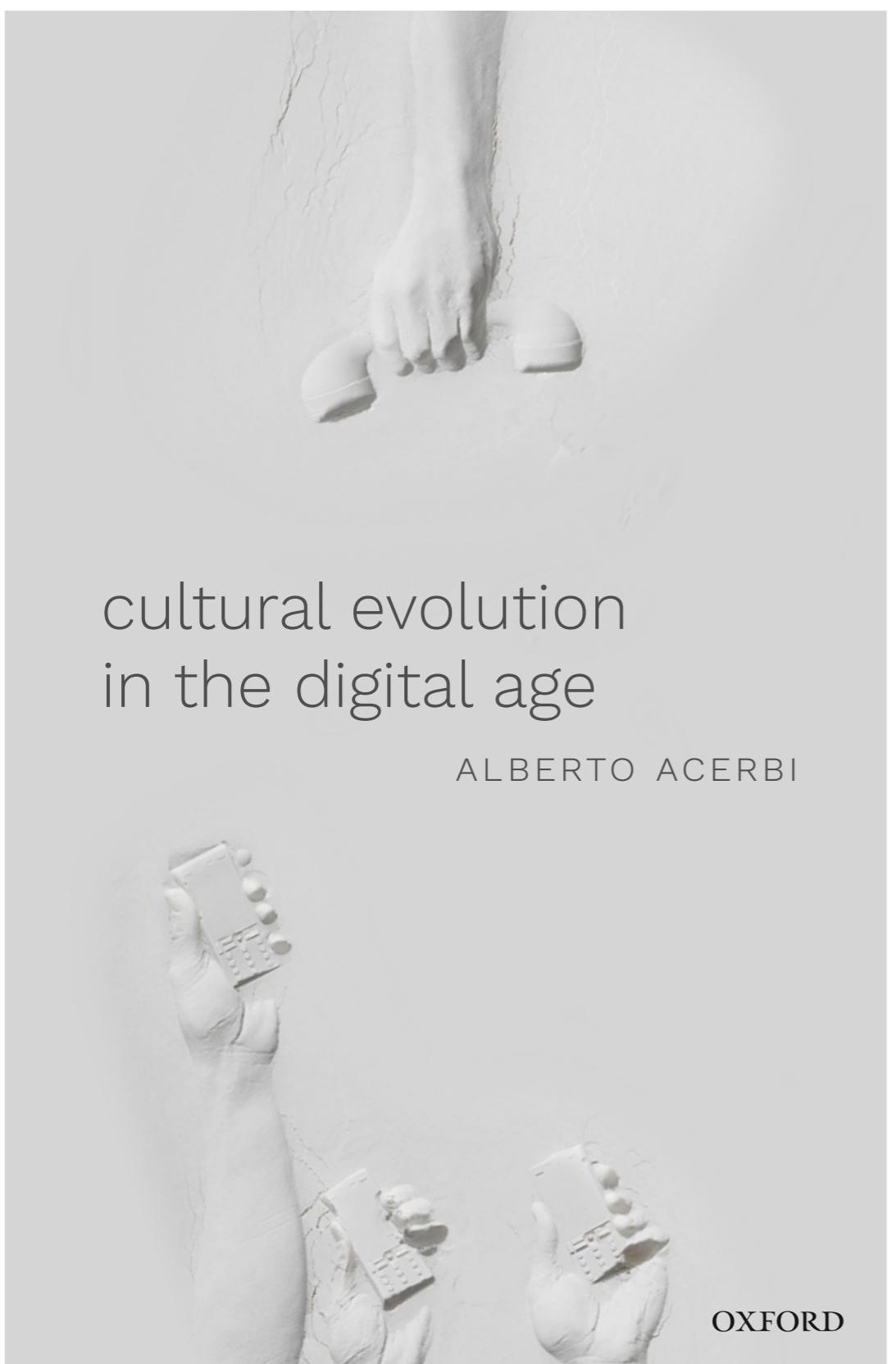


# Digital age: the long view

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Alberto Acerbi

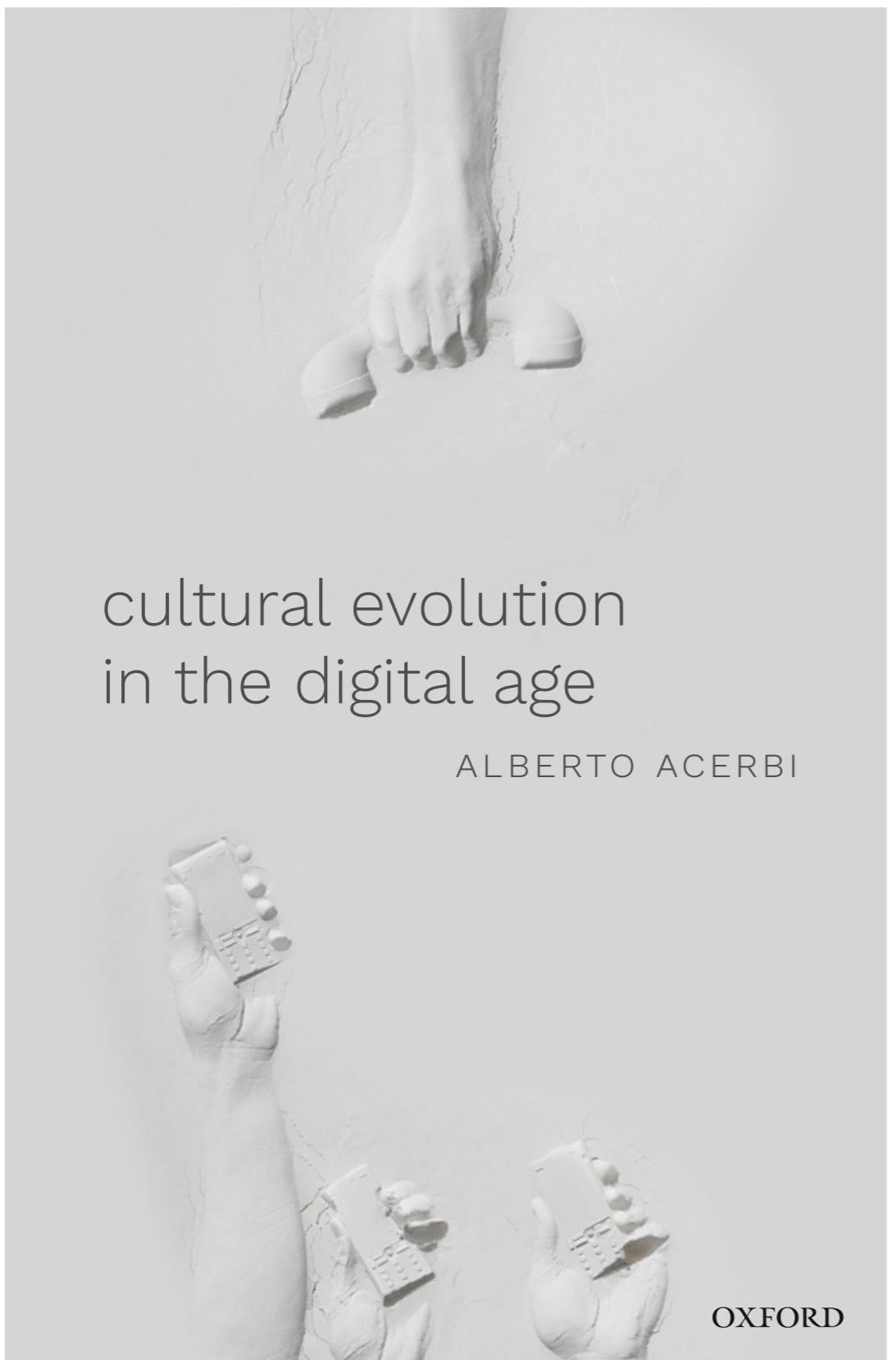


# cultural evolution in the digital age

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OXFORD

- Application of cultural evolutionary theory to digital and online media
- “Big data needs big theory”

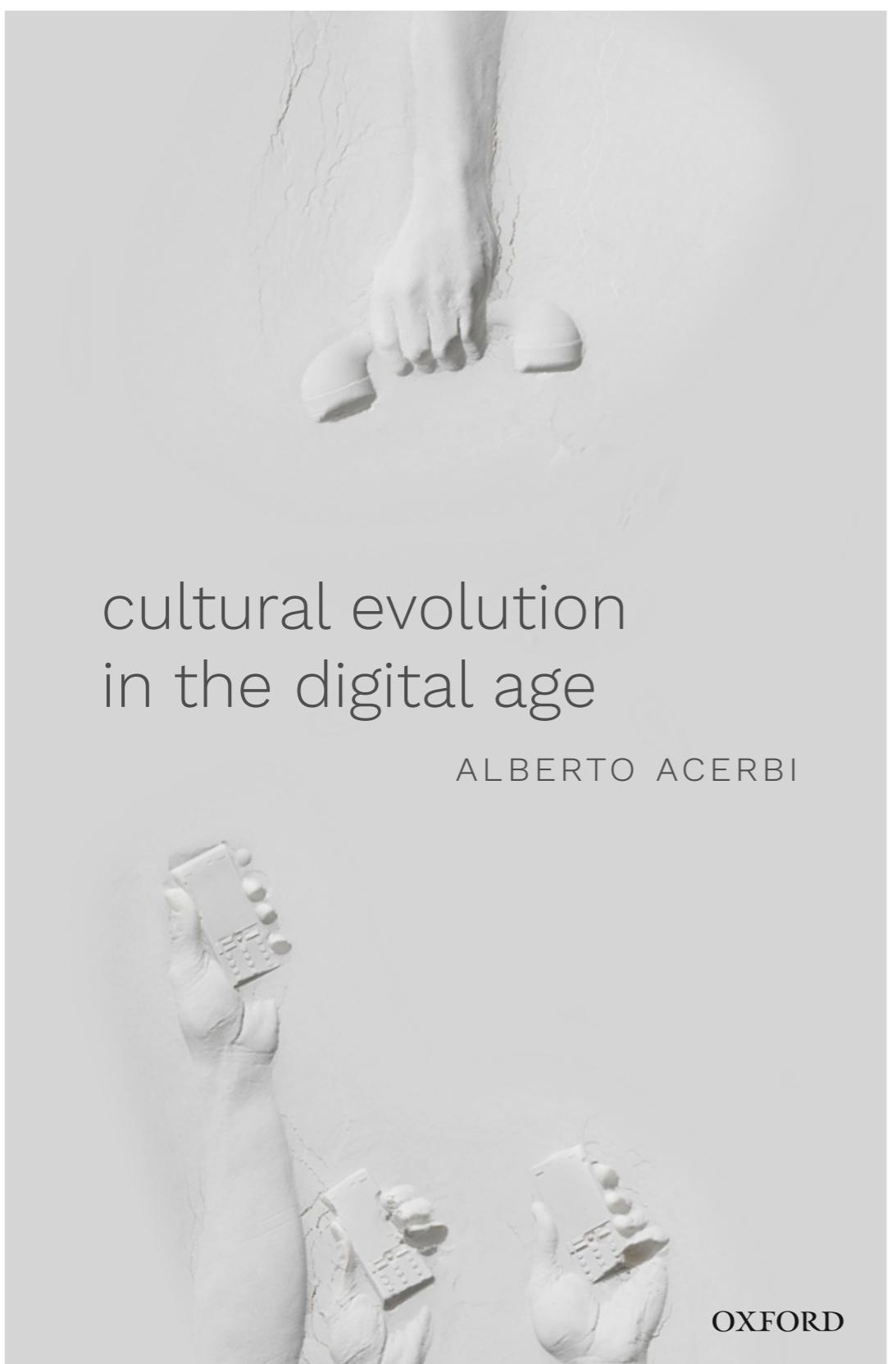


# cultural evolution in the digital age

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- Cumulative culture online
- Wary learners
- The cognitive appeal of misinformation



# cultural evolution in the digital age

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# What is cumulative culture?



# Cumulation is different in different domains

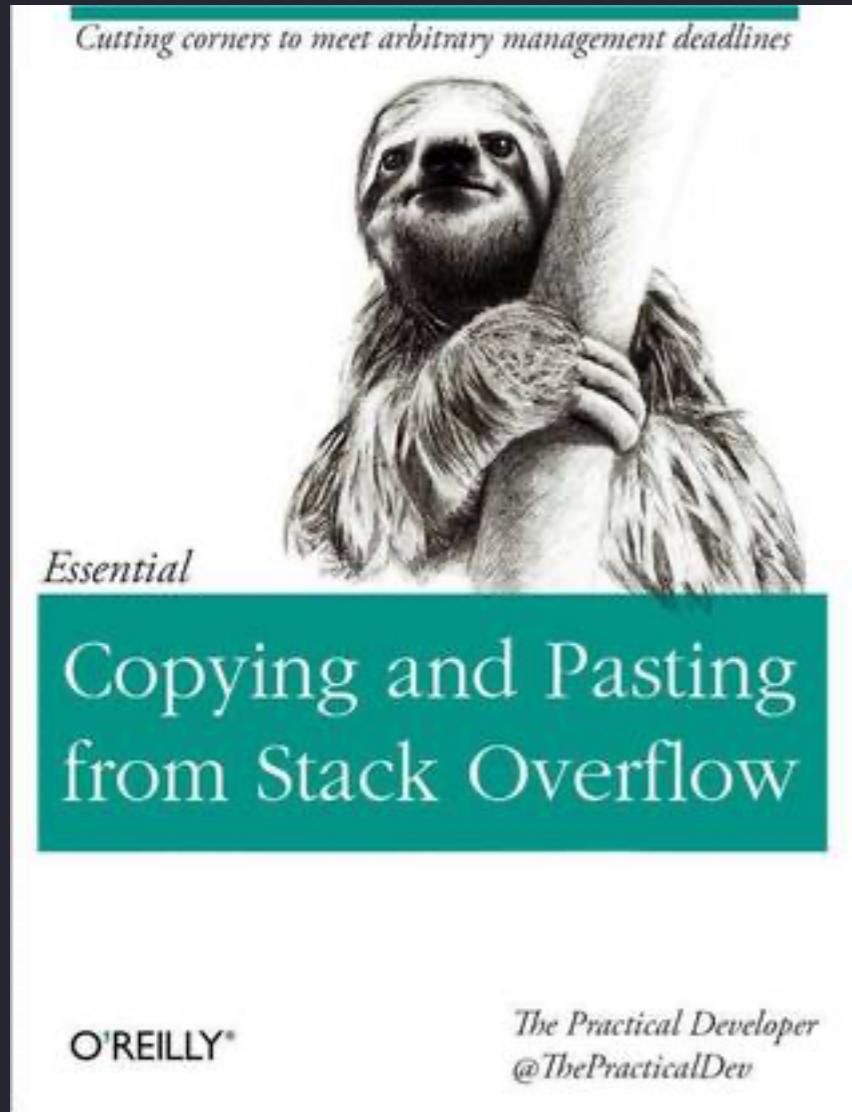


# Cumulation depends on availability

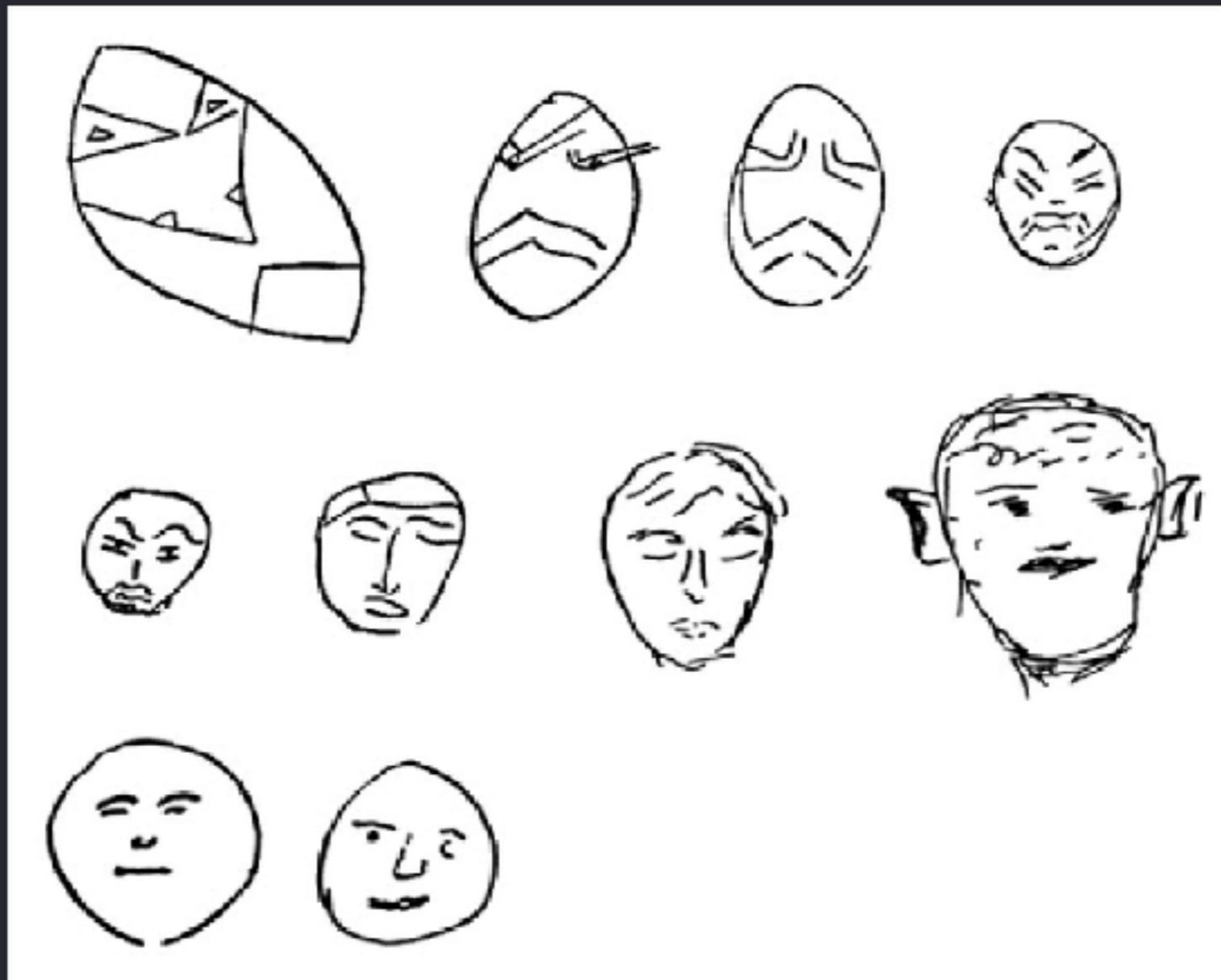


Henrich, 2004

# Online digital media provide hyper-availability

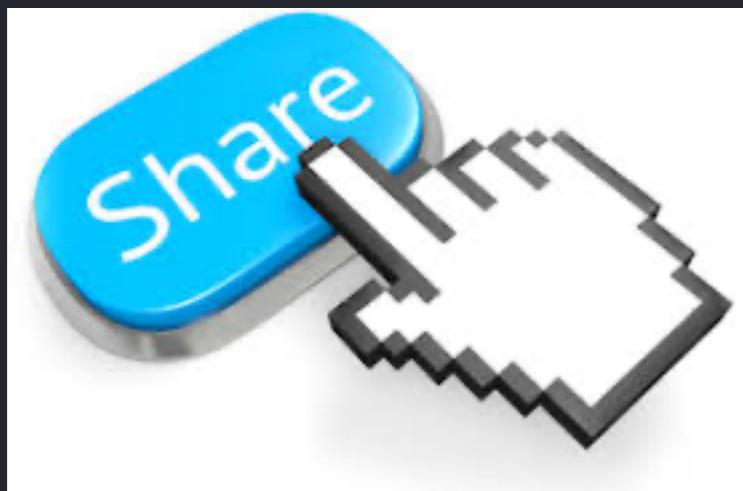


# Cumulation depends on fidelity

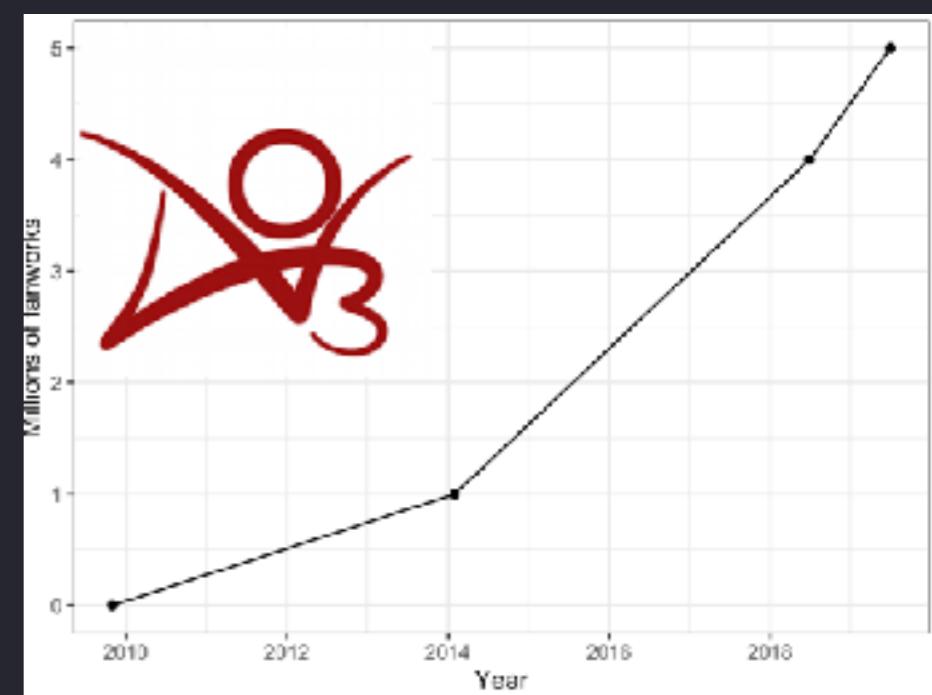
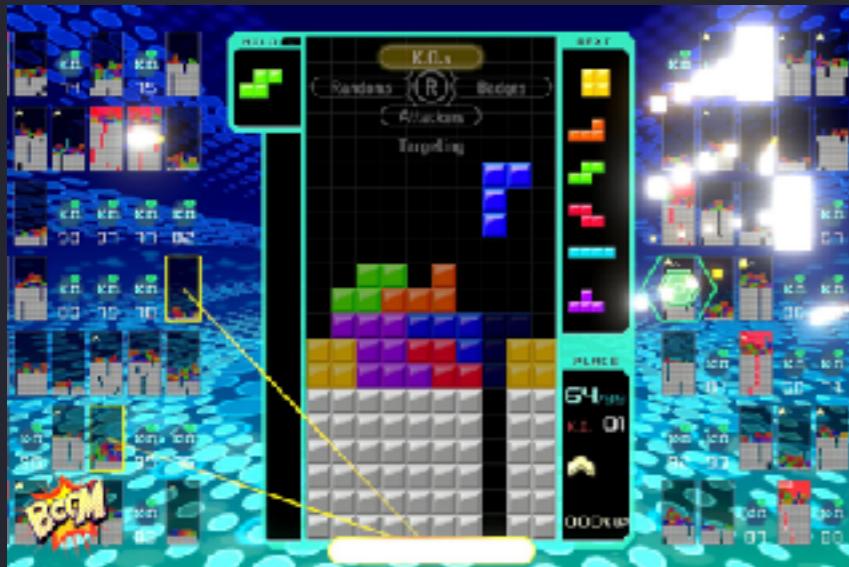


Bartlett, 1928

# Online digital media increase fidelity



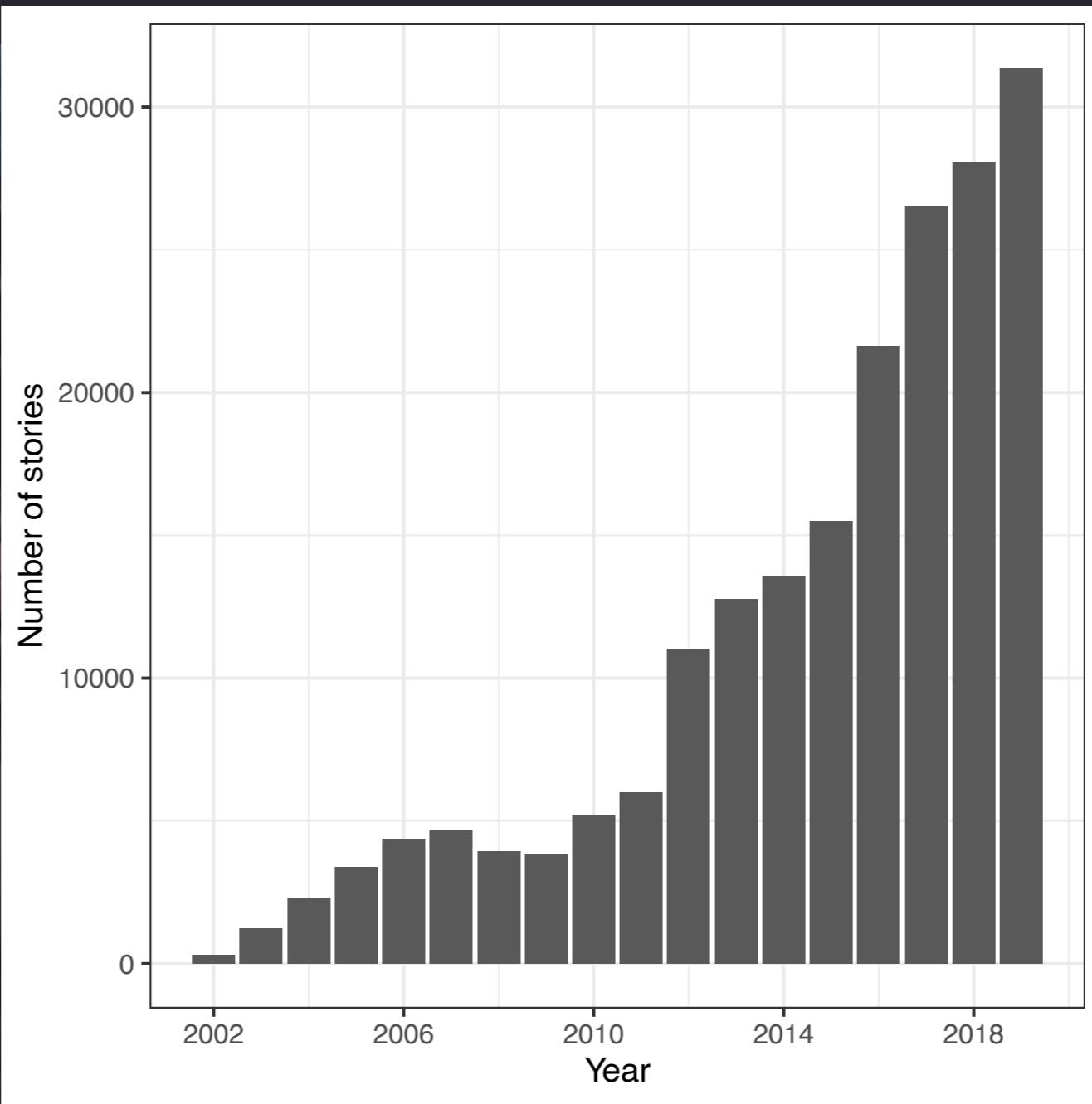
# Do hyper-availability and increased fidelity boost cumulation online?



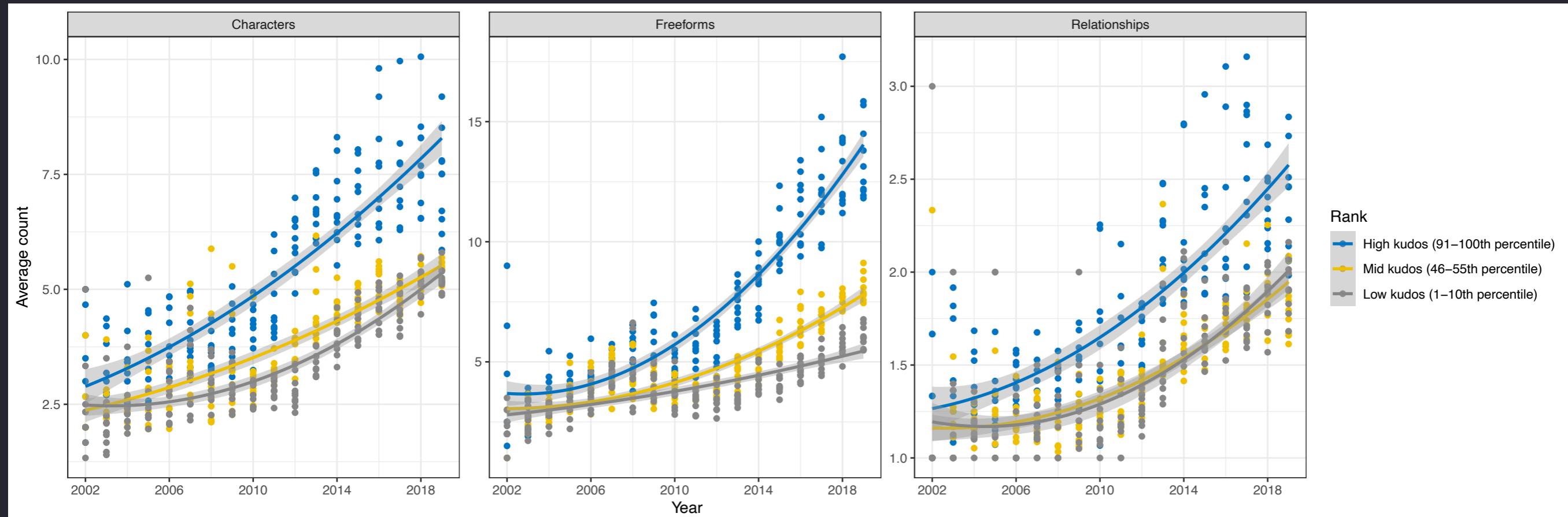
# Harry-Potter fan fiction



# Harry-Potter fan fiction

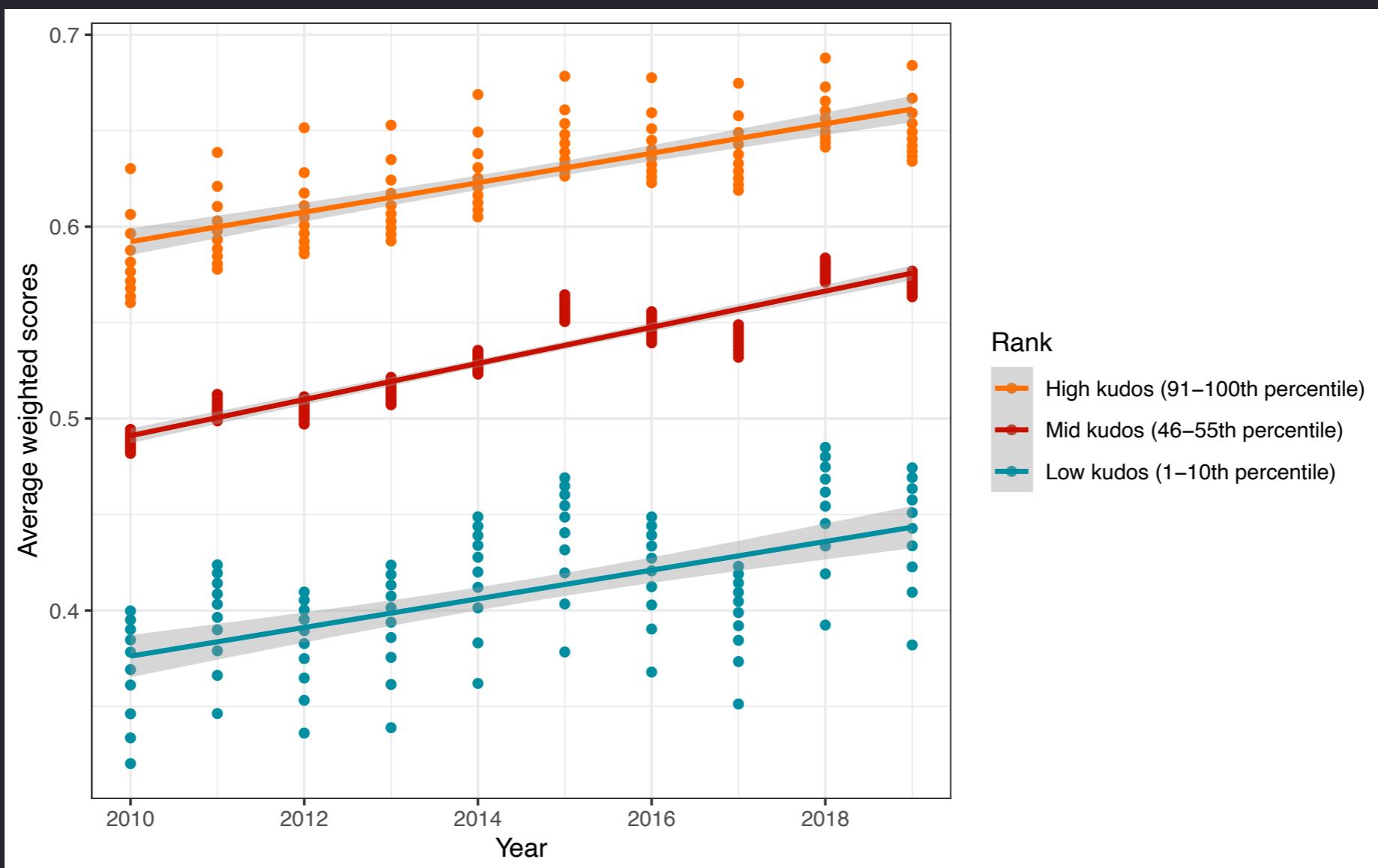


# Harry-Potter fan fiction



Pianzola et al, 2020

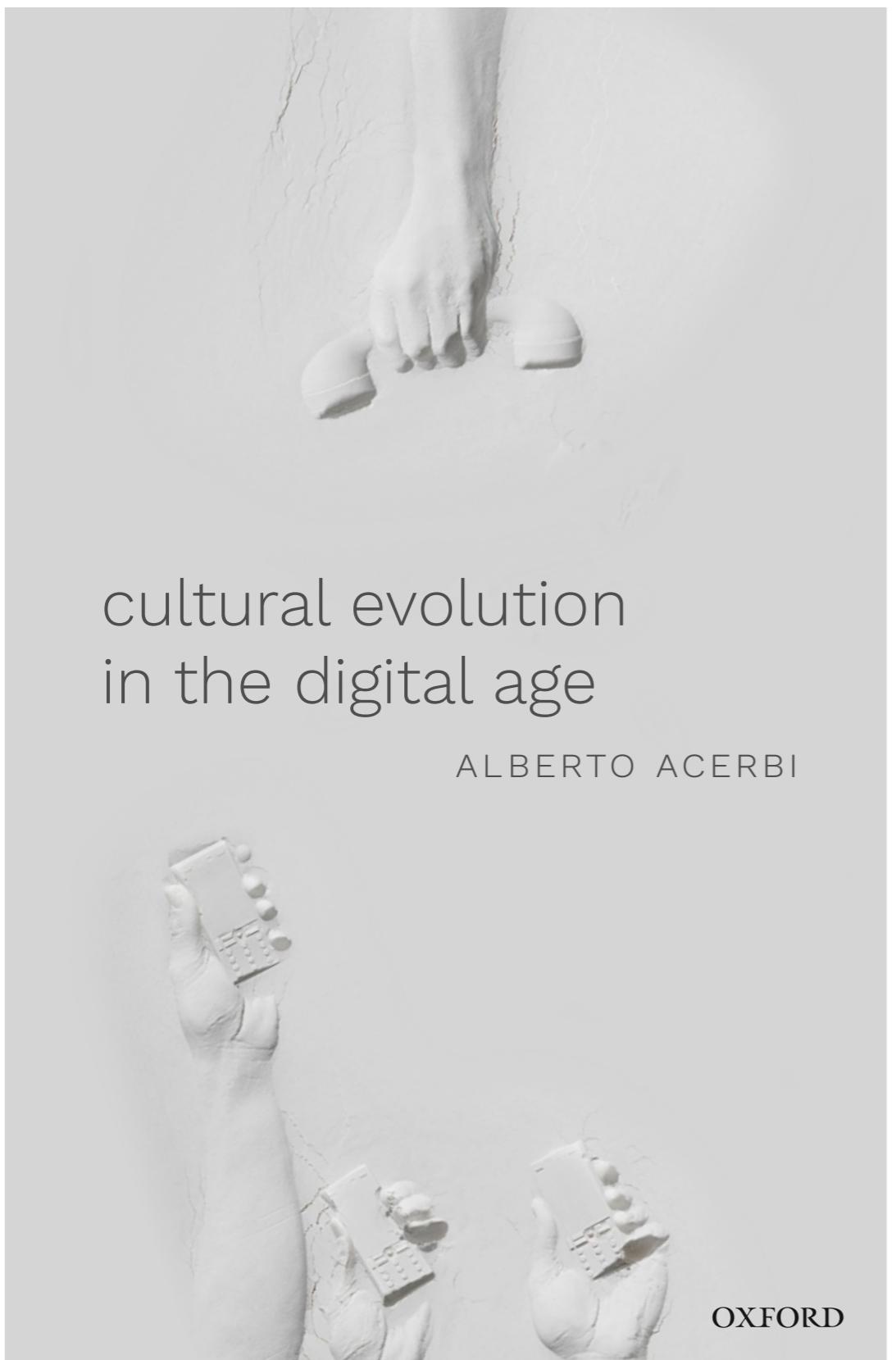
# Harry-Potter fan fiction



Pianzola et al, 2020

# Summary

- Cumulative culture: traits are improved through time
- The amount of cumulation is different in different domains
- Cumulation depends (also) on availability and fidelity
- Online digital media increase availability and fidelity
- Do (and how) online digital media increase cumulation?



# cultural evolution in the digital age

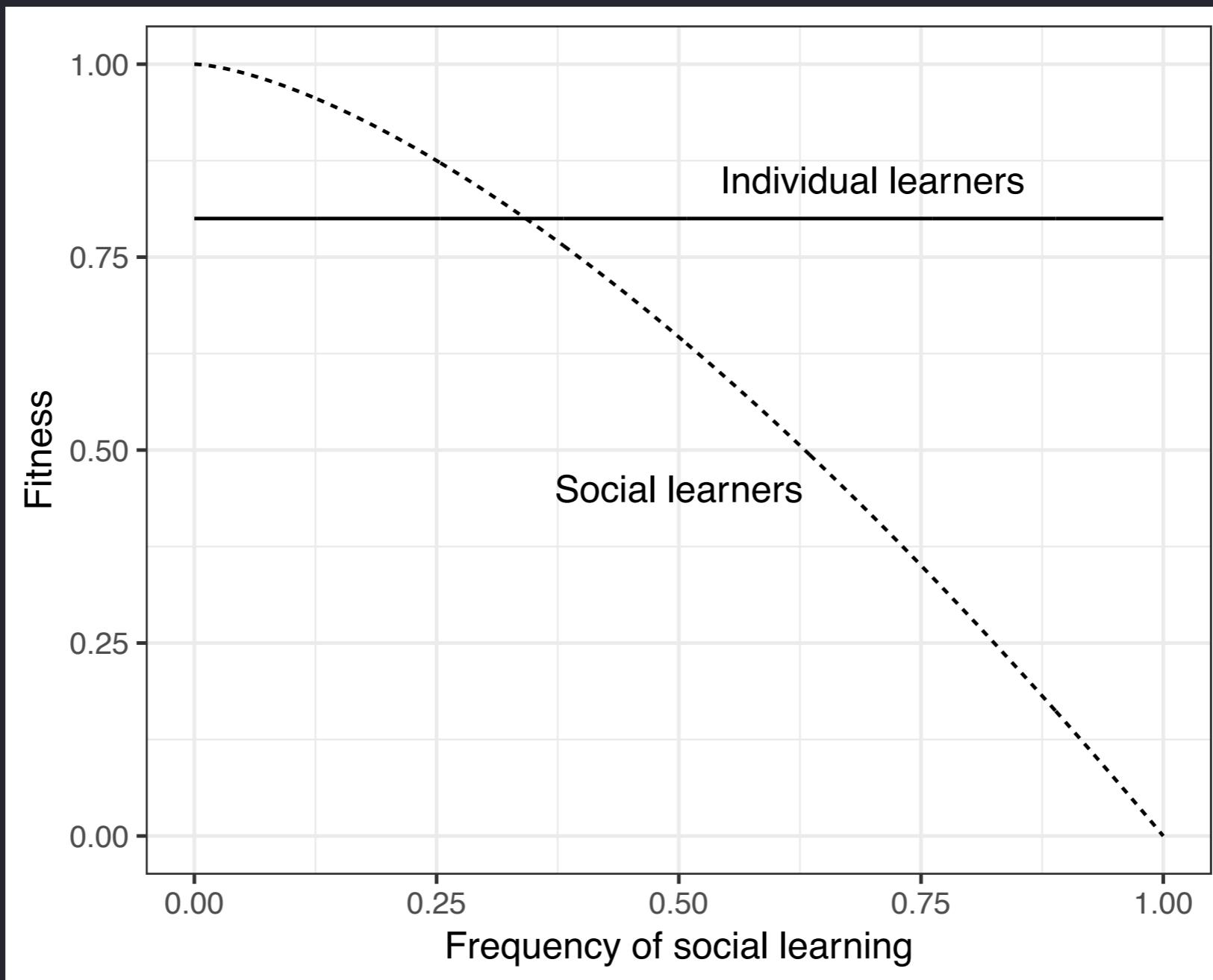
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**Digital age: the long view**

# Roger's paradox



Rogers, 1988

# Strategic learners

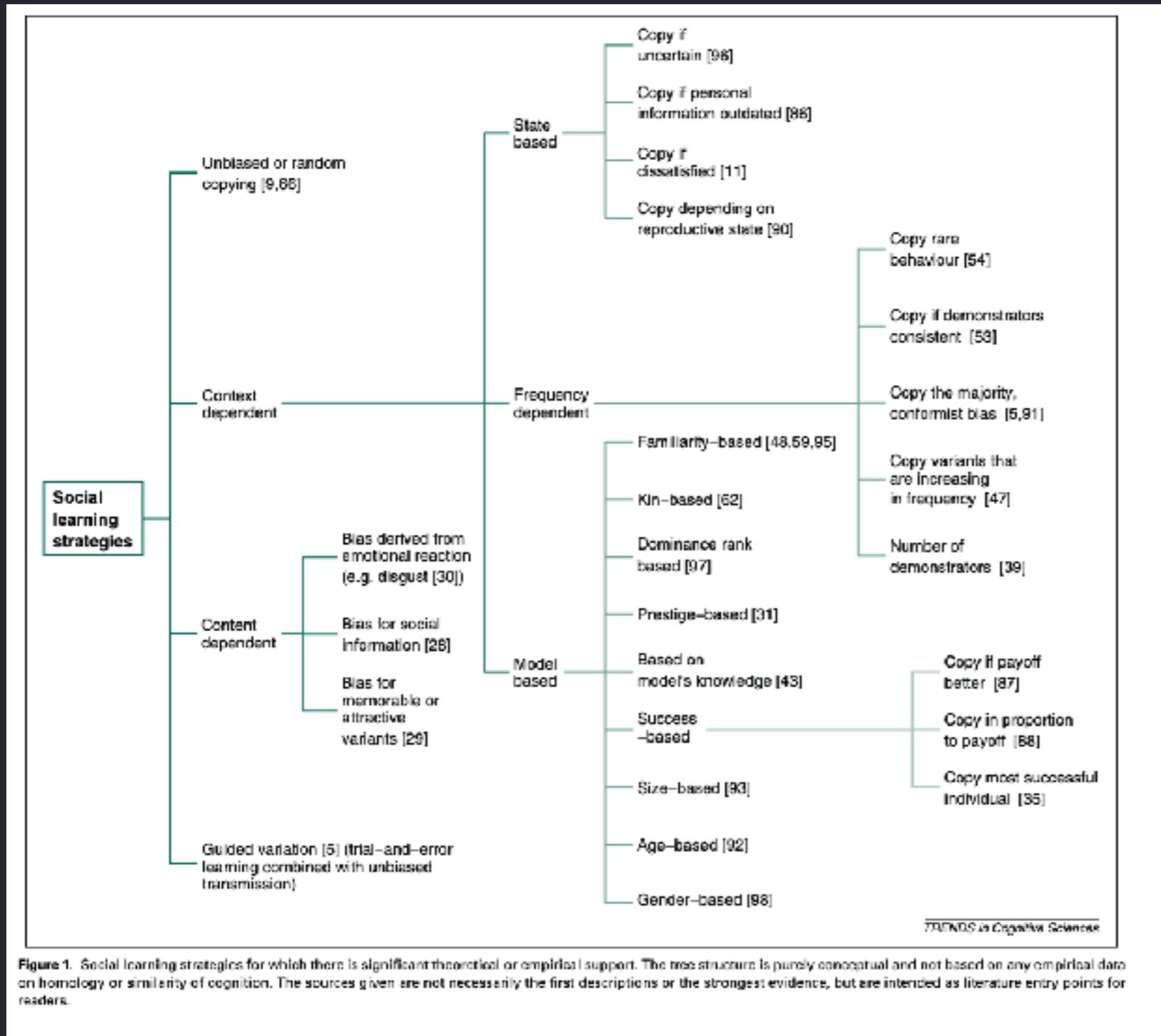
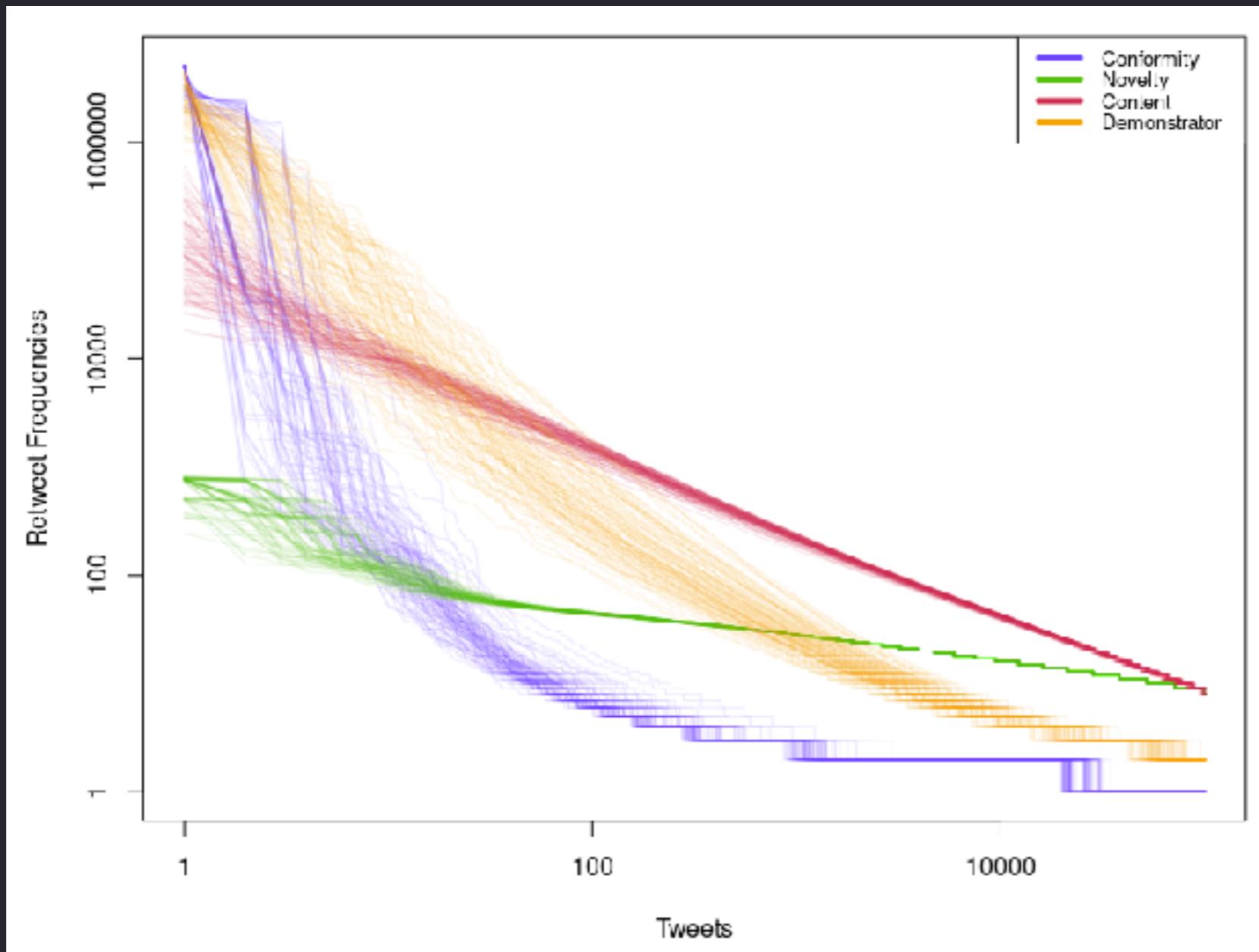


Figure 1. Social learning strategies for which there is significant theoretical or empirical support. The tree structure is purely conceptual and not based on any empirical data on homology or similarity of cognition. The sources given are not necessarily the first descriptions or the strongest evidence, but are intended as literature entry points for readers.

Rendell et al., 2011

# Transmission biases in the spread of voter fraud conspiracy theories on Twitter during the 2020 US election



Youngblood et al, 2021

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.

without any social learning fit the best. Once again, this result suggests that players did not consistently use the social information provided in this treatment in any way captured by our models. Moreover, this information was

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.

returns when taking social information into account. However, a considerable number of participants did not use social information under medium environmental variability. More-

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.

individuals rarely did so. By the end of an experimental farm, only about 20% of participants choose to view social information. Thus, the better fit of the social model applies only in those cases, which are overall the minority. When participants did view social

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.

*Journal of Evolutionary Psychology*, 7(2009)4, 309–329  
DOI: 10.1556/JEP.7.2009.4.4

## **BIASES FOR ACQUIRING INFORMATION INDIVIDUALLY RATHER THAN SOCIALLY**

**KIMMO ERIKSSON<sup>1,2\*</sup> AND PONTUS STRIMLING<sup>2</sup>**

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.



Evolution and Human Behavior  
Volume 32, Issue 5, September 2011, Pages 334-342



Original Article  
An experimental comparison of human social learning strategies: payoff-biased social learning is adaptive but underused

Alex Mesoudi

# Discounting social information

- Surprisingly, many experiments in cultural evolution show that participants tend to discount social information, especially when conflicts with one own previous knowledge.

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Review

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Cite this article: Morin O, Jacquet PO, Vaesen K, Acerbi A. 2021 Social information use and social

Social information use and social information waste

Olivier Morin<sup>1,2</sup>, Pième Olivier Jacquet<sup>3</sup>, Krist Vaesen<sup>4</sup> and Alberto Acerbi<sup>5</sup>

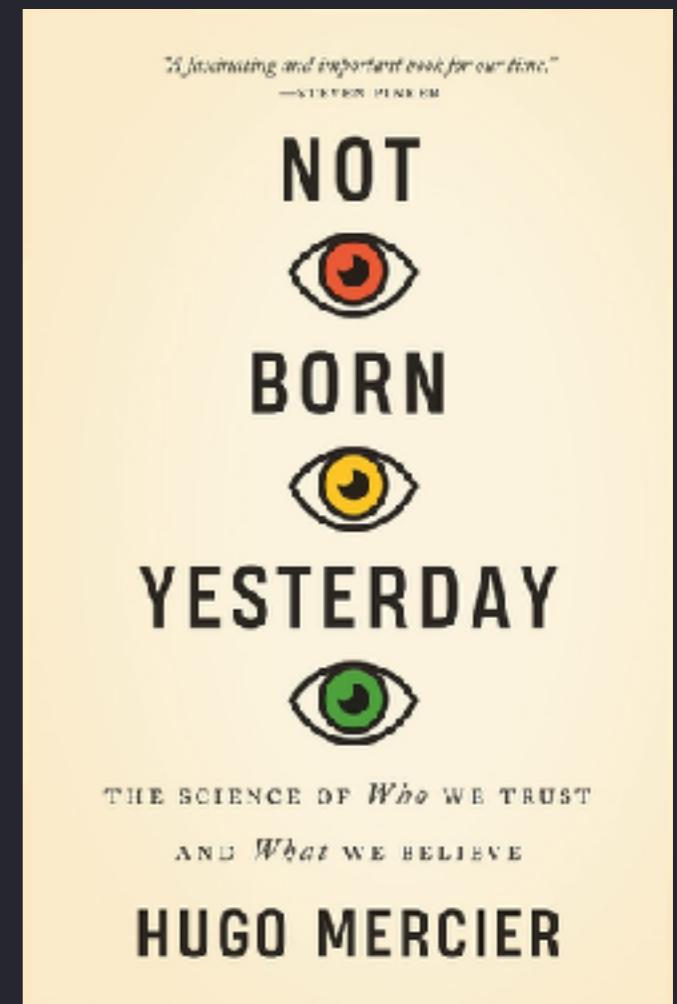
<sup>1</sup>Institut Jean Nicod, DEC, ENS, EHESS, CNRS, PSL University, UMR 8129, Paris, France  
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<sup>4</sup>School of Innovation Sciences, Eindhoven University of Technology, Eindhoven, The Netherlands  
<sup>5</sup>Centre for Culture and Evolution, Brunel University London, London, UK

DOI: [10.1098/rstb.2020.0307](https://doi.org/10.1098/rstb.2020.0307); AA, [10.1098/rsta.2020.0303](https://doi.org/10.1098/rsta.2020.0303)

Morin et al, 2021

# Epistemic vigilance

- Consider the possibility of deception
- More sophisticated cognitive mechanisms (plausibility checking, trust calibration, reasoning, etc...)
- “default” state: not accepting new information

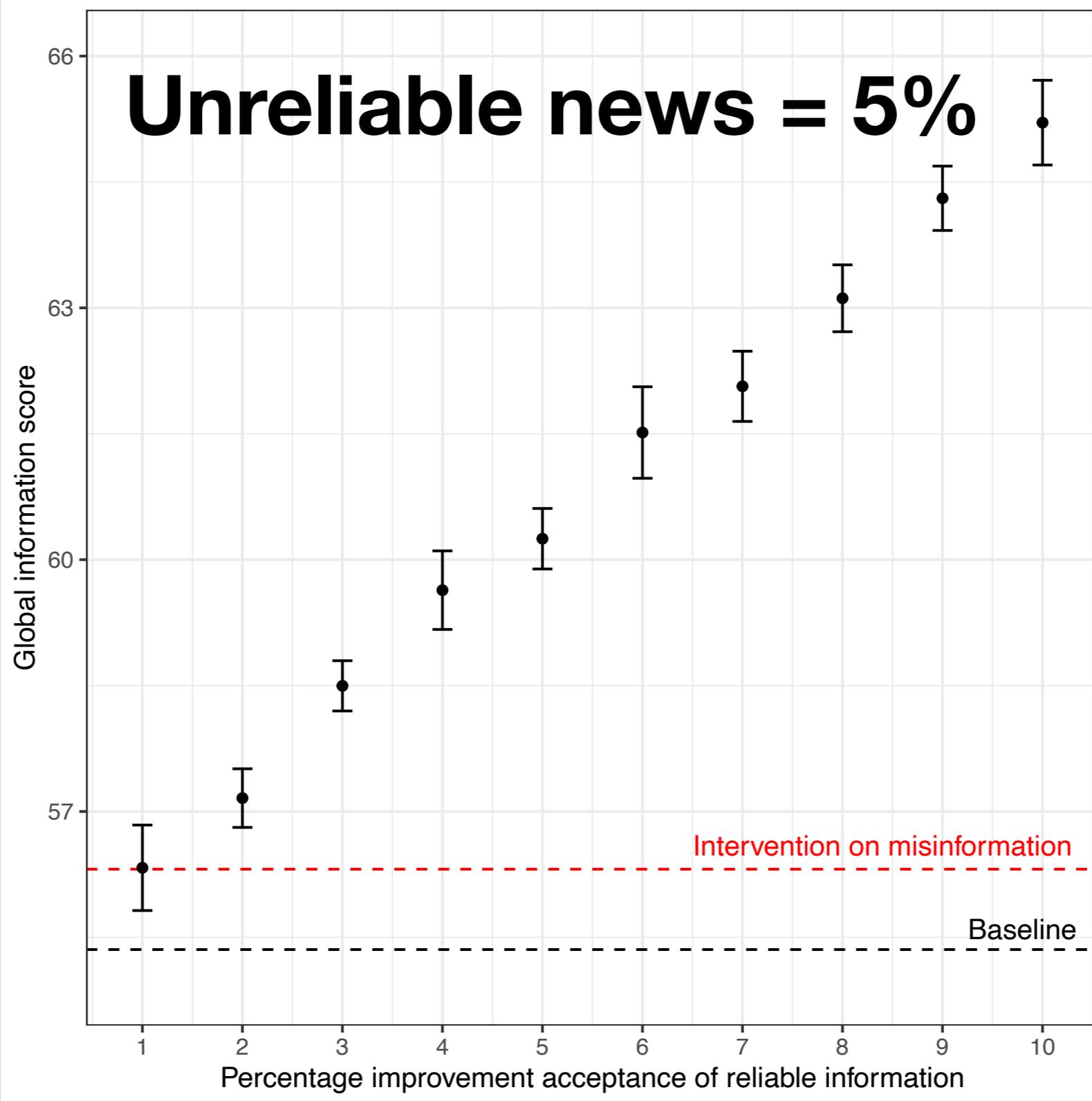


Mercier, 2020

# The limits of online social influence

- Compatible with research that shows a restricted reach of online misinformation (e.g. Fletcher et al. 2018, Guess et al. 2019, Osmundsen et al., 2021, etc.)
- Focusing on making true news more accepted may be more important than fighting fake news

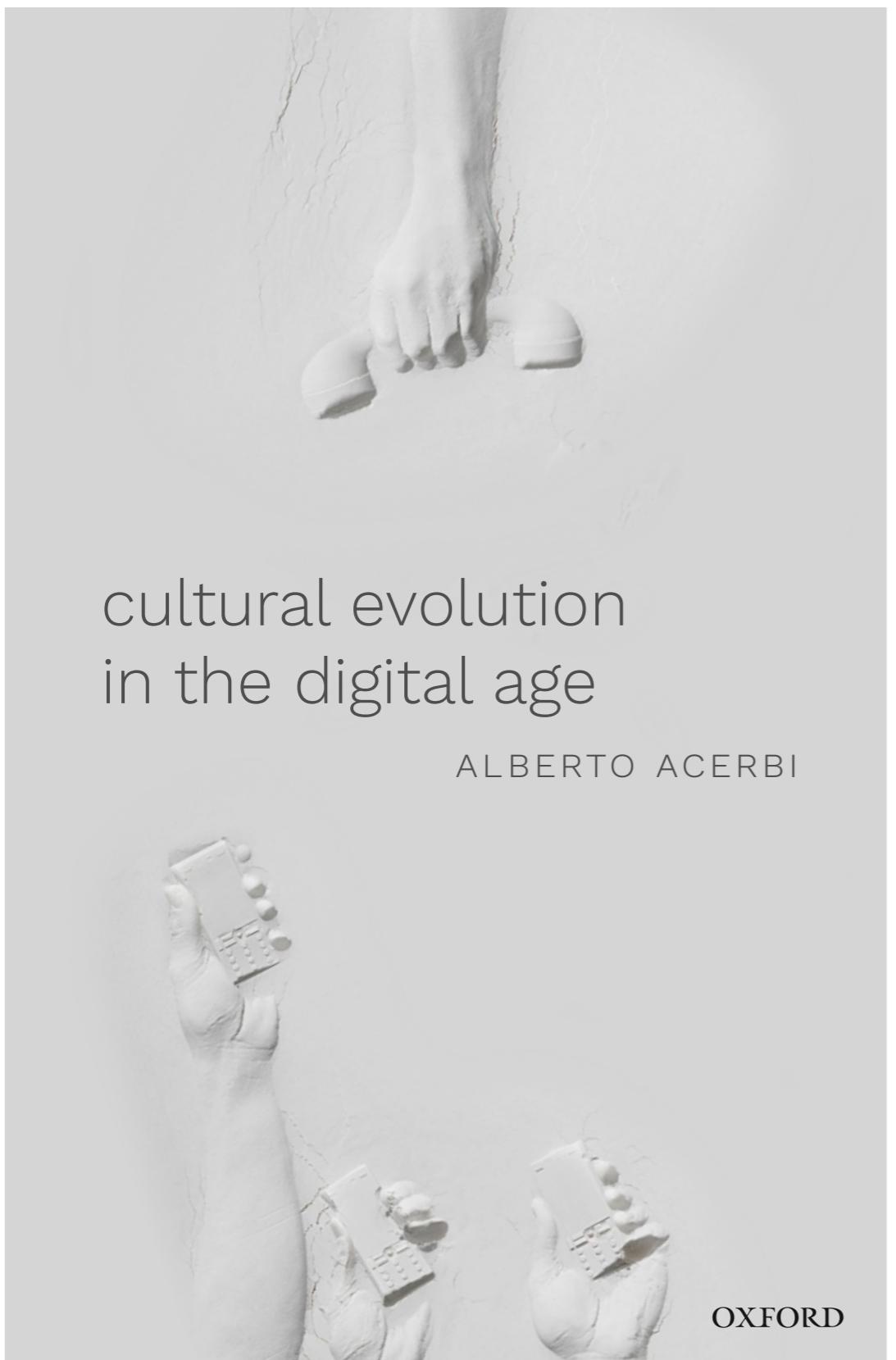
# Unreliable news = 5%



Acerbi et al, 2022

# Summary

- Cultural evolutionary approach suggests that the use of social information should be strategic
- Not only, but there are suggestions that we tend to discount social information
- Consistent with a more reassuring view of the dangers of online social influence



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**Digital age: the long view**

# Cognitive attraction and online misinformation

- Accuracy-oriented VS goal-oriented motivations - what about engagement?

# Not all cultural traits are equal



The cognitive appeal of misinformation

# Cognitive attraction and online misinformation

- Specific content favours cultural traits' success (e.g. negative content, threat-related information, disgust, etc.)
- Misinformation, less constrained by reality, can be manufactured to exploit attractive features

# Negative content

- negative information is better remembered and transmitted than positive information
- information framed negatively is considered more truthful than the same information framed positively
- documented in news, but also e.g. literature, song lyrics



Bebbington et al., 2017

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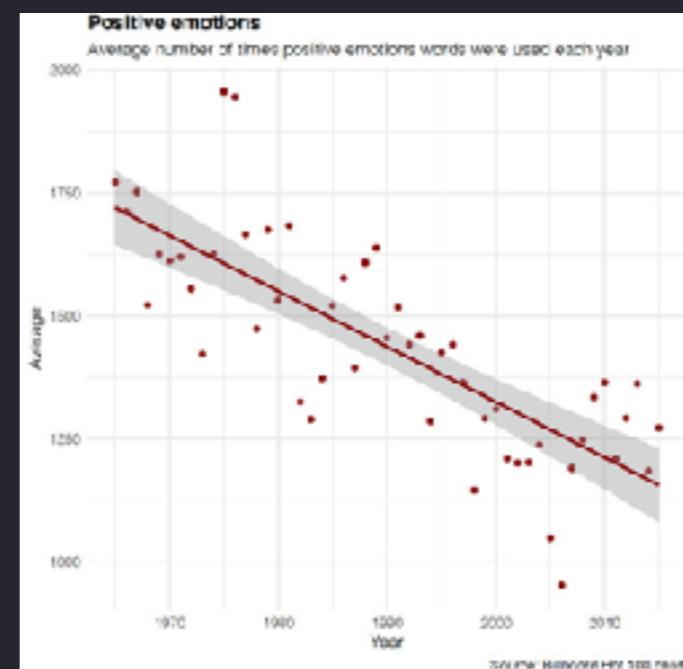
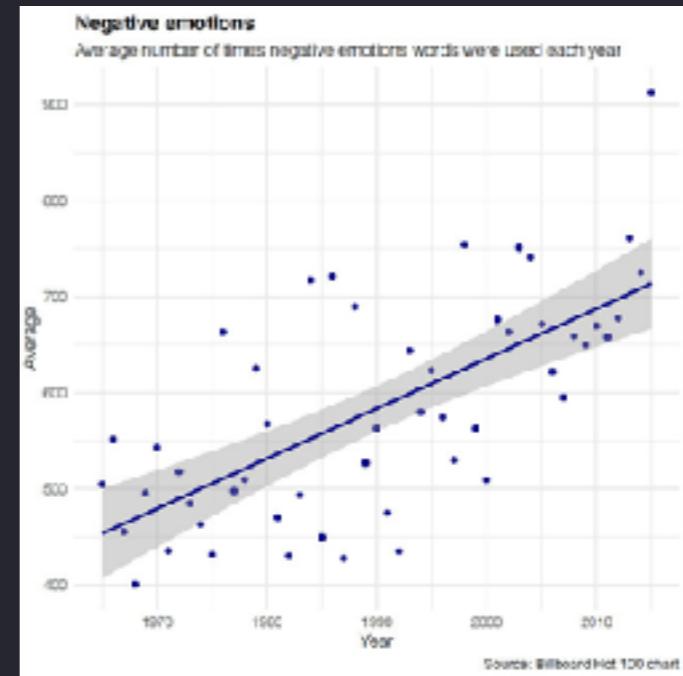
When civil litigation cases go to trial, 60% of plaintiffs lose, winning no money

When civil litigation cases go to trial, 40% of plaintiffs succeed and win money

Fessler et al., 2014

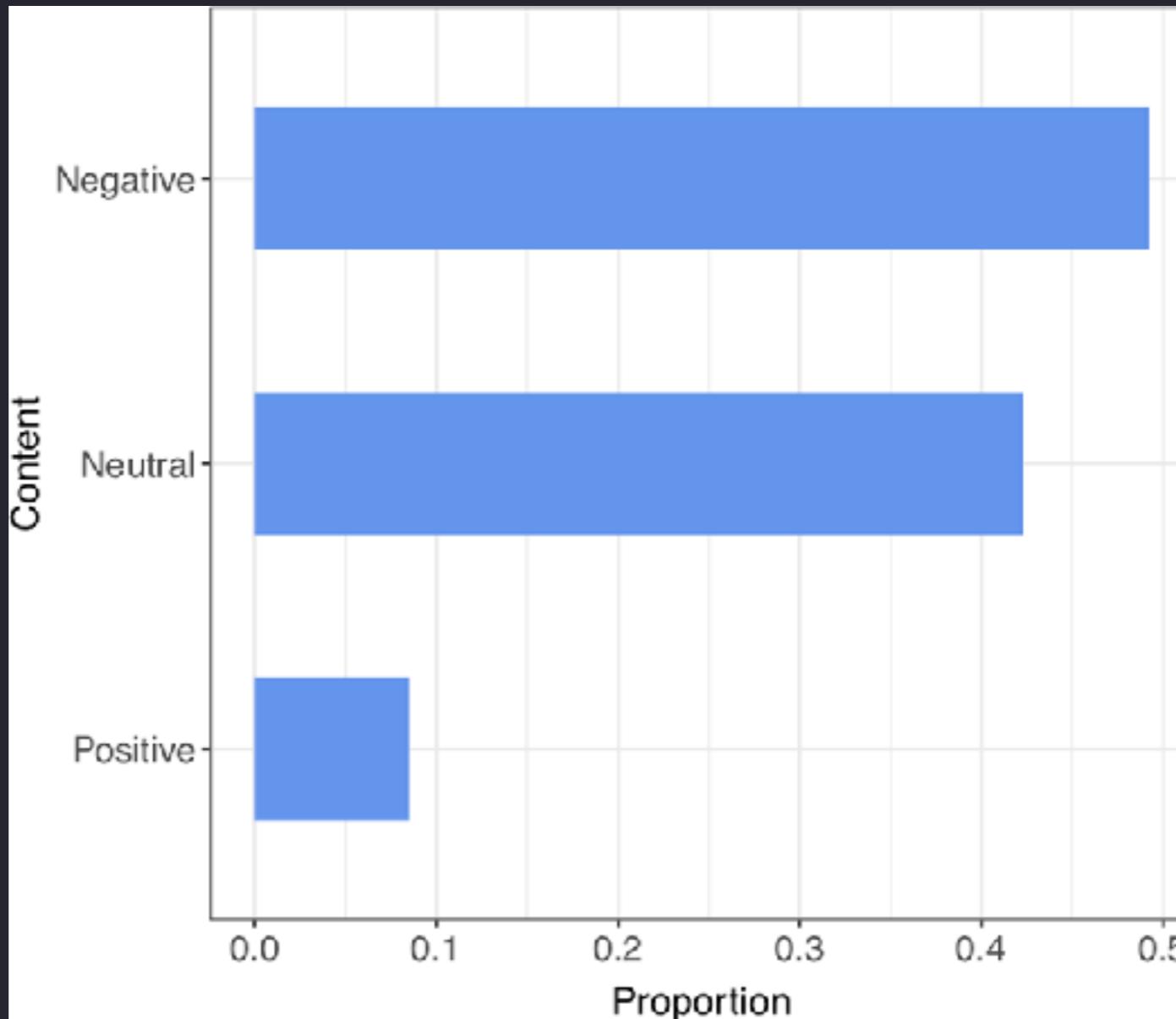
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Acerbi et al., 2019

# Negative content

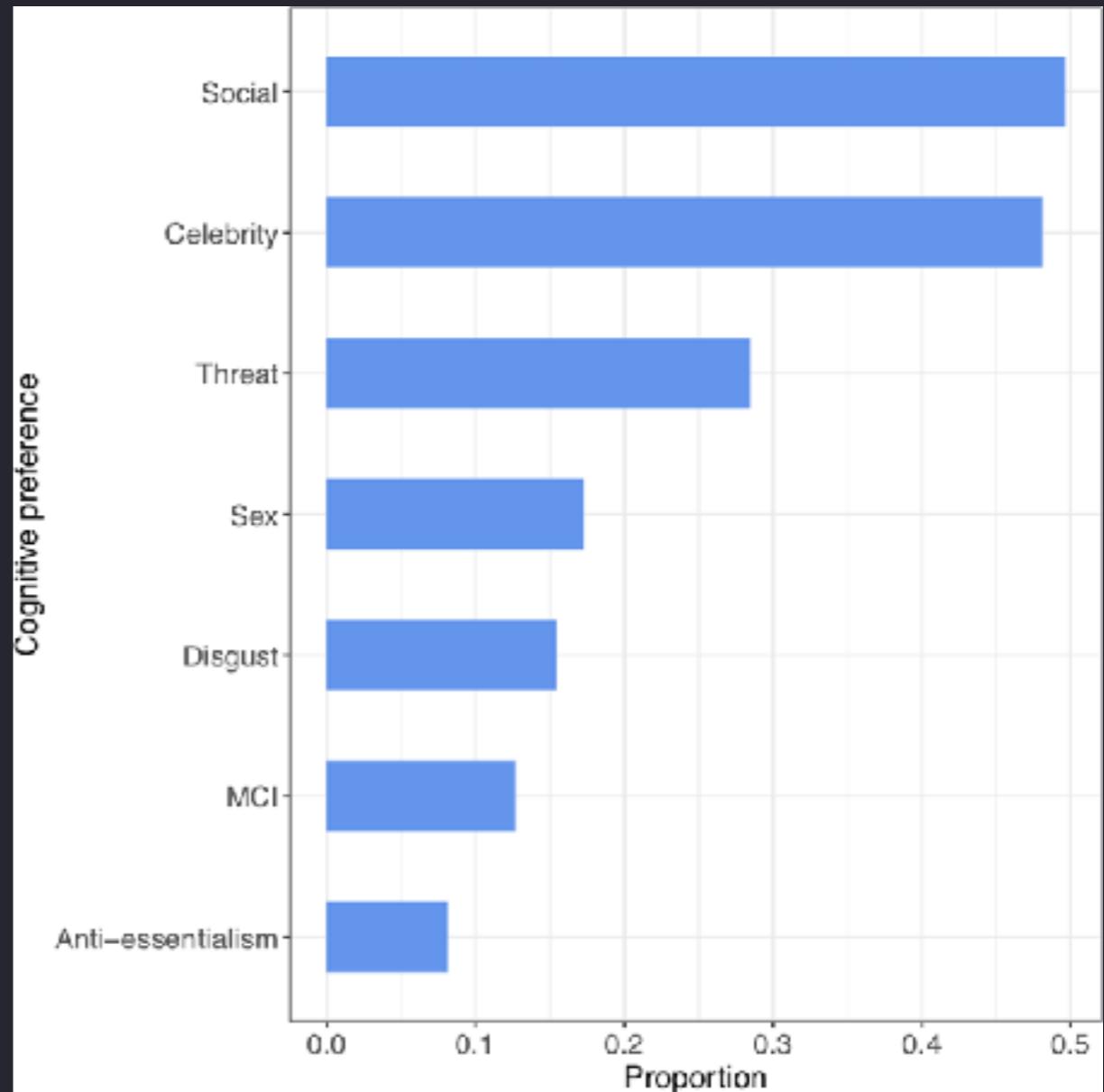


Negative content is **5 times** more common than positive content

Acerbi, 2019

# Threat-related information

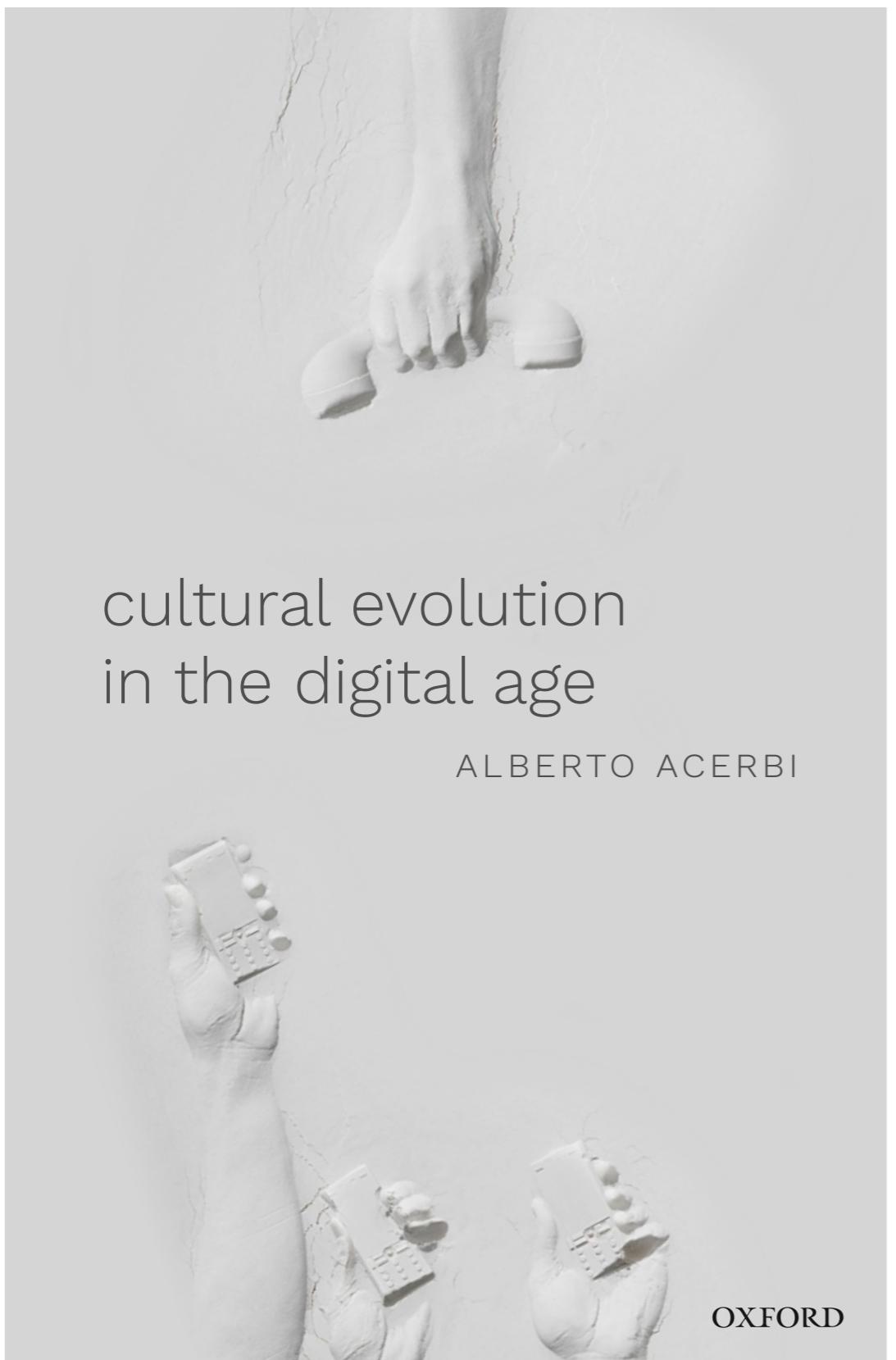
- **One third** of articles classified as “threat-related” information
- ~50%: “gossip”



Acerbi, 2019

# Summary

- Cognitive preferences make some cultural traits more attractive than others
- Misinformation, not constrained by reality, can exploit these preferences better than real information
- Misinformation is **high-quality** information that spreads because of **efficiency** of online communication (quality = cognitive appeal)



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**Digital age: the long view**

# Thank you!

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