

Mapping Psychedelic Science Signaling Pathways and Cultural Spaces

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May 15, 2015

Division III Showcase

Outline

- Scientific communication
- Psychedelic knowledge
- Contextualizing ideas
 - Global/power
 - Socio-political

Who controls the flow of knowledge?

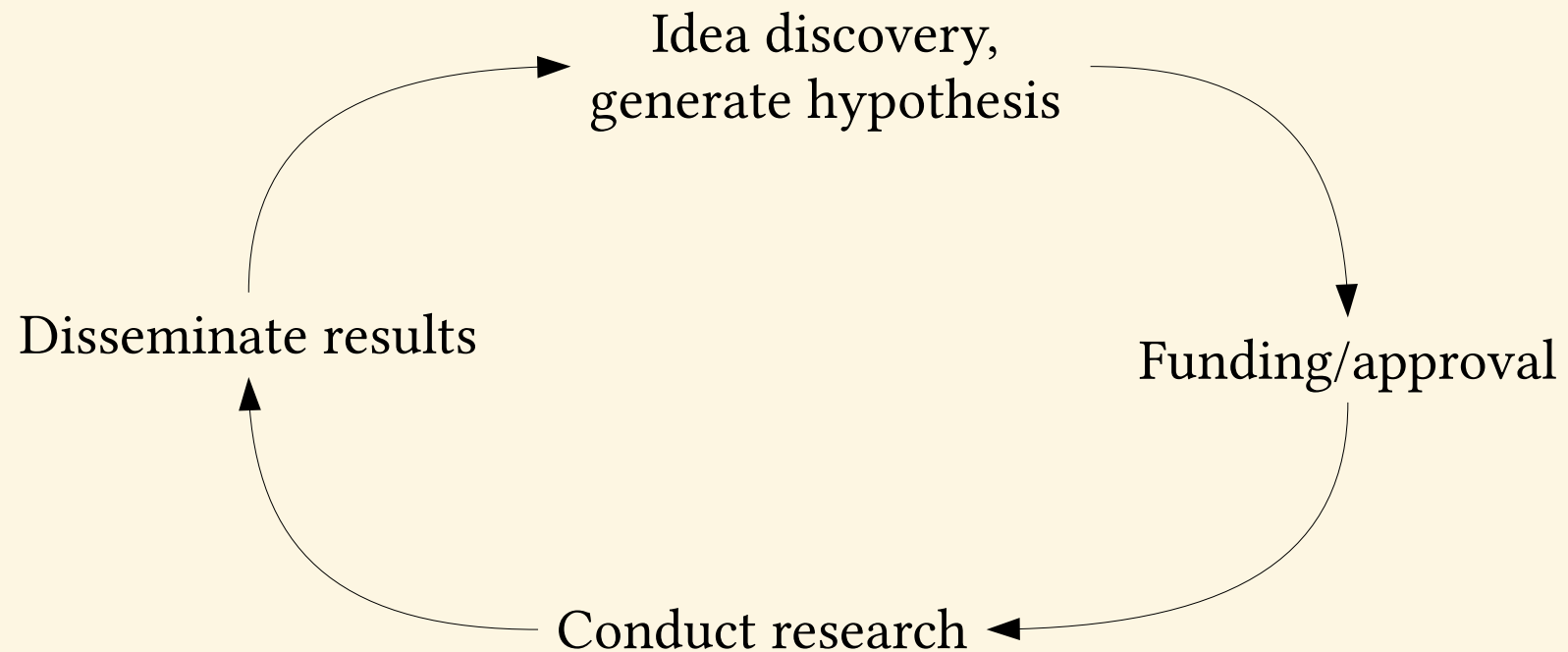
Who **controls** the flow of **knowledge**?

The diagram consists of two rectangular boxes, one under 'controls' and one under 'knowledge'. From the bottom-left corner of the 'controls' box, a line extends downwards, then turns left, then down again to point at the definition. Similarly, from the bottom-left corner of the 'knowledge' box, a line extends downwards, then turns left, then down again to point at the definition.

**“controls” = makes,
accesses, validates,
can use**

“knowledge” = ???

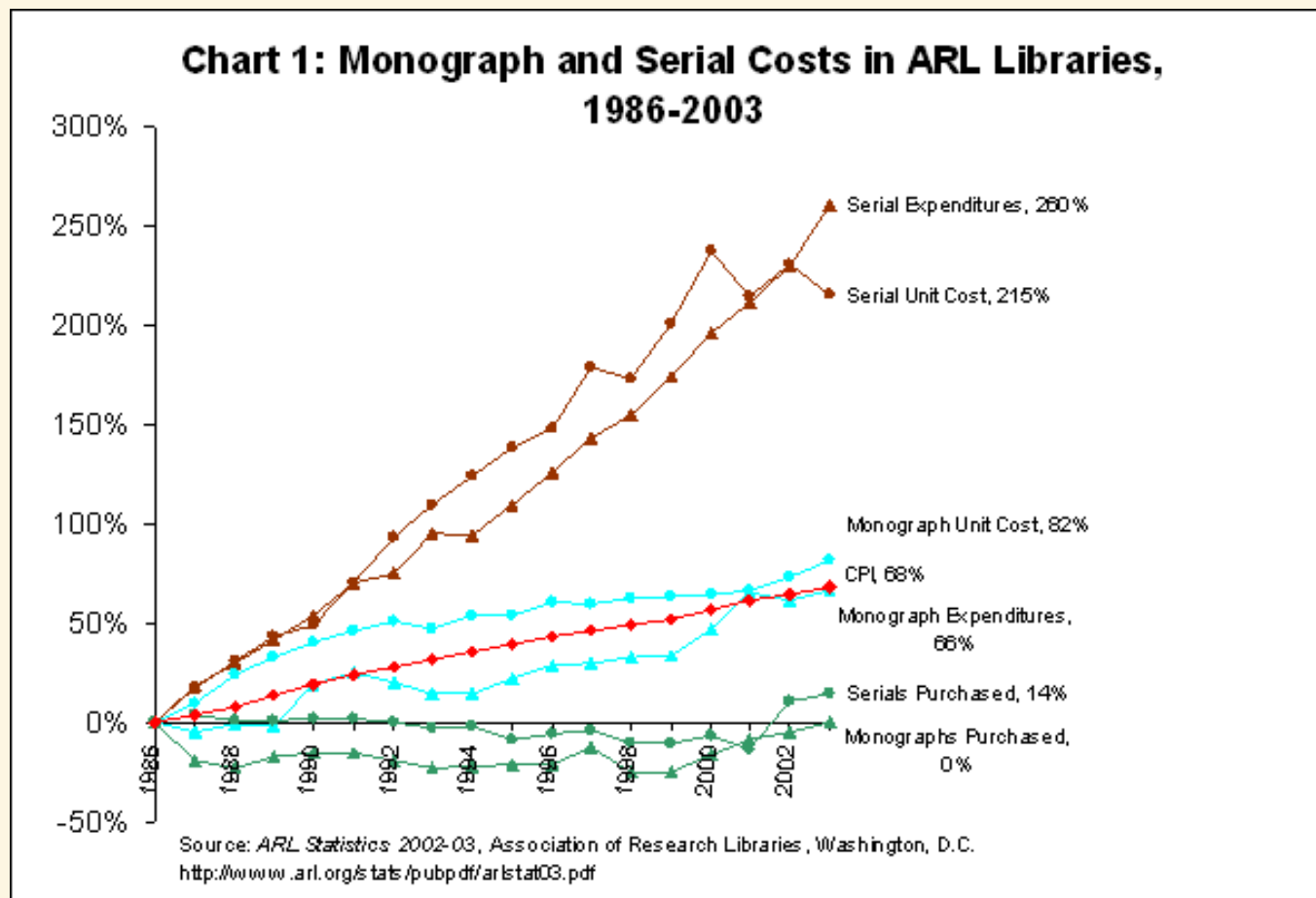
Scientific communication



Scientific crises

- Access to literature
- The speed of research
- Motivations for scientists
- Reliable research?

Access to literature



Reliability of research

 OPEN ACCESS

ESSAY

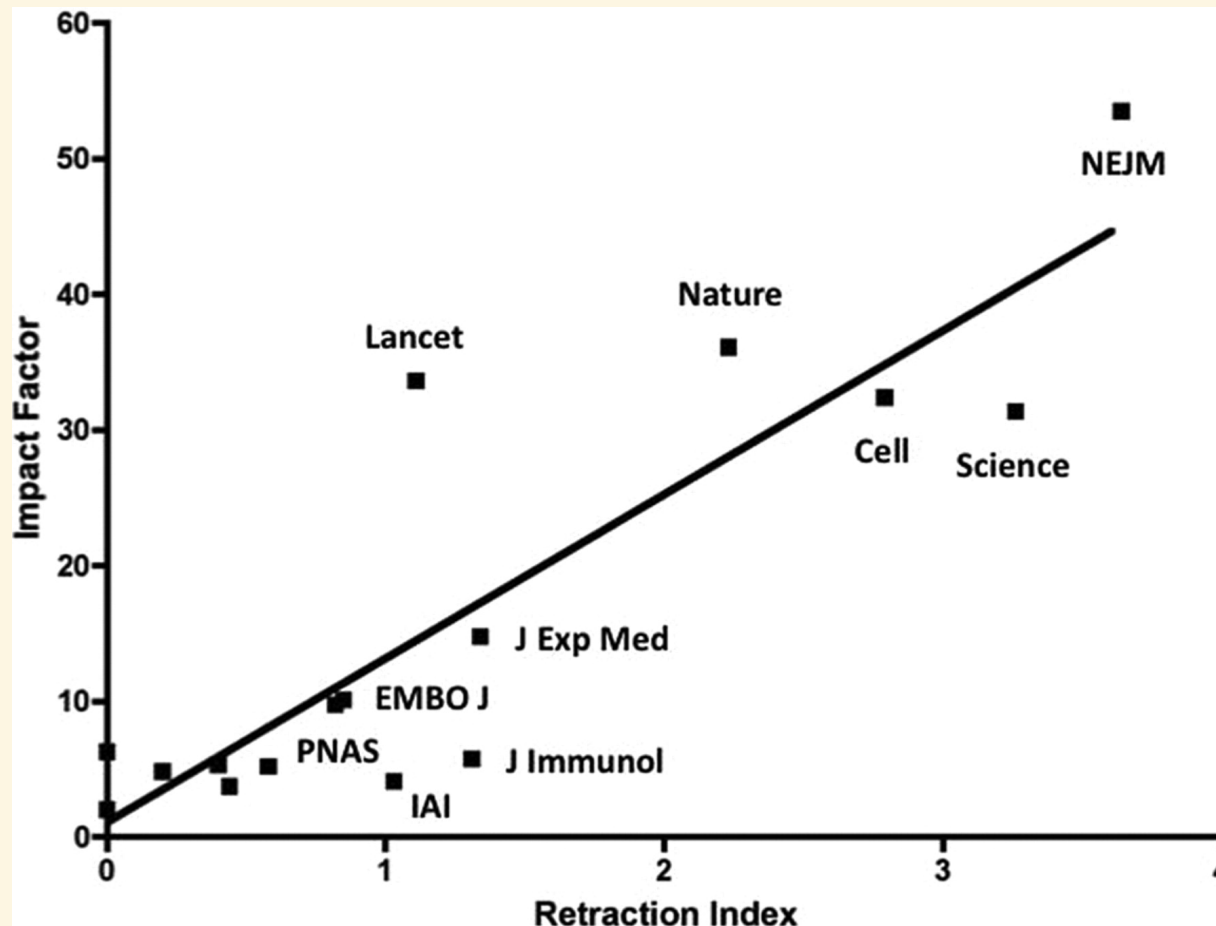
Why Most Published Research Findings Are False

John P. A. Ioannidis

Published: August 30, 2005 • DOI: 10.1371/journal.pmed.0020124

3 comments on PubPeer

Fraud and motivations



Solutions: crack it open?

- *Gratis* and *libre* publishing/communication
 - Legally and financially free
 - Literature
 - Code
 - Data
- Open notebook science

Open notebooks

November

- November 24, 2014 » [cloning: with Phusion](#) clone Mash1 with better Taq
- November 21, 2014 » [cDNA cloning](#)
- November 11, 2014 » [Mash1 primer update](#)
- November 11, 2014 » [cDNA clones](#) clone Mash1 with negative primer controls
- November 6, 2014 » [testing Mash1 primers](#)
- November 3, 2014 » [mash1 vector ligation](#) ligation with newly digested inserts and vectors

October

- October 30, 2014 » [digest of eGFP vector and Mash1 inserts](#)
- October 29, 2014 » [Mash1 and new vector](#)
- October 29, 2014 » [Mash1 PCR](#) make a larger working stock of Mash1 insert
- October 25, 2014 » [screening 10/23/14 colonies](#)
- October 23, 2014 » [Mash1 and new vector](#)
- October 23, 2014 » [cutting new vector](#) make stock of clean digested vector
- October 21, 2014 » [re do of Mash1 ligation & transformation](#)
- October 21, 2014 » [pouring new LB plates](#) pouring 25 new plates for e. Coli
- October 18, 2014 » [Mash1 ligation & transformation](#)
- October 17, 2014 » [EcoRI Mash1 digest](#)
- October 16, 2014 » [purify Mash1/cDNA PCR product](#)

Open notebooks

Mash1 primer update

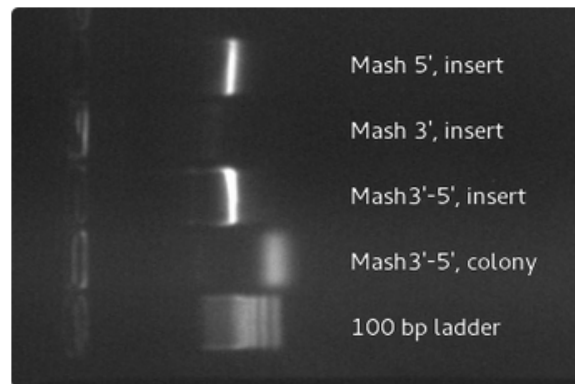
11 Nov 2014

SO

My lab notebook isn't quite up to date. It will be, and I'll update this update according (yay, git!), but first defining the new courses of research is better.

Basically, it doesn't take too much effort to look at the list of notebook entries and see a long, long, bunch of repetitive entries stretching back to August. I've actually run even more than immediately appear, because each "entry" may run three or four git versions back.

Anyway, since [this post](#), I've been working on cloning Mash1 from cDNA, cleaning it up, inserting it into a vector, and growing it up in e. coli. The log shows how difficult and excruciating each step has done. For naught, it turns out, because [last week](#) John and I had the idea to finally test *what*, exactly, my Mash1 primers were doing. And. Well.

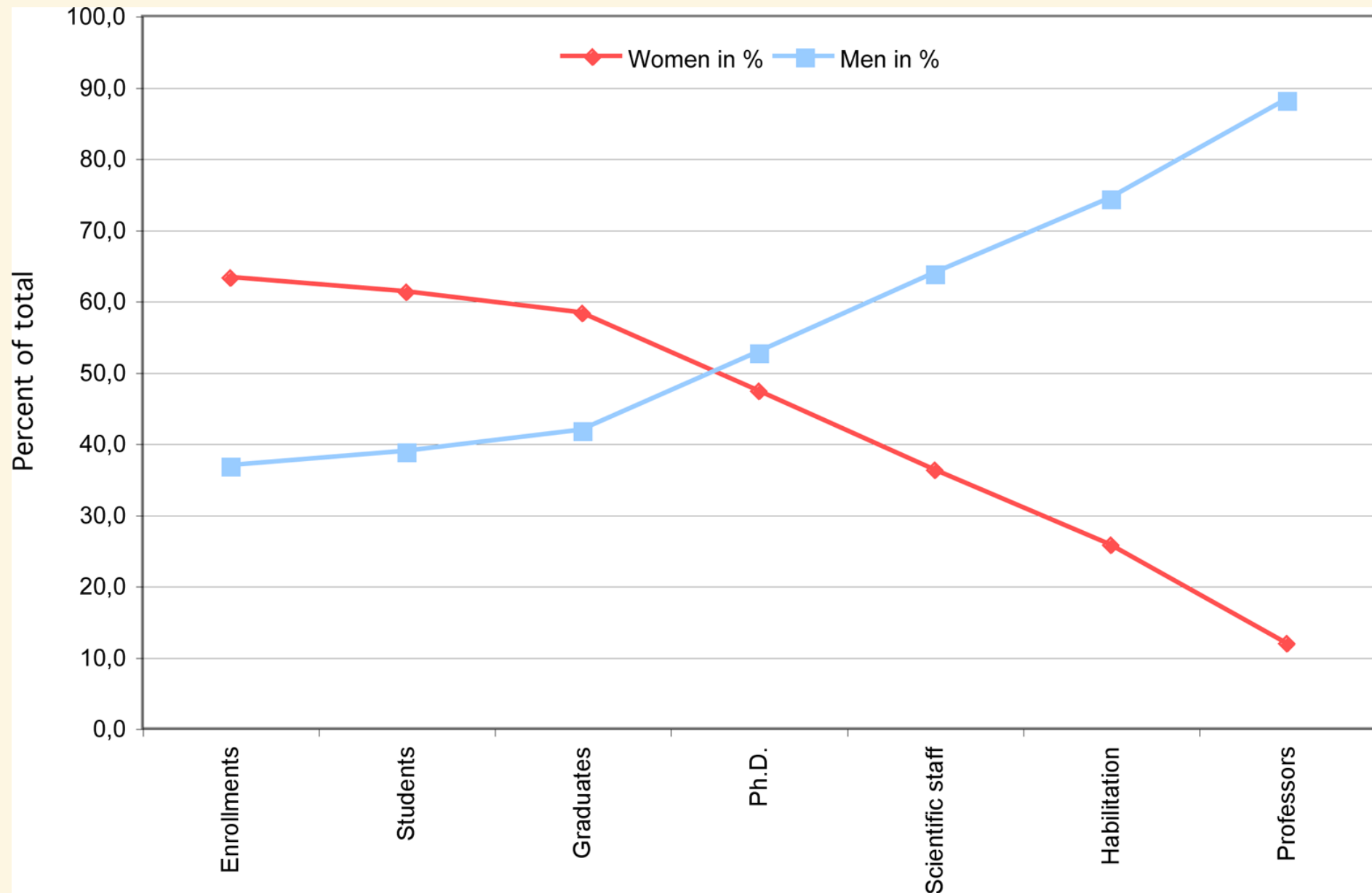


Scientists are people!

Gender

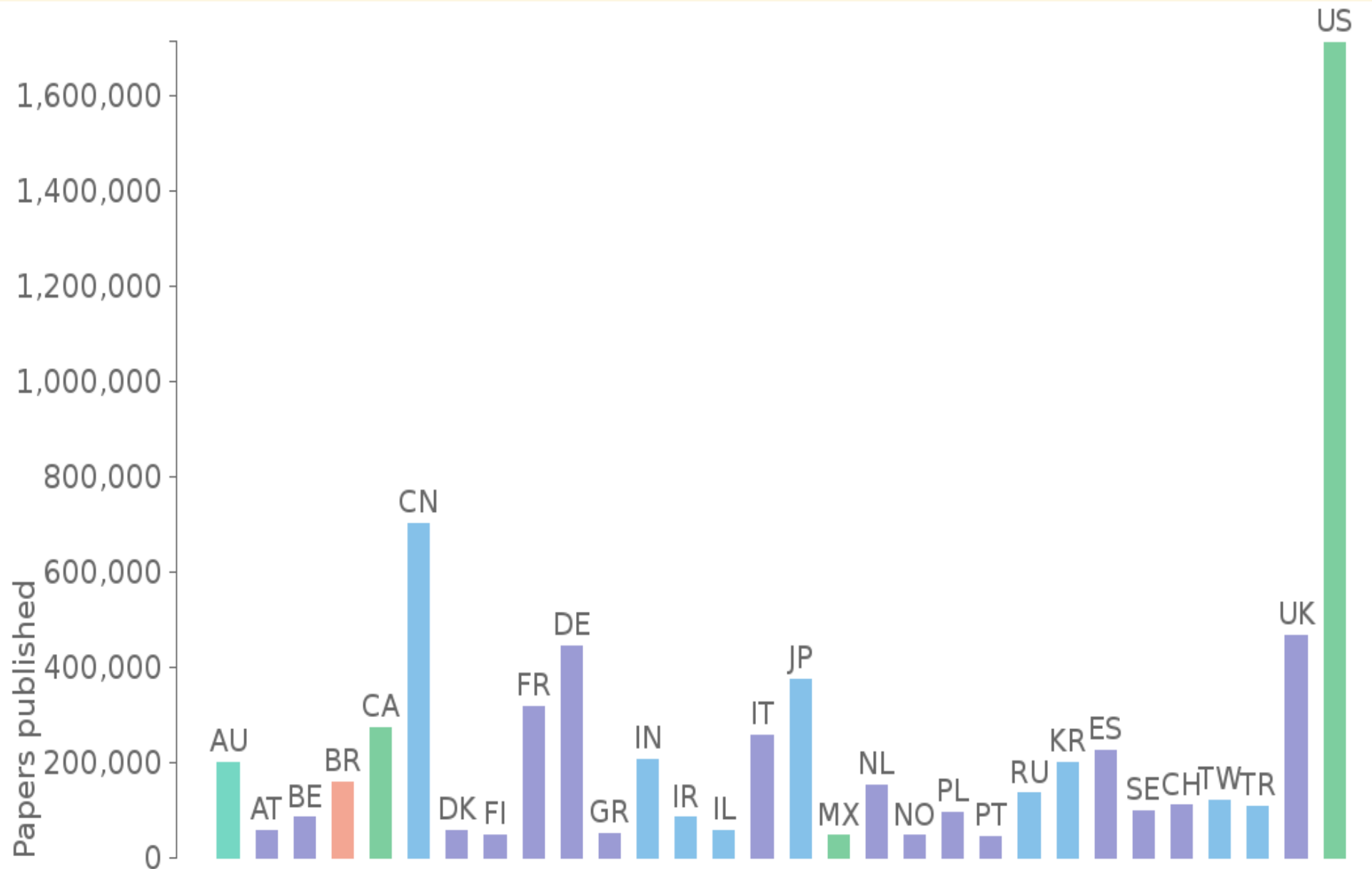
German Universities, 2003

neugebauer

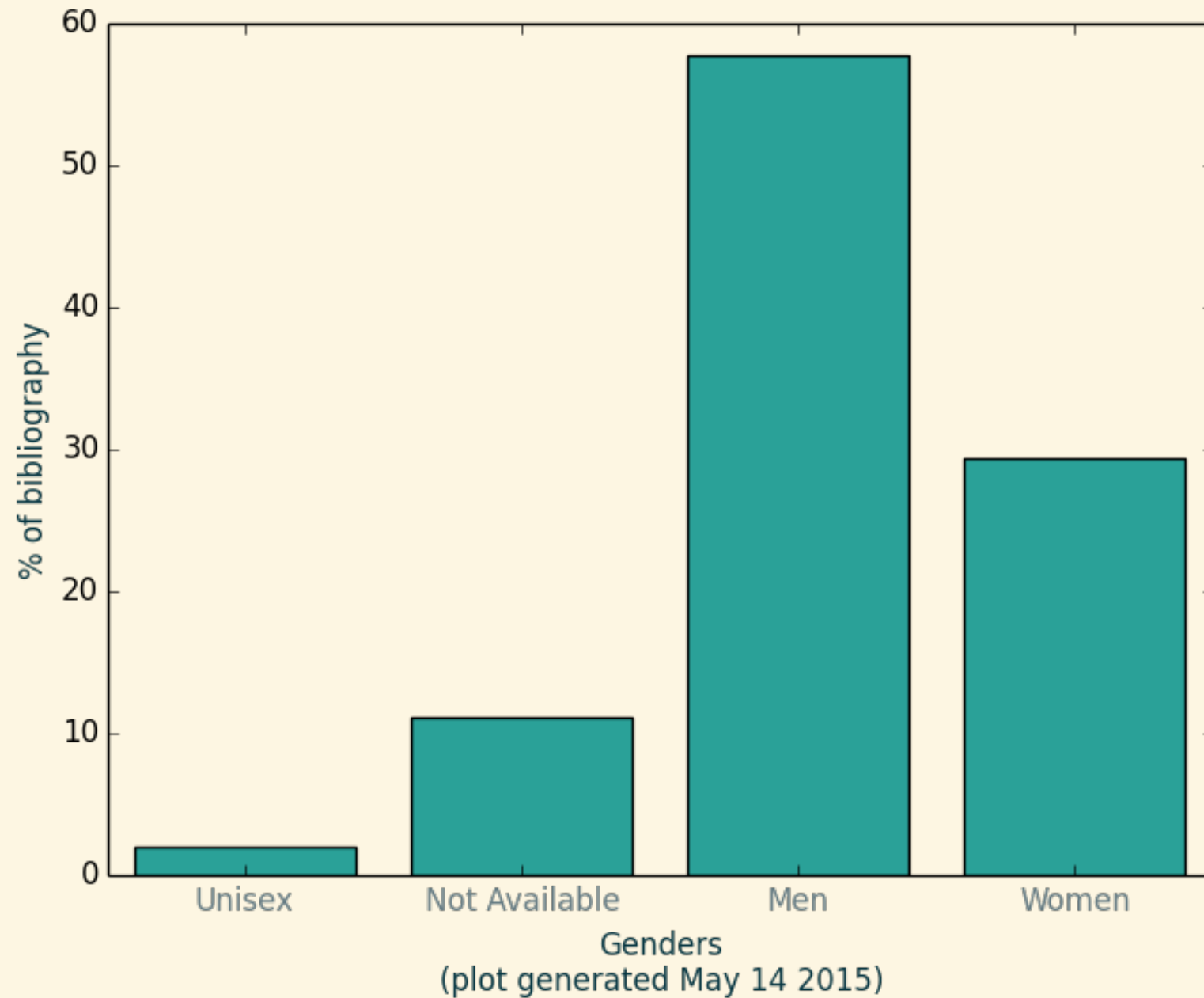


Global production

Web of Science, 2008-2012



Gender in my references



Psychedelics

Psychedelics

- Recreational
- Historical/indigenous
- Therapies
 - Trauma
 - Compulsions
 - Addictions (nicotine, cocaine, alcohol)
 - Anxiety
 - Depression

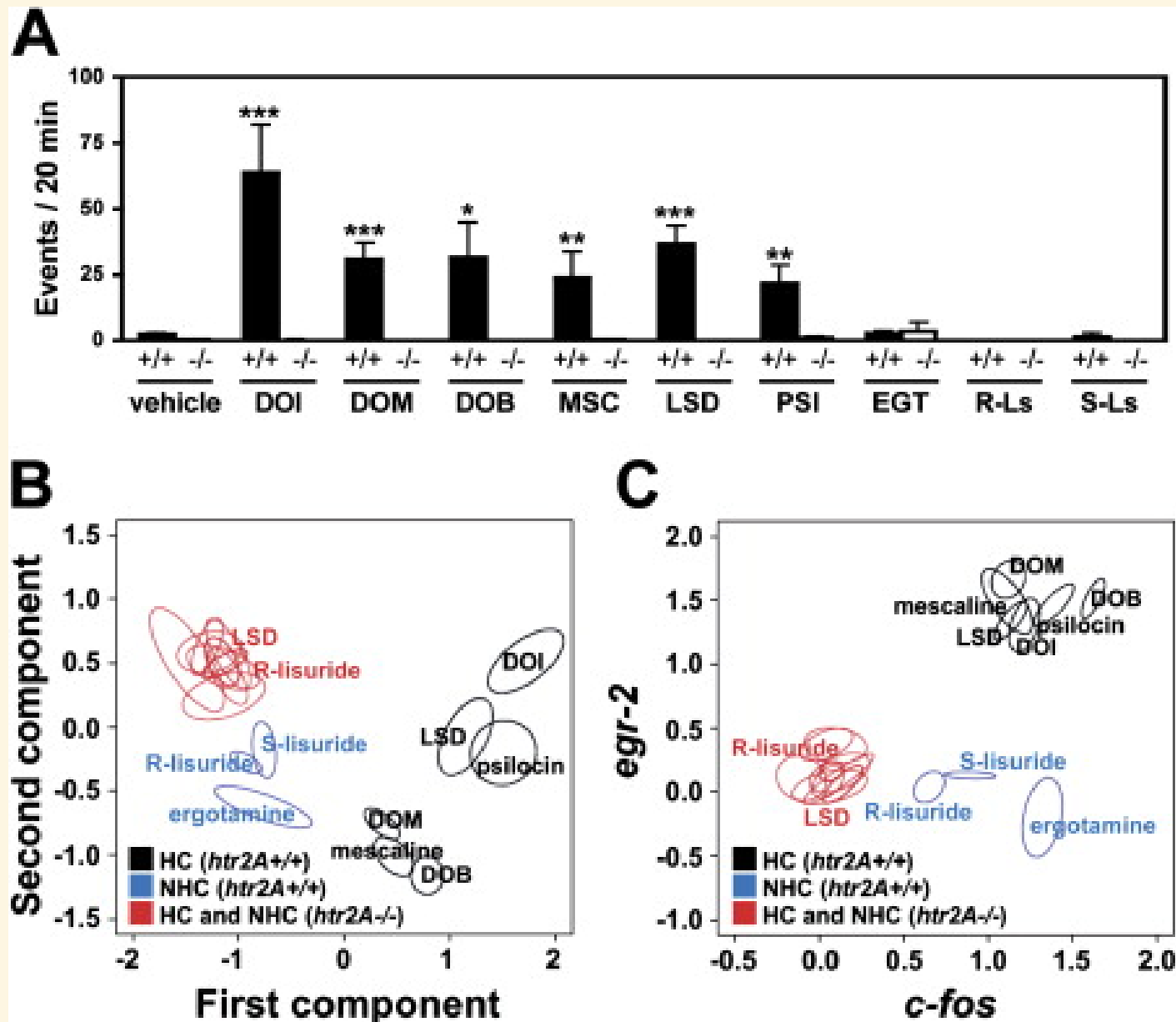
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Psychedelic signaling

- 5-HT_{2A} receptor
 - Modulated by 2C, dopaminergic, glutamergic, muscarinic receptors
- Neuroplasticity
 - Long-term meaningful experiences
- Exhibit functional selectivity
 - Signal *quality*, not just quantity

Transcriptional “fingerprints”



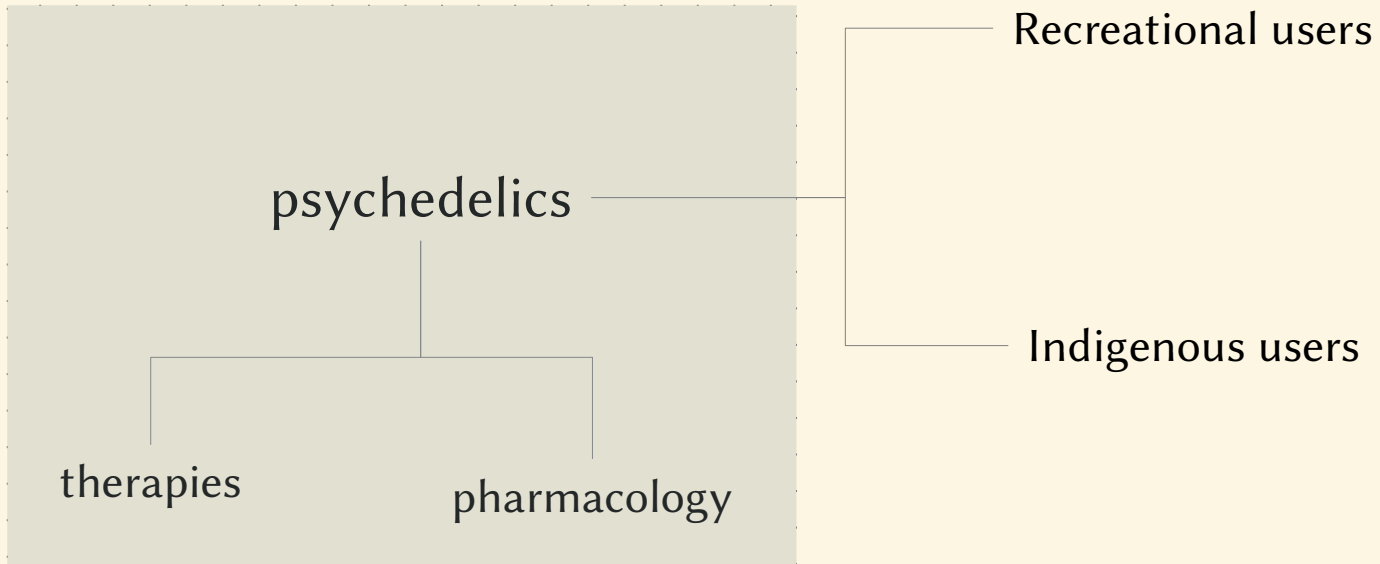
Complicating “open”

- DIY knowledge prerequisites
- journal literature as most important knowledge
- Majority vs. minority world
 - “Development”

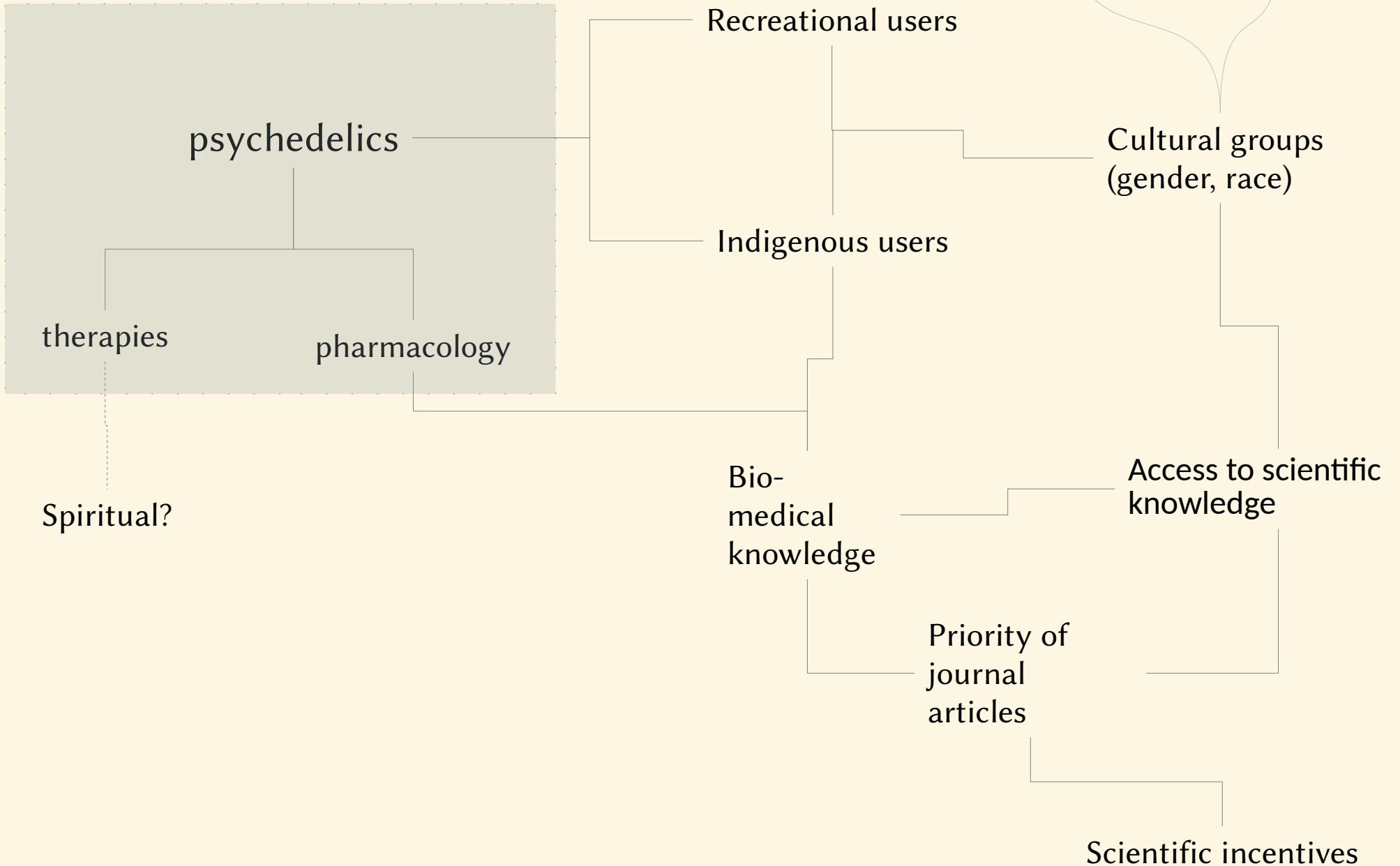
Complicating therapies

- (Bio) medicalization
- alcoholism
 - brain disease
 - social disease
- Rat Park
- Traditional usage vs. scientifically validated

Science...



...in context



Thank you to

- **Funding:** Foundation for Psychocultural Research- Hampshire College Program in Culture, Brain, and Development
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- Div III/housemates
- My family!

Questions?