, scientific communities, and journal rankings](#)

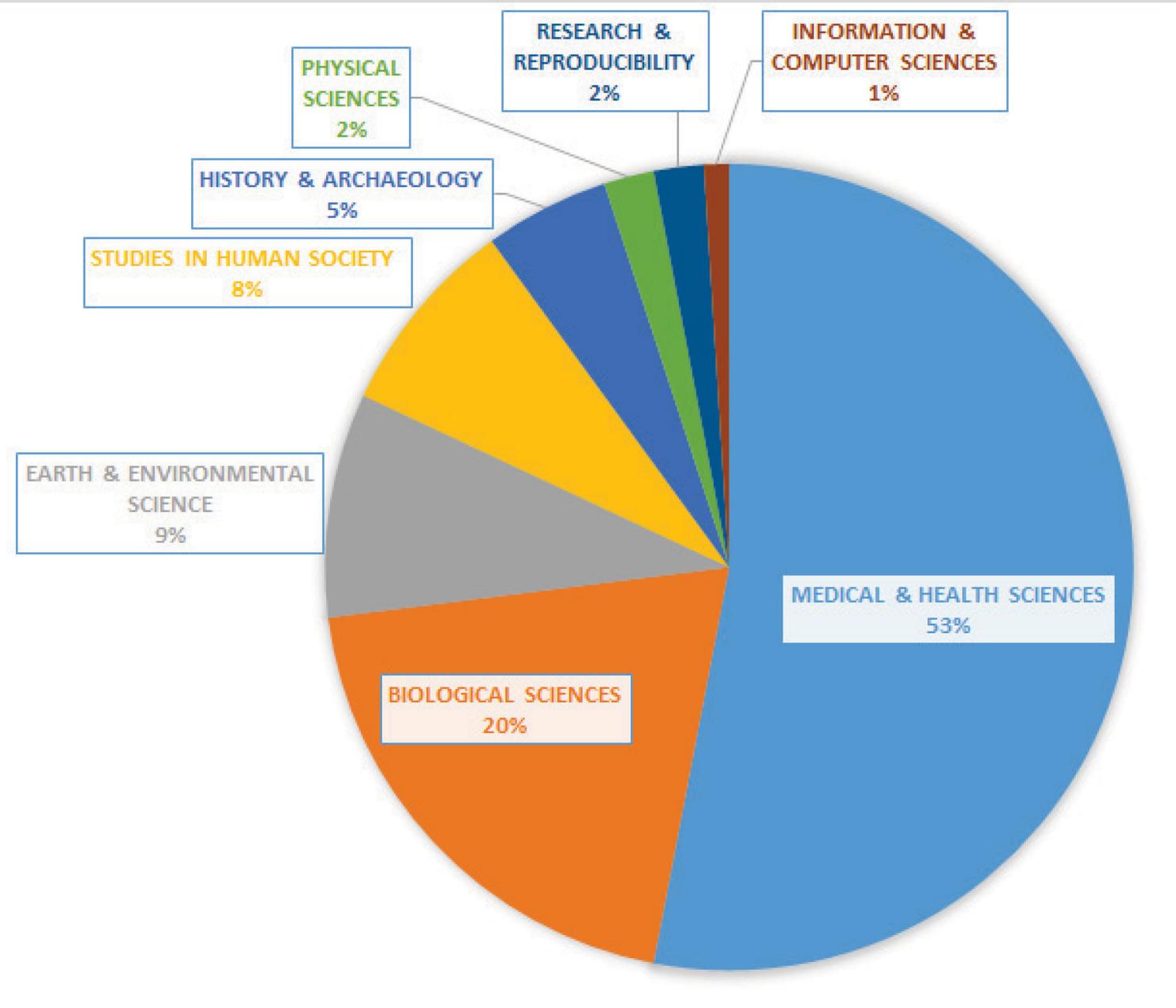
Narrative

- When we say certain scholarship has more “impact”, we are telling a story.
- Bibliometric data – even altmetric data – can’t claim credibly to measure the entire impact or influence of an idea or a piece of scholarship.

Notes for previous slide:

Can't measure beyond what's actually measured – citations in scholarship, media etc.

Altmetric Top 100 2017



<https://www.altmetric.com/top100/2017/>

Notes for previous slide:

Law, economics, political science, and business school faculty are absent, even though they appear on TV frequently. Humanities faculty are largely absent, even as we hear about the influence of critical theory approaches, feminism, critical race theory, etc. in contemporary public discourse. This is a narrative about what research has impact.



[A grain of salt on a pinhead](#), Mike Keeling, CC BY-ND

Metrics make meaning

- We can't change this by fixing or changing the metrics we use
- Two things can help us and our institutions:
 - A better understanding of how metrics influence behavior and perceptions
 - A better, broader understanding of the fields and activities we are trying to measure

Notes for previous slide:

These aren't (just) specific criticisms of current metrics. Metrics make meaning – making the metrics we use more accurate or complex won't change the fact that they will also change the way we understand ourselves and our systems of scholarship.

Returning to our question...

- Can our institution/school/department increase our prestige by hiring in certain subfields?
 - We are actively trying to **reverse engineer** prestige
 - Is this likely to work?
 - We are attempting to use metrics to compare apples and oranges (**commensuration**) – comparing scholars in one field to scholars in another
 - We are creating a **narrative** around a particular hire
 - If we act on our predictions and they come true, we may be seeing **self-fulfilling prophecy** at work
- Who's driving this thing, us or the metrics?

Notes for previous slide:

Self-fulfilling prophecy – legal scholarship isn't blind peer review – being at a more prestigious institution increases an author's chance of success. Likely this is the case even in fields with blind review.

3 Research

- Disciplines, fields, and sub-fields:

They seem so natural, but what are they?

Initial questions

- Are some fields more likely to land in top 20 or top 50 journals?
 - Most of these journals accept articles from all fields of legal scholarship
- Are some fields on an upward or downward trajectory?

Methodology

- Data from Current Index to Legal Periodicals, 1997-2017
- The required data is only available as unstructured HTML
 - Harvested HTML files using HTTrack
 - Add JavaScript to each file which parsed the HTML into CSV
 - Deduplication in Excel
 - Quantitative analysis in Excel and Gephi

Large fields

- Large fields (≥ 1000 articles) that are **more likely** to place in top 20 law reviews, in order of greatest to least confidence:
 - Constitutional Law
 - Jurisprudence (falling)
 - Judges
 - Politics
 - Law and Society (falling)
 - Economics
 - Jurisdiction
 - Administrative Law (rising)
 - Intellectual Property Law (rising)
 - Corporations

Large fields

- Large fields (≥ 1000 articles) that are **less likely** to place in top 20 law reviews, in order of greatest to least confidence:
 - Comparative Law
 - International Trade
 - Water Law
 - Comparative and Foreign Law
 - Natural Resources Law
 - Human Rights Law
 - Juveniles (falling)
 - Legal Education (falling)
 - Education Law
 - Food and Drug Law

Small fields

- Small fields (<1000 articles) that are **more likely** to place in top 20 law reviews, in order of greatest to least confidence:
 - President/Executive Department
 - Supreme Court Of The United States
 - Elections and Voting
 - Second Amendment

Small fields

- Small fields (<1000 articles) that are **less likely** to place in top 20 law reviews, in order of greatest to least confidence:
 - Admiralty
 - Law Of The Sea
 - Agriculture Law
 - Energy and Utilities Law
 - Workers' Compensation Law
 - Oil, Gas, and Mineral Law
 - Land Use Planning
 - Civil Law
 - Housing Law
 - Transportation Law

Increasing, 1999-2017

- Fields that show an increasing likelihood of placement in a top 20 journal, in order of the slope of the increase:
 - Intellectual Property Law
 - Administrative Law
 - Military, War and Peace
 - Banking and Finance
 - Commercial Law
 - Securities Law
 - International Law
 - Criminal Law and Procedure

Decreasing, 1999-2017

- Fields that show a decreasing likelihood of placement in a top 20 journal, in order of the slope of the decrease:
 - Law and Society
 - Environmental Law
 - Legal Education
 - Juveniles
 - Women
 - Religion
 - Jurisprudence
 - Biography
 - Animal Law

Takeaways

- Top journals are interested in politics and constitutional issues
- Top journals are much less interested in non-US law
- Fields related to intellectual property, business, and military law seem to have gained in prestige

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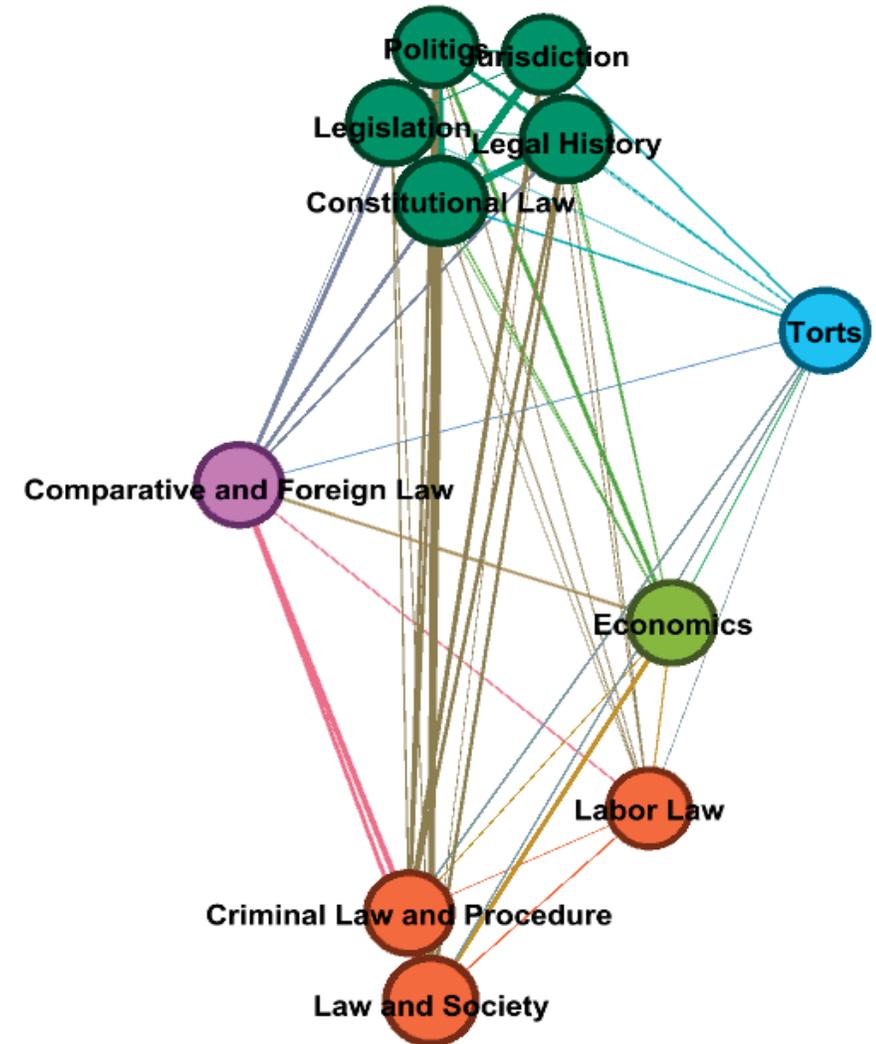
None of these are surprising to people in the field, but they do confirm and reflect conventional wisdom. It's important to remember that this conventional wisdom itself is a factor in publication decisions – there's no separating this distribution from the field's own pre-existing ideas about itself and its subfields.

More complex questions

- We have effectively flattened the fields into a ranking – can we model them in a more nuanced way?
- Are some fields central and others peripheral?
- Are there clusters or other divisions that we can detect?

Intersecting fields

- In this data, many articles are assigned to more than one sub-field
- This allows the creation of a network model where sub-fields are connected by an articles that have been assigned both sub-fields as their subjects



Notes for previous slide:

Graph shows the fields with the highest betweenness centrality

Finding Clusters

- Data contained three types of content
 - Articles – long pieces written by faculty or occasionally by practitioners
 - Notes – pieces on a specific, novel issue, written by law students
 - Comments – pieces about a single recent case, written by law students
- Cluster analysis performed separately on each type of content and compared
 - If clusters appear across the categories of content, they reflect a stronger relationship between the sub-fields in the cluster

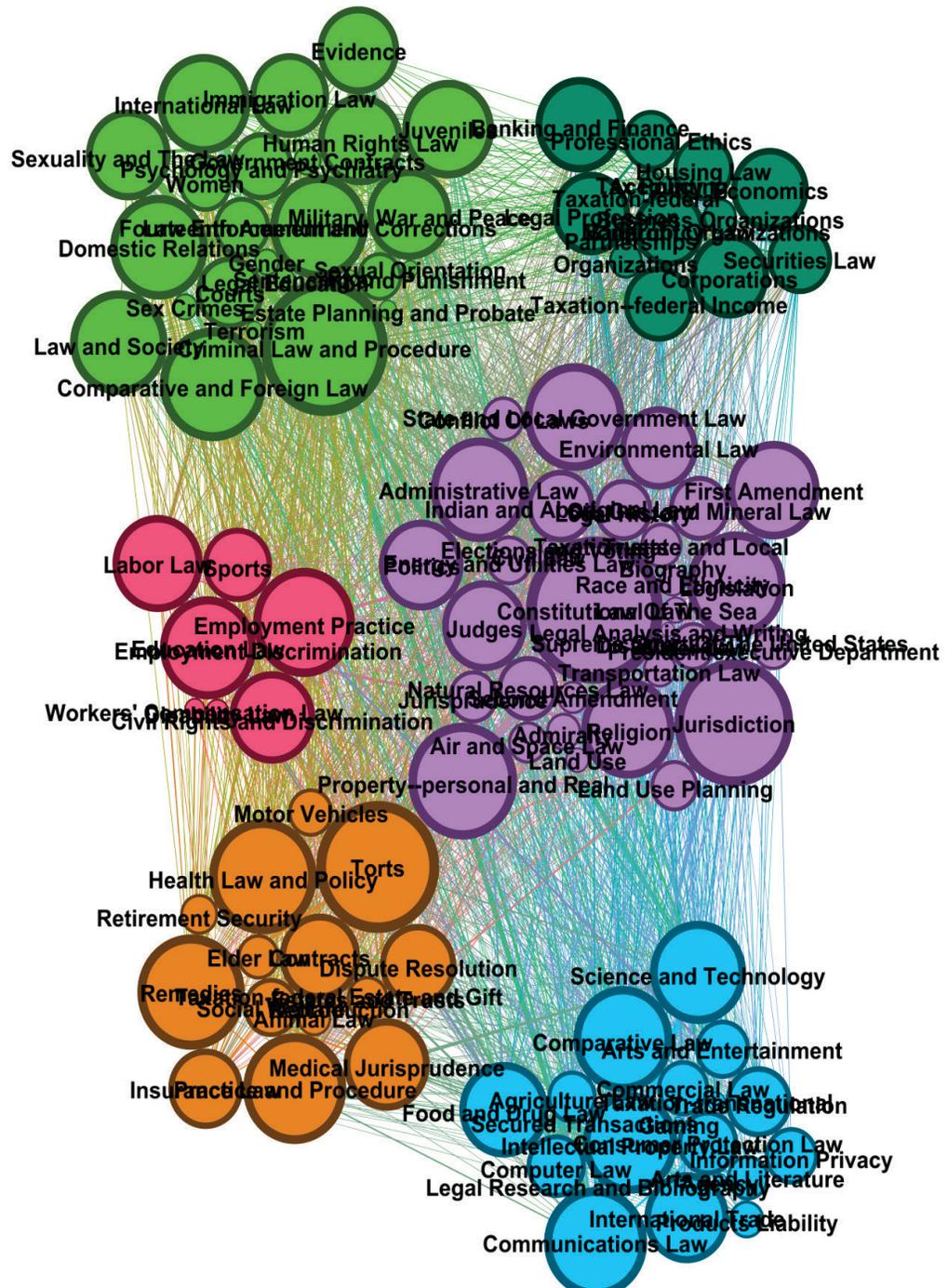
Notes for previous slide:

Note that when we broaden our perspective beyond gaming prestige economies, new data becomes available about low-prestige, student written, forms of scholarship



Notes for previous slide:

Articles graph – analysis identifies six clusters



Notes for previous slide:

Comments – six clusters, but with differences



Notes for previous slide:

Notes – only five clusters

What's consistent?

- Seven large groupings that stay consistent, centered around large, connected sub-fields
 - Administrative Law
 - Comparative and Foreign Law
 - Labor Law
 - Science and Technology
 - Law and Society
 - Economics (Law and Economics)
 - Legal History

Administrative Law Group

- 5% of articles were in top 20 journals
- Sub-fields:
 - Administrative Law
 - Environmental Law
 - Indian and Aboriginal Law
 - Natural Resources Law
 - Energy and Utilities Law
 - Oil, Gas, and Mineral Law
 - Admiralty
 - Water Law
 - Transportation Law
 - Law Of The Sea
 - Disaster Law

Notes for previous slide:

8% of the total data set is top 20

Comparative and Foreign Law Group

- 5% of articles were in top 20 journals
- Sub-fields:
 - Comparative and Foreign Law
 - International Law
 - Military, War and Peace
 - Human Rights Law
 - Government Contracts
 - Terrorism

Labor Law Group

- 7% of articles were in top 20 journals
- Sub-fields:
 - Labor Law
 - Civil Rights and Discrimination
 - Education Law
 - Employment Practice
 - Sports
 - Disability Law

Science and Technology Group

- 8% of articles were in top 20 journals
- Sub-fields:
 - Science and Technology
 - Intellectual Property Law
 - Communications Law
 - Trade Regulation
 - Food and Drug Law
 - Arts and Entertainment
 - Information Privacy
 - Computer Law
 - Products Liability
 - Arts and Literature

Law and Society Group

- 8% of articles were in top 20 journals
- Sub-fields:
 - Law and Society
 - Criminal Law and Procedure
 - Domestic Relations
 - Psychology and Psychiatry
 - Evidence
 - Law Enforcement and Corrections
 - Juveniles
 - Immigration Law
 - Women
 - Sexuality and The Law
 - Sentencing and Punishment
 - Gender
 - Sexual Orientation
 - Sex Crimes

Economics Group

- 9% of articles were in top 20 journals
- Sub-fields:
 - Economics
 - Banking and Finance
 - Corporations
 - Taxation--federal Income
 - Securities Law
 - Bankruptcy Law
 - Organizations
 - Housing Law
 - Business Organizations
 - Taxation-federal
 - Tax Policy
 - Partnerships
 - Accounting

Legal History Group

- 13% of articles were in top 20 journals
- Sub-fields:
 - Legal History
 - Constitutional Law
 - Jurisdiction
 - Politics
 - Jurisprudence
 - Property--personal and Real
 - Judges
 - State and Local Government Law
 - Biography
 - Land Use Planning
 - Taxation-state and Local
 - President/executive Department
 - Legal Analysis and Writing
 - Land Use
 - Supreme Court Of The United States
 - Elections and Voting

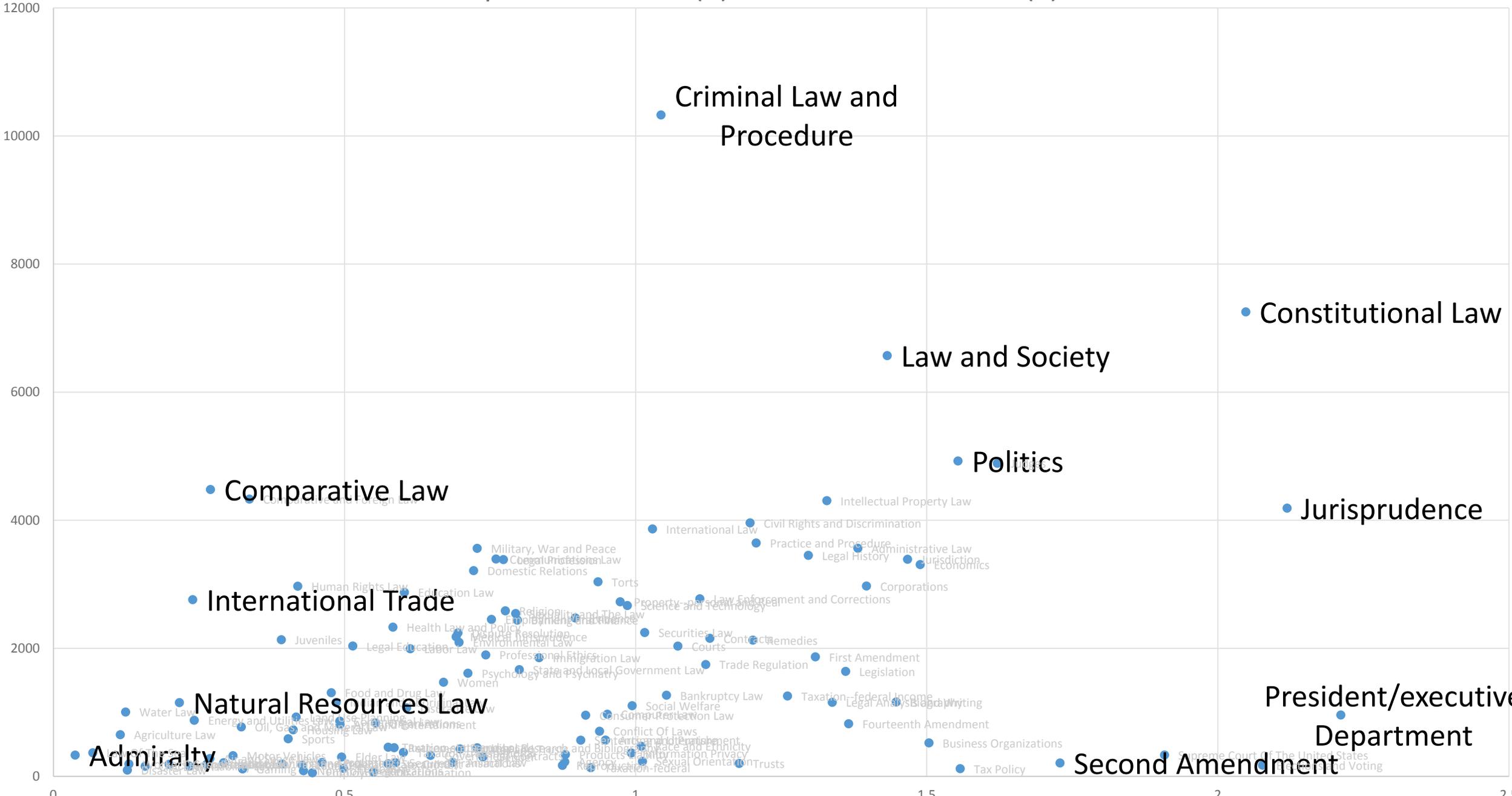
Sub-field characteristics

- Size
- Prestige
- Centrality
- Related Sub-fields
- Citation characteristics (not part of this project)
 - Citation totals
 - Sub-fields of citing articles
- Other potential topics
 - Demographics of authors
 - Publication and conferencing patterns

Notes for previous slide:

Citation data wasn't part of this project

Top 20 Placement (X) vs Number of Articles (Y)



Sub-fields as a topic

- Critical to scholarly careers
- Closely related to subject description
- Key site for academic culture
 - Acculturation/professionalization
 - Intra-disciplinary politics

4

Conclusions

- Metrics create meaning (Engines of Anxiety)
 - Commensuration
 - Self-fulfilling prophecies
 - Reverse engineering
 - Narrative
- Adopting and championing specific metrics is not neutral or merely descriptive
 - The metrics we adopt and the incentives and narratives they create will shape the next generation of scholarship

Role of librarians

- There are a lot of powerful entities interested in analyzing research.
- Still, on many campuses these questions come to librarians at some point, and we do have a chance to shape how these concepts are understood.
- Our expertise is needed in understanding how metrics influence meaning and actions.

Notes for previous slide:

“Elsevier is a global information analytics business that helps institutions and professionals advance healthcare, open science and improve performance for the benefit of humanity”

<https://www.elsevier.com/>



"Dordrecht: The Dort packet-boat from Rotterdam becalmed", JMW Turner