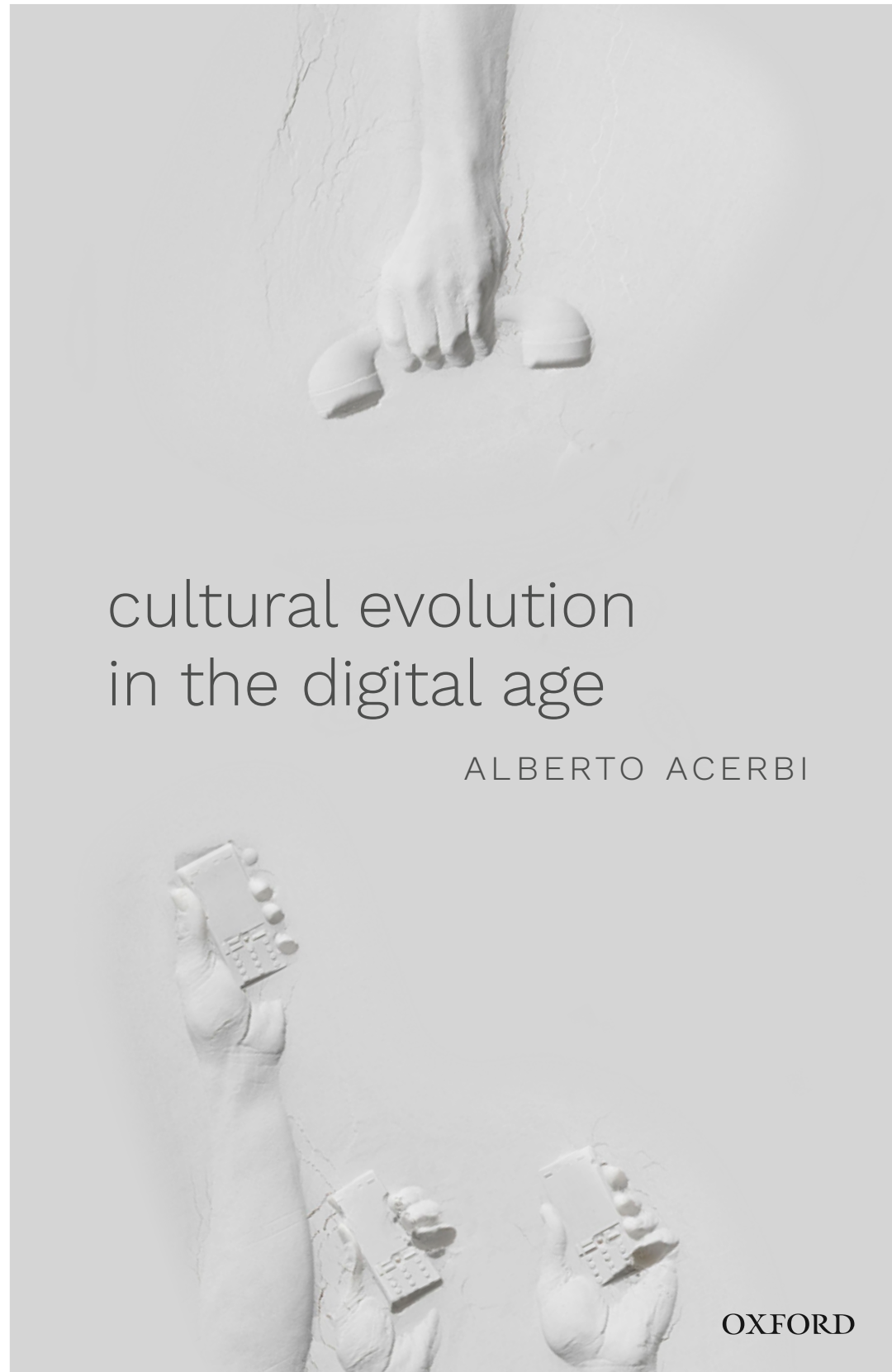
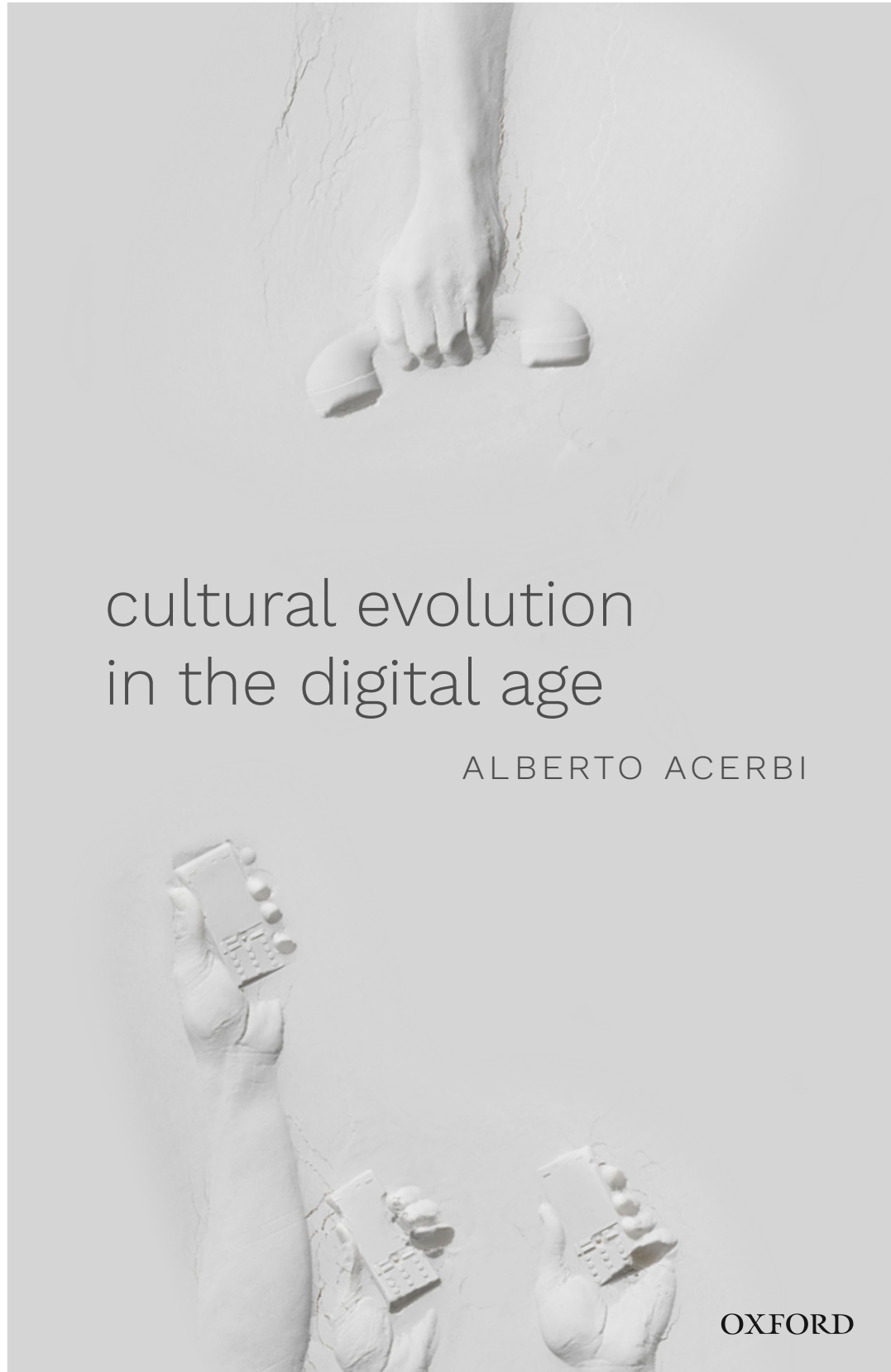


Digital age: the long view

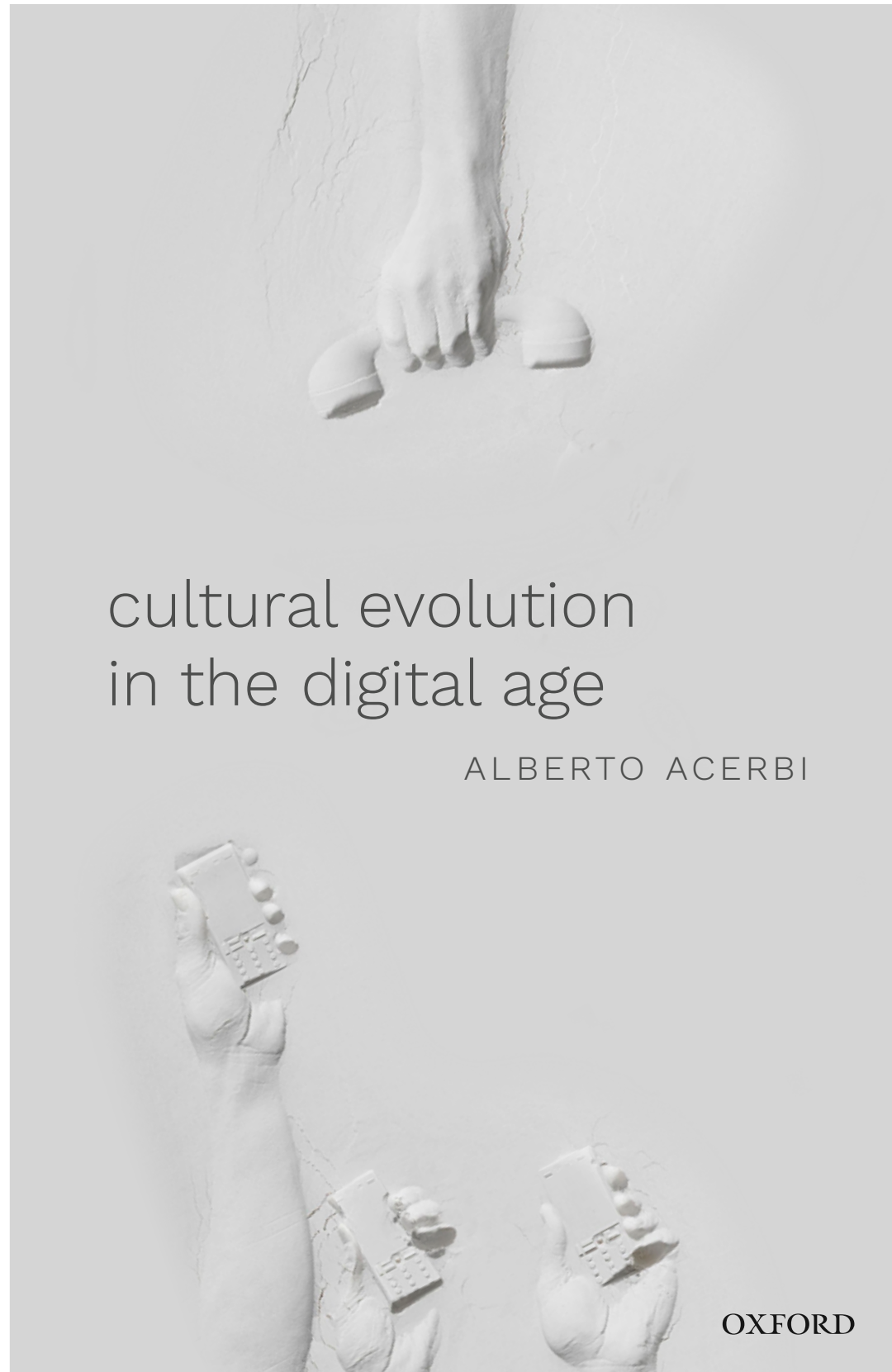
Alberto Acerbi



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



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



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

What is cumulative culture?



Cumulation is different in different domains

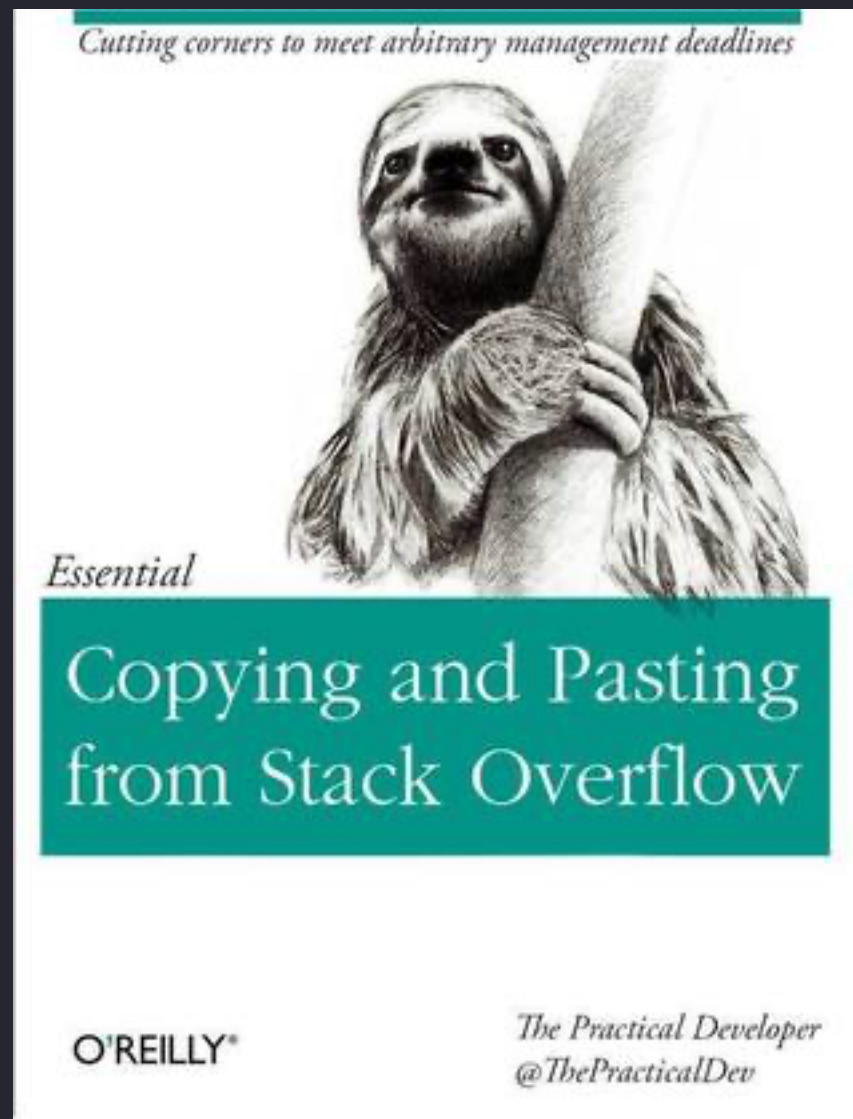


Cumulation depends on availability

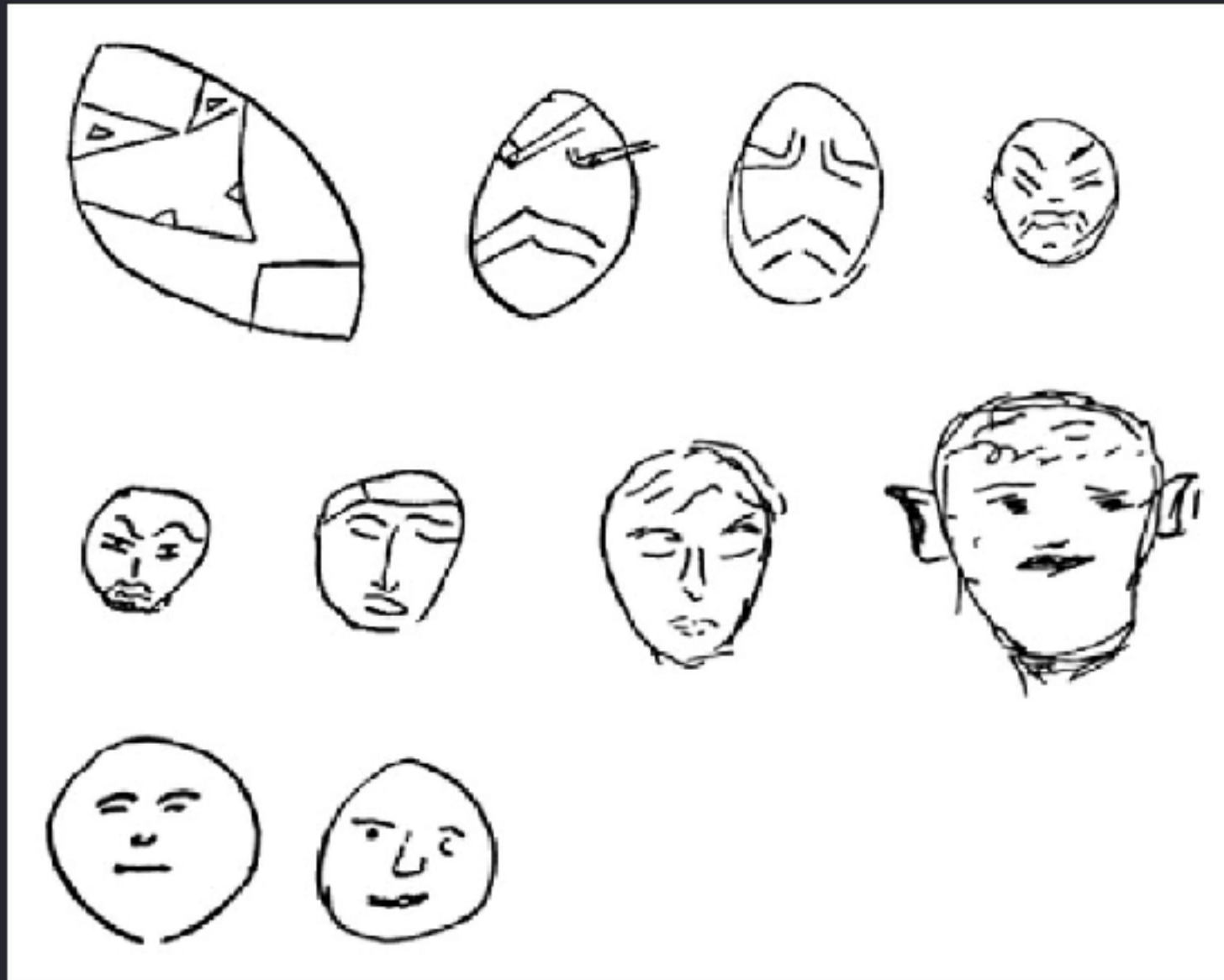


Henrich, 2004

Online digital media provide hyper-availability

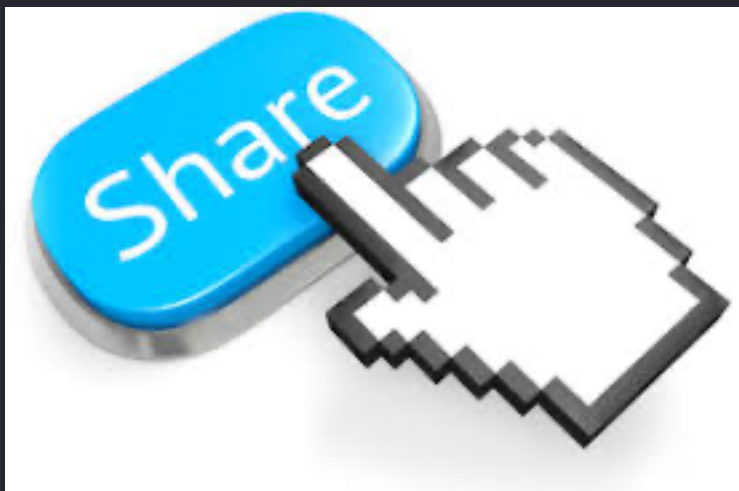


Cumulation depends on fidelity

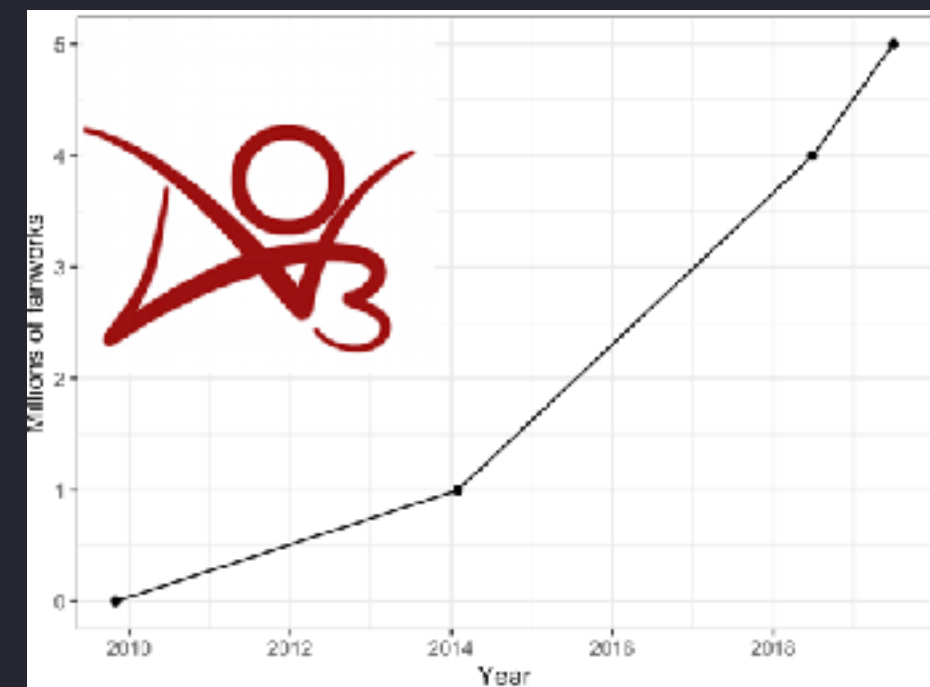
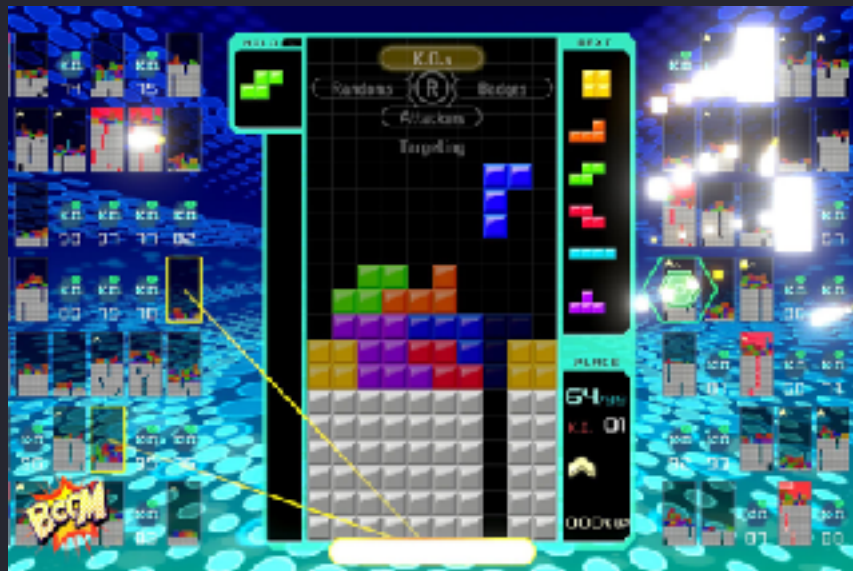


Bartlett, 1926

Online digital media increase fidelity

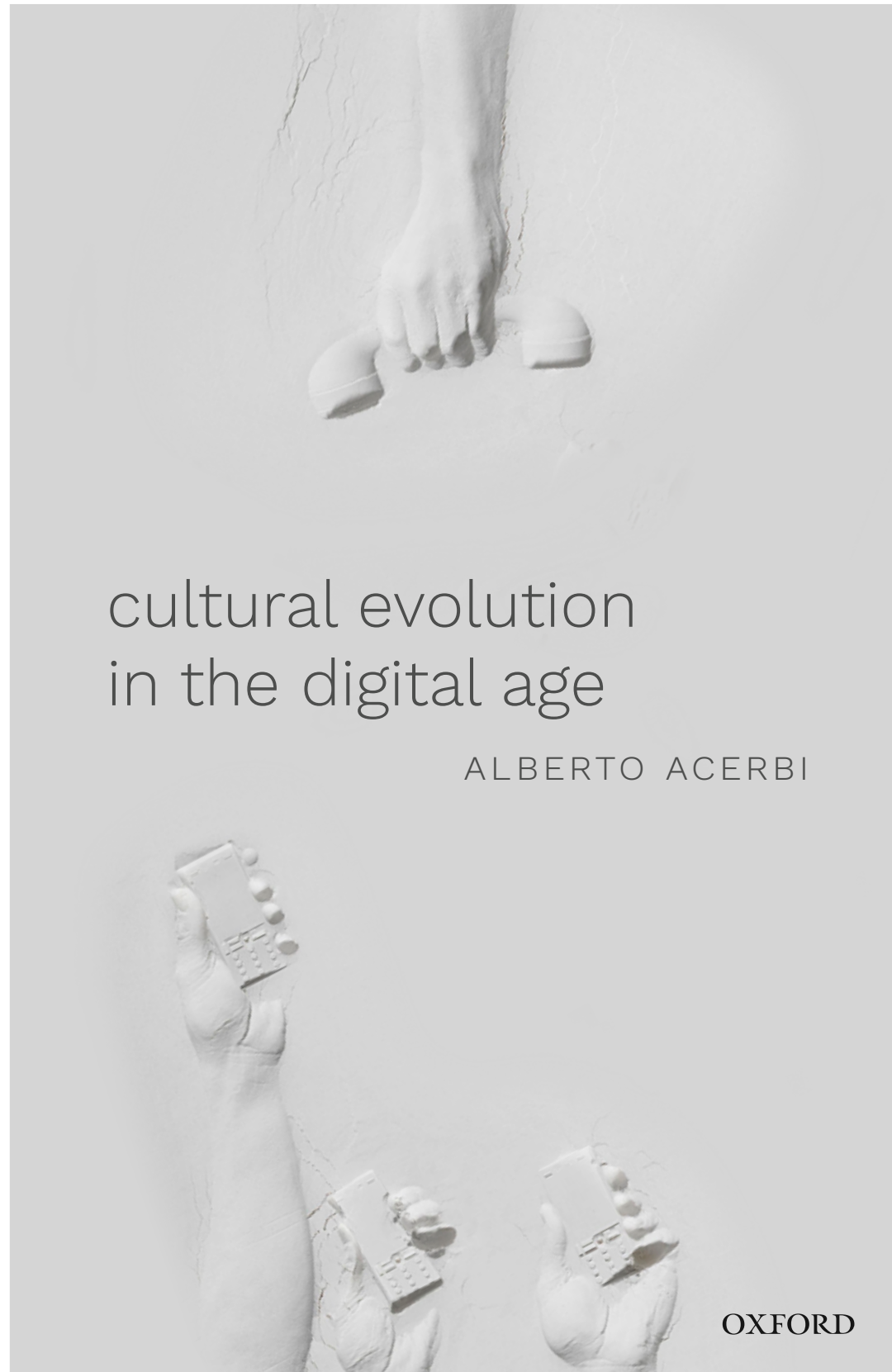


Do hyper-availability and increased fidelity boost cumulation online?



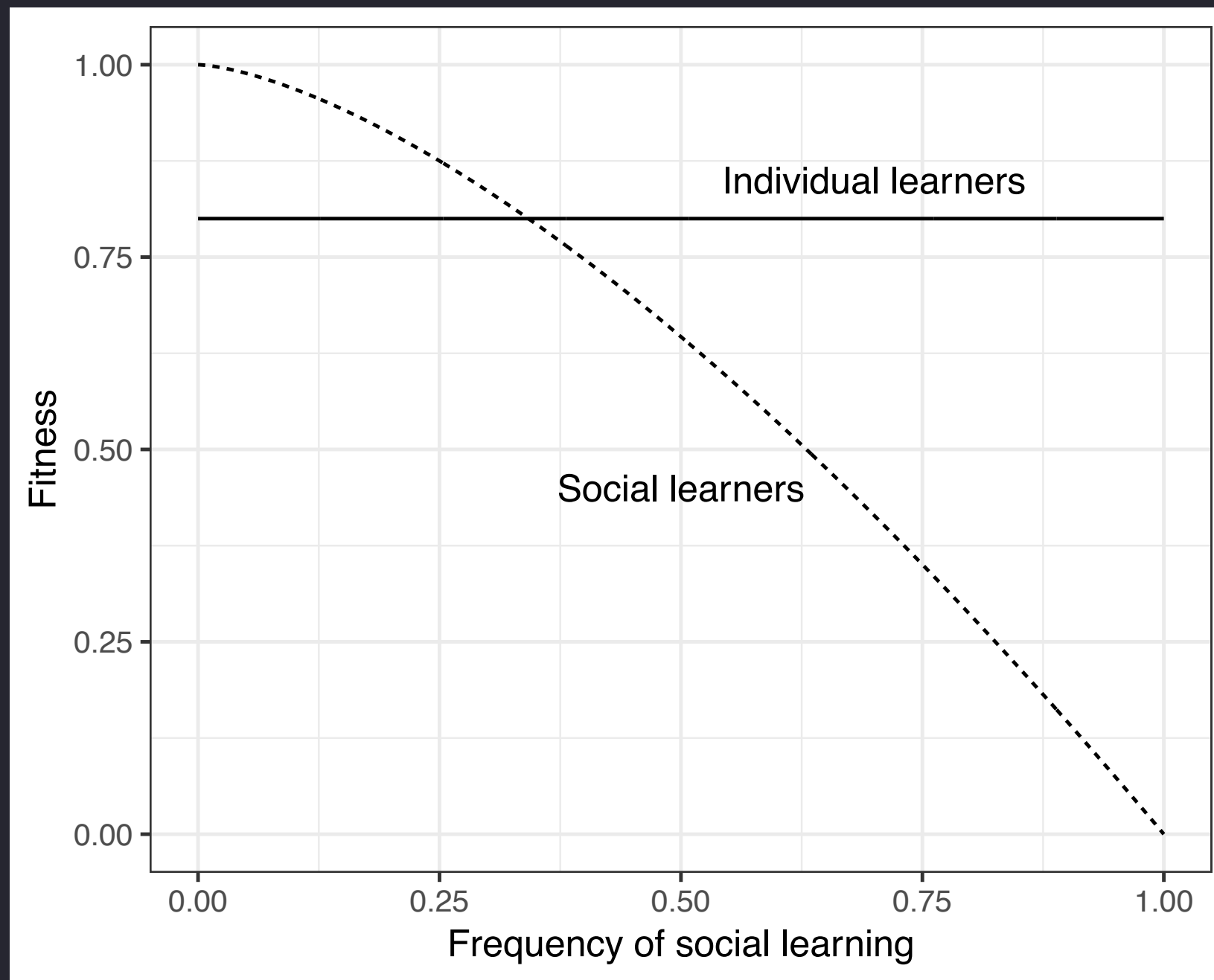
Summary

- 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?



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

Roger's paradox



Rogers, 1988

Wary learners

Strategic learners

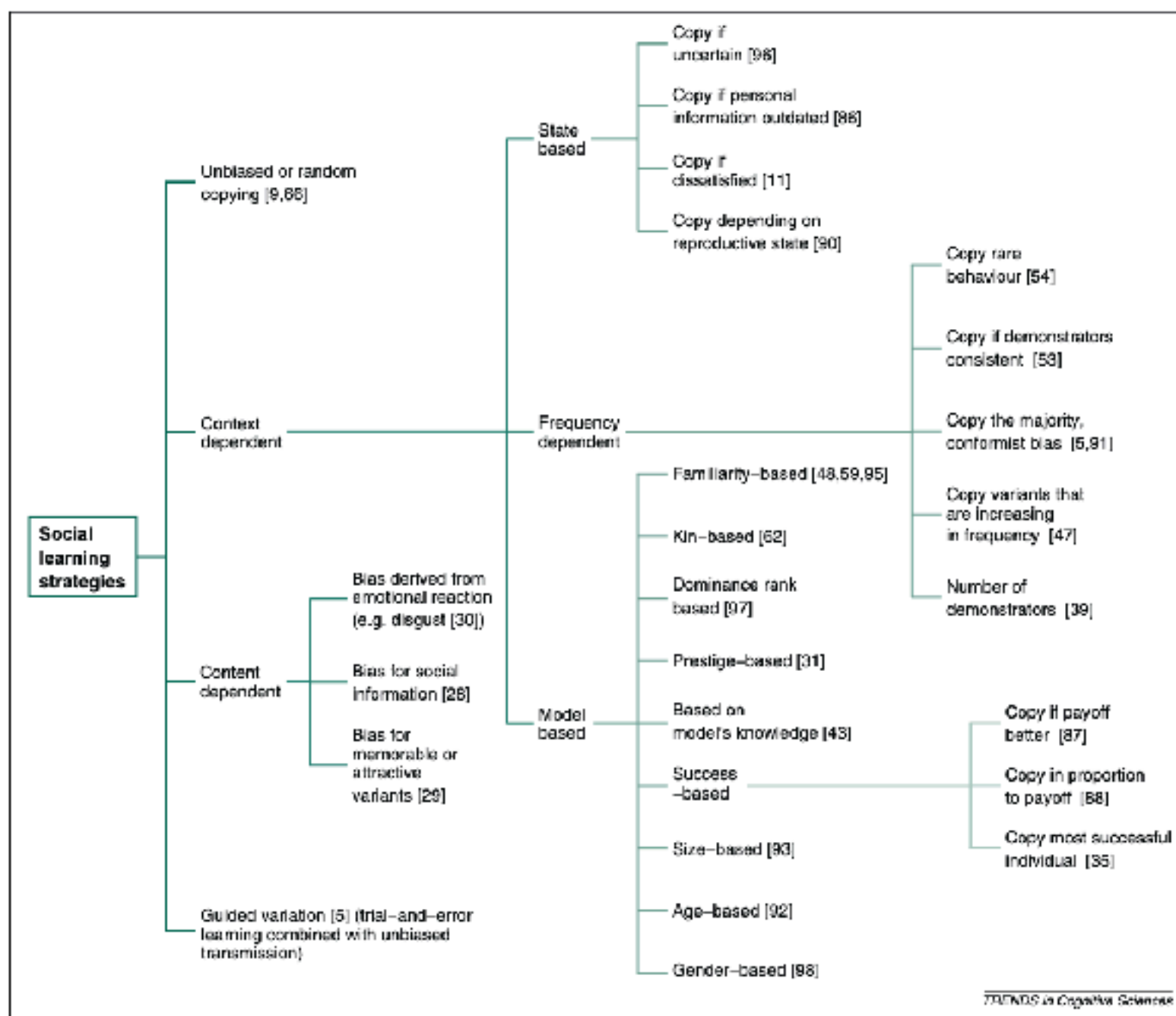


Figure 1. Social learning strategies for which there is significant theoretical or empirical support. The tree structure is purely conceptual and not based on any empirical data on homology or similarity of cognition. The sources given are not necessarily the first descriptions or the strongest evidence,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

Rendell et al., 2011

Wary learners

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

Efferson et al., 2007

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-

Toelch et al., 2009

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 run, 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

McElreath et al., 2005

Wary learners

12/26

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.

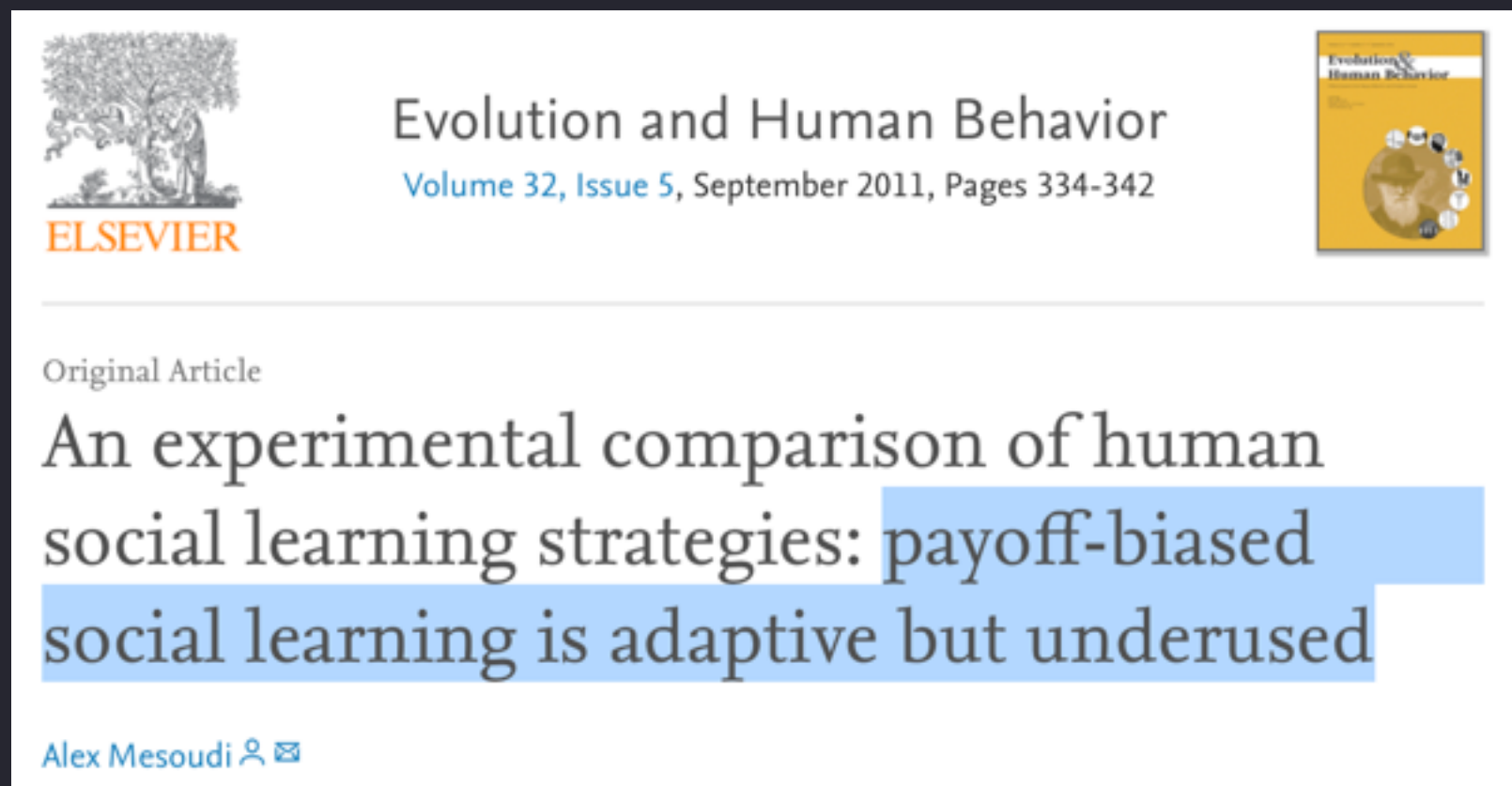
Journal of Evolutionary Psychology, 7(2009)4, 309–329
DOI: 10.1556/JEP.7.2009.4.4

BIASES FOR ACQUIRING INFORMATION INDIVIDUALLY RATHER THAN SOCIALLY

KIMMO ERIKSSON^{1,2*} AND PONTUS STRIMLING²

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.



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

Social information use and social information waste

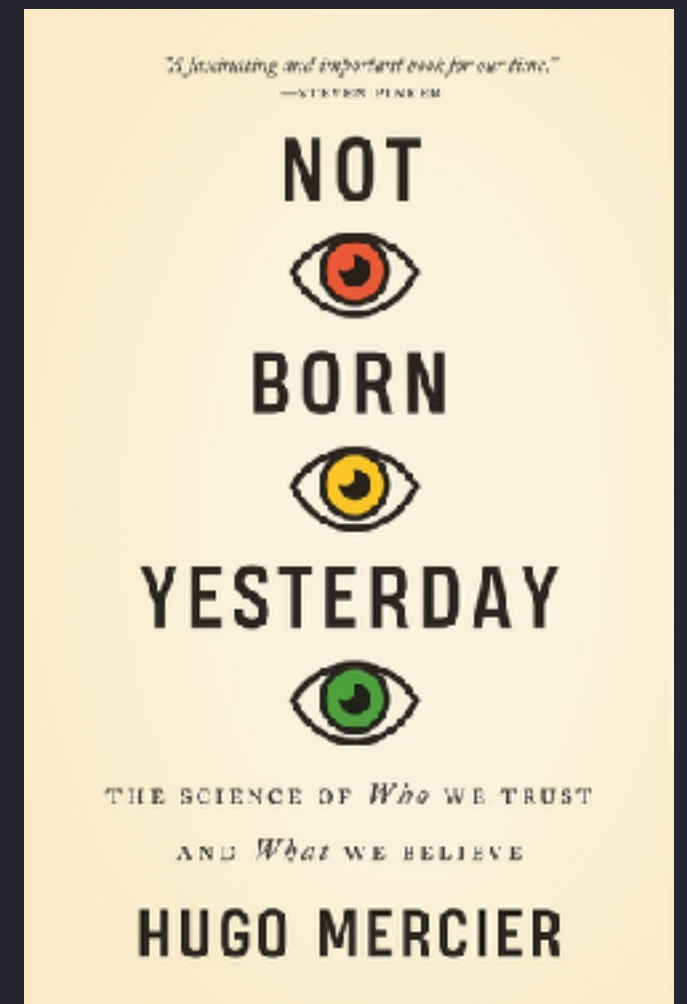
Olivier Morin^{1,2}, Pierre Olivier Jacquet³, Krist Vaesen⁴ and Alberto Acerbi⁵

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⁵Centre for Culture and Evolution, Brunel University London, London, UK

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Epistemic vigilance

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

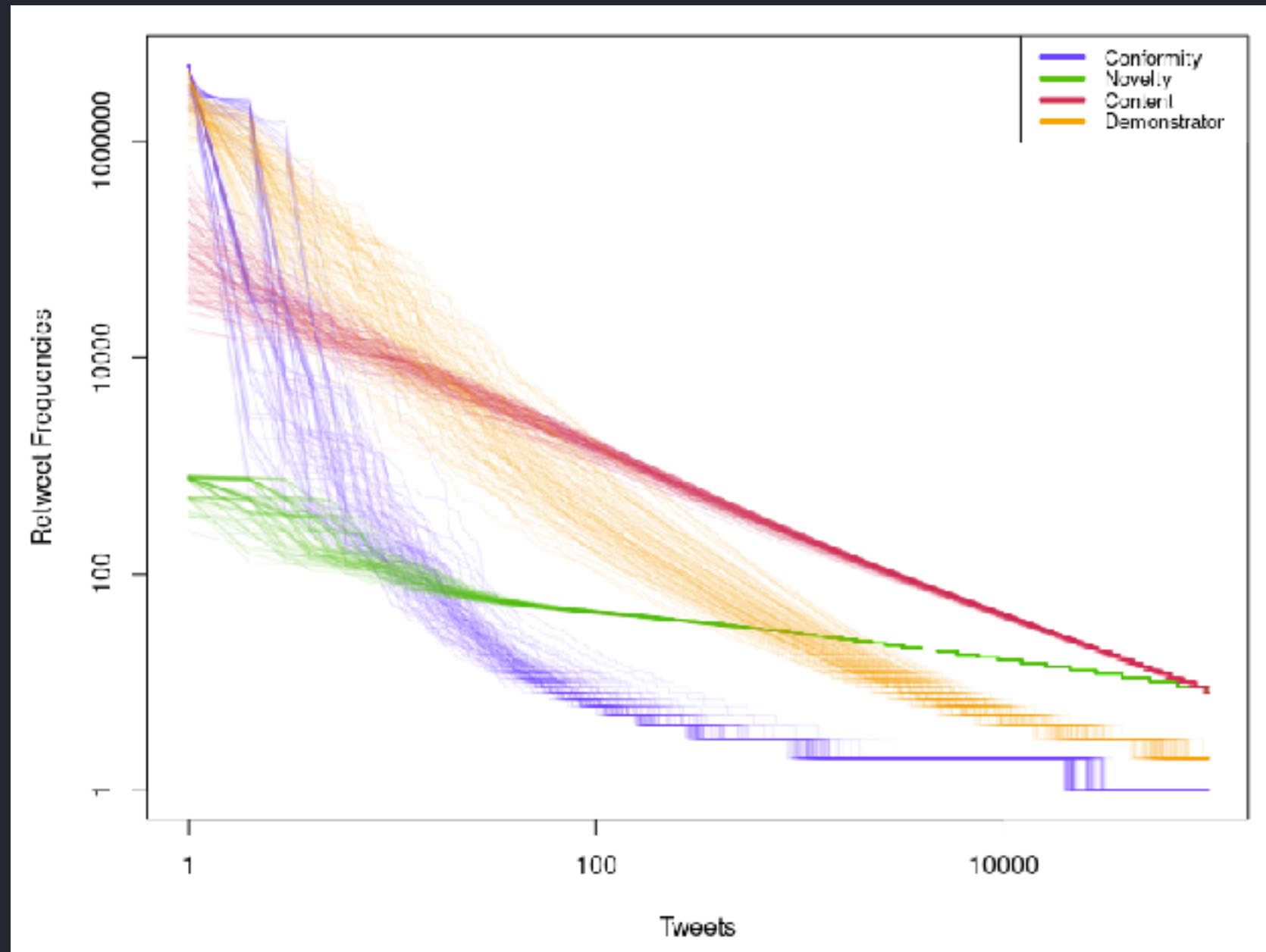


Mercier, 2020

The limits of online social influence

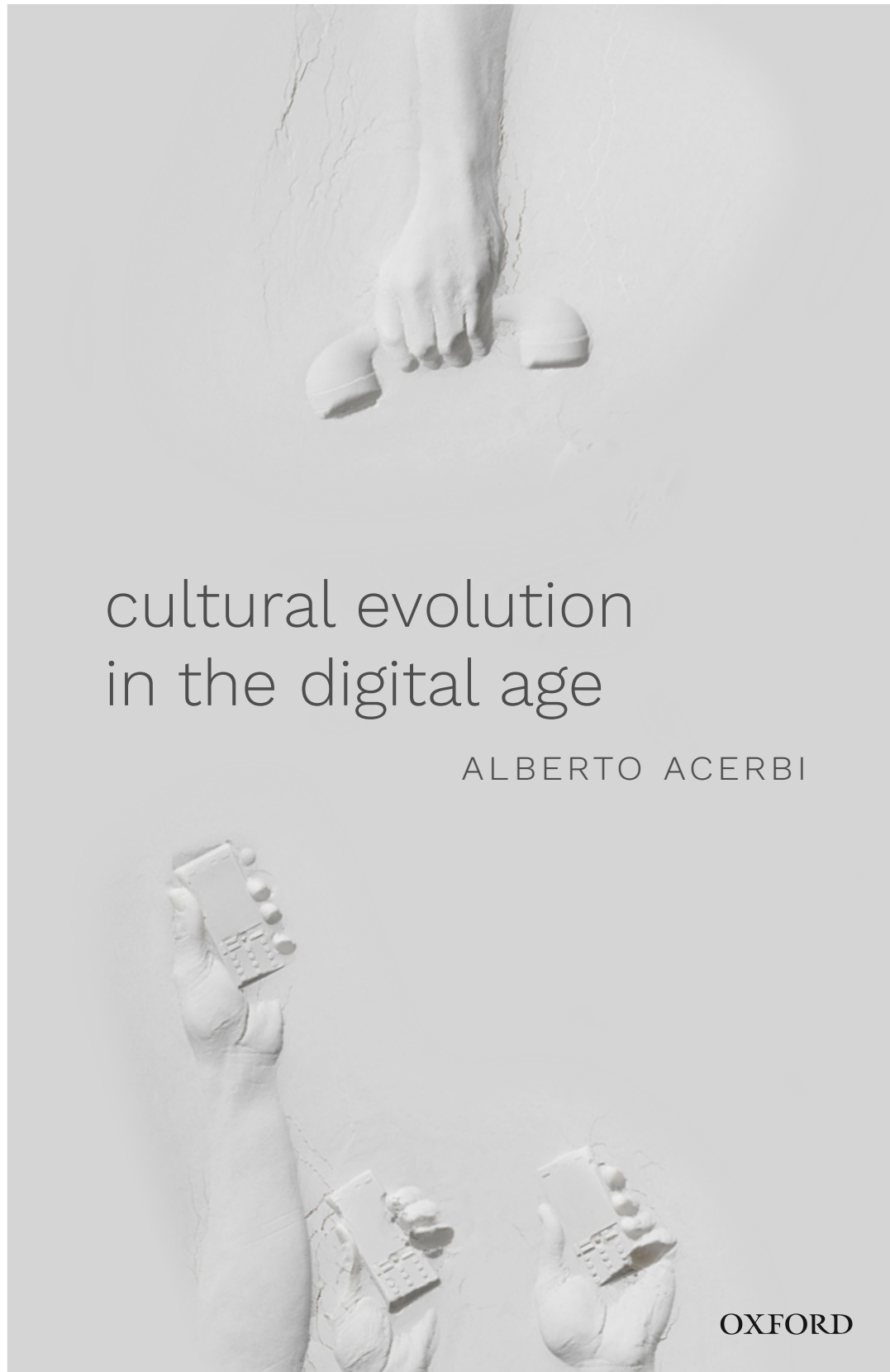
- Compatible with research that shows a restricted reach of online misinformation (e.g. Fletcher et al. 2018, Guess et al. 2019, Osmundsen et al., in press, etc.)...
- Having more people trusting true news is more beneficial than completely stop the spreading on fake news?

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



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

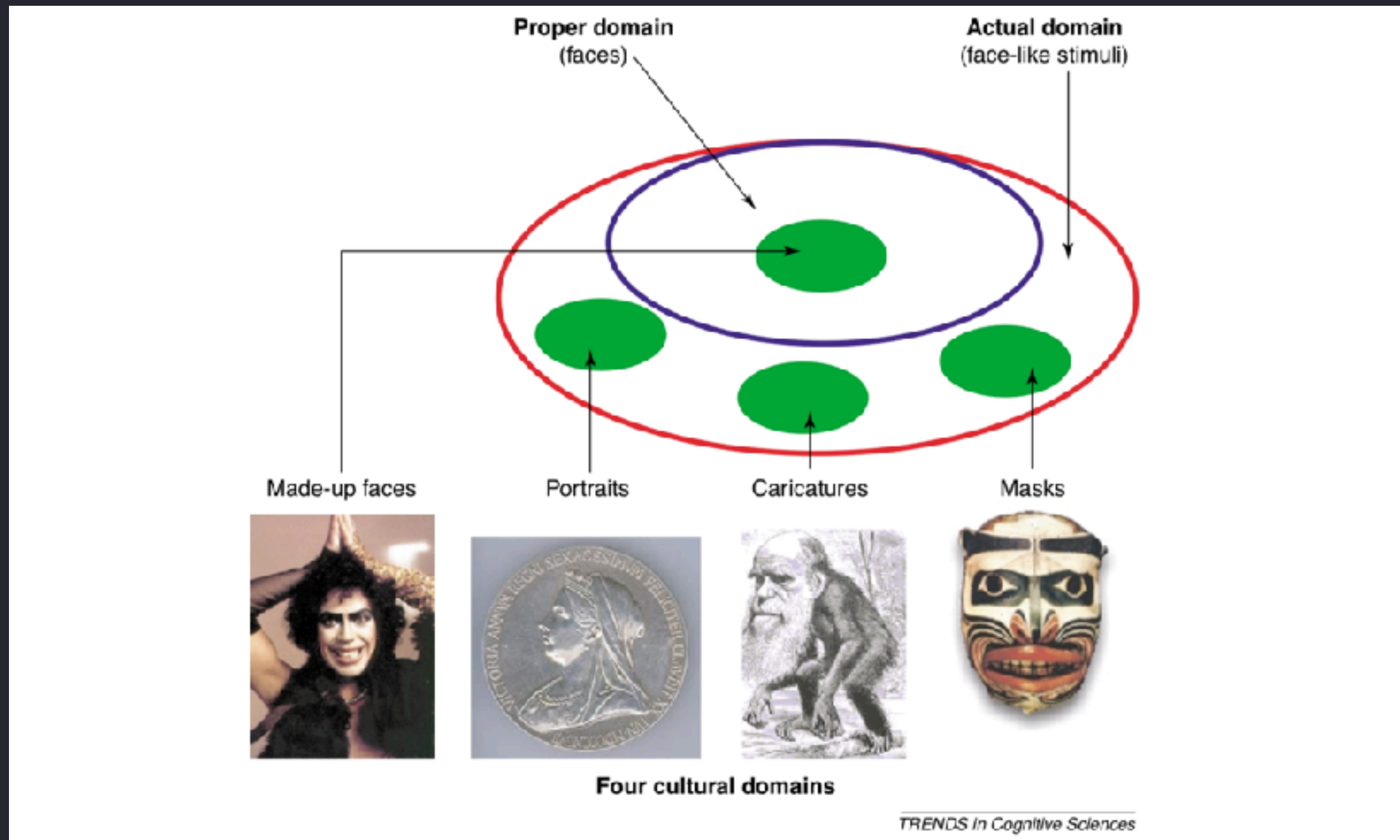


- Cumulative culture online
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Cognitive attraction and online misinformation

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

Not all cultural traits are equal



Sperber & Hirschfeld, 2004

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

Negative content

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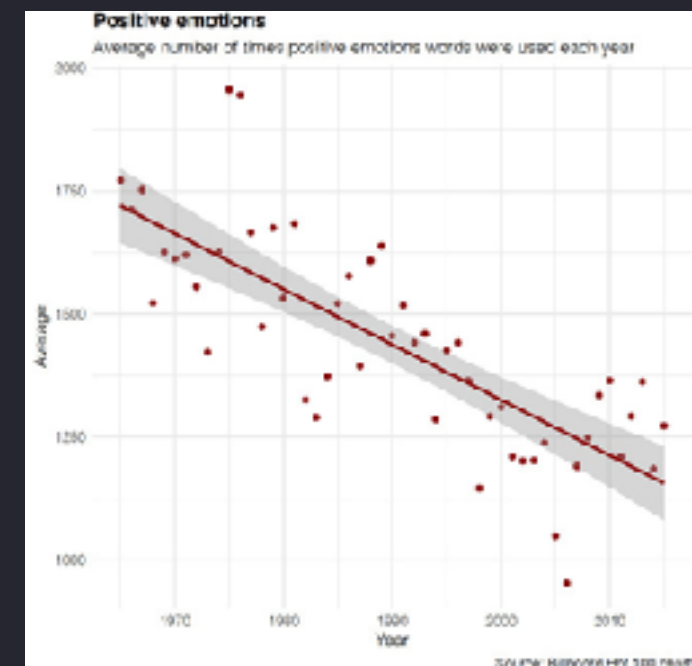
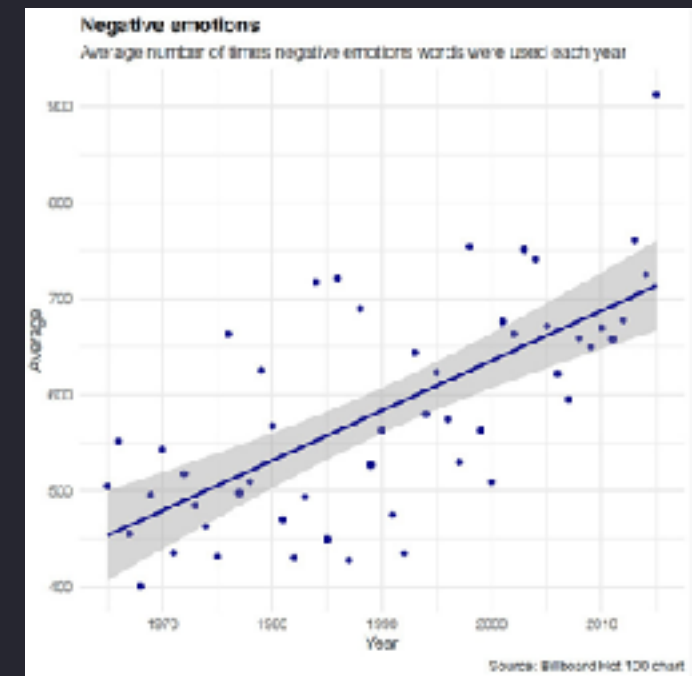
When civil litigation cases go to trial, 60% of plaintiffs lose, winning no money

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

Fessler et al., 2014

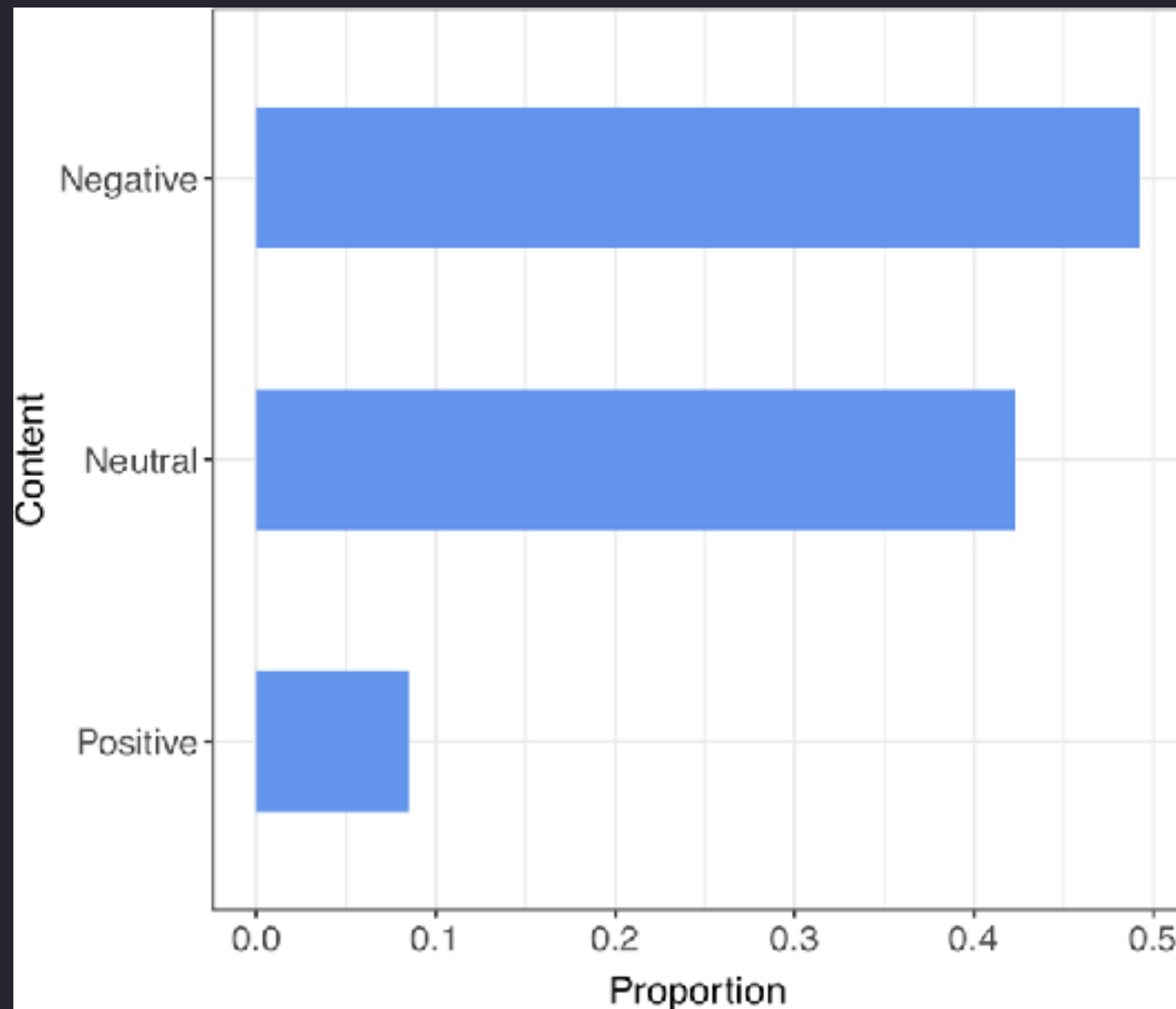
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Acerbi et al., 2019

Negative content

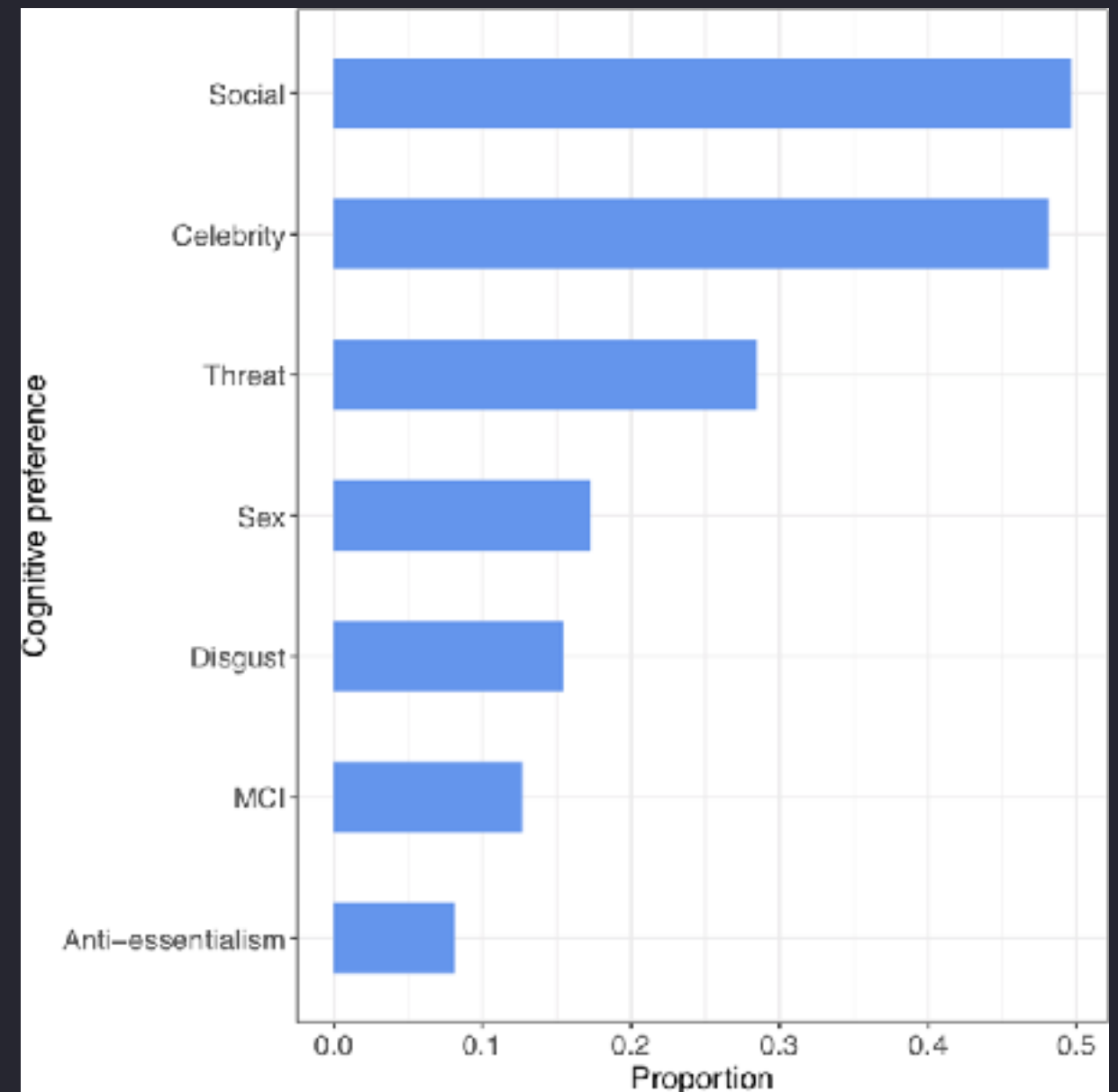


Negative content is **5 times** more common than positive content

Acerbi, 2019

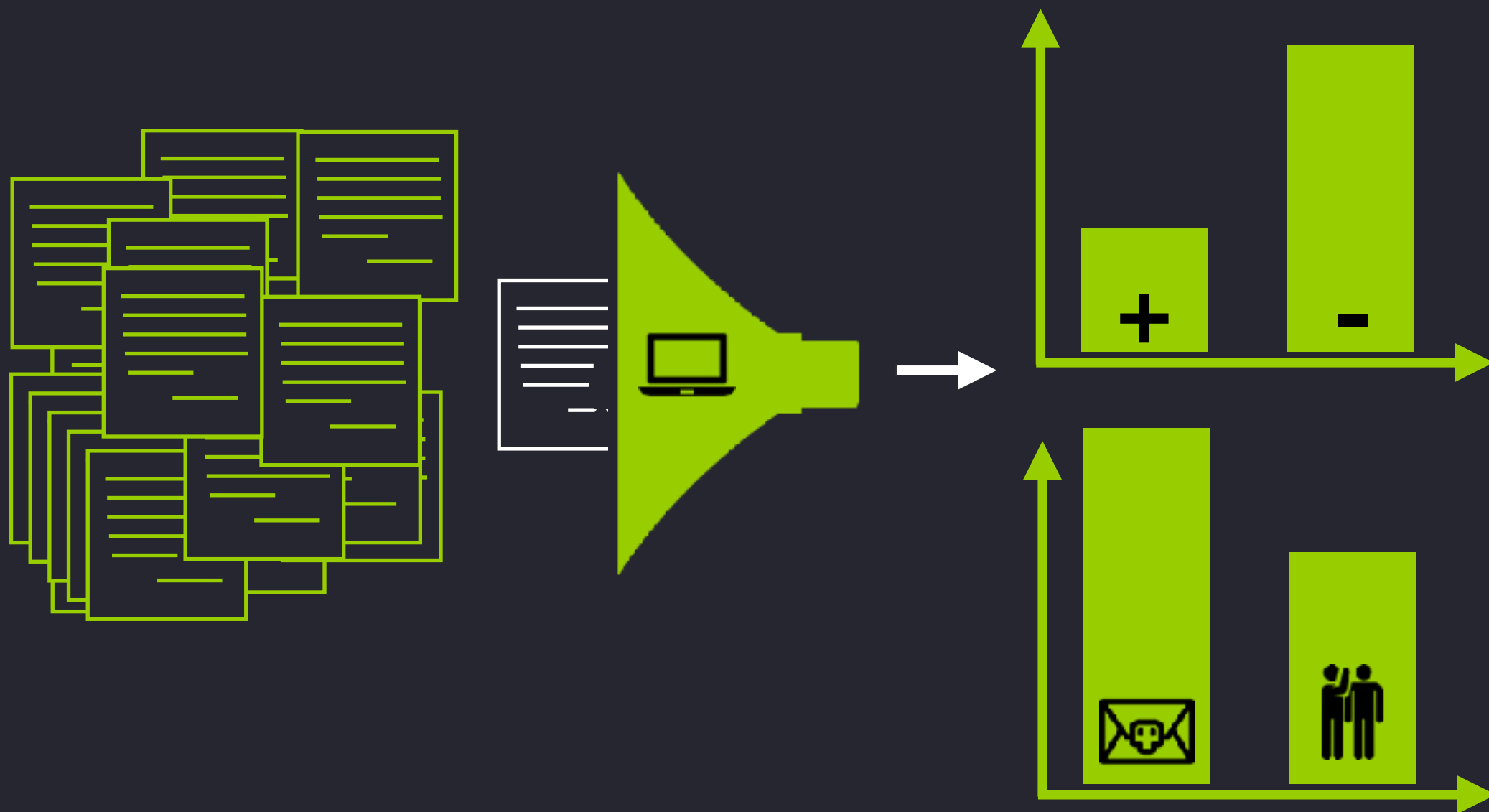
Threat-related information

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

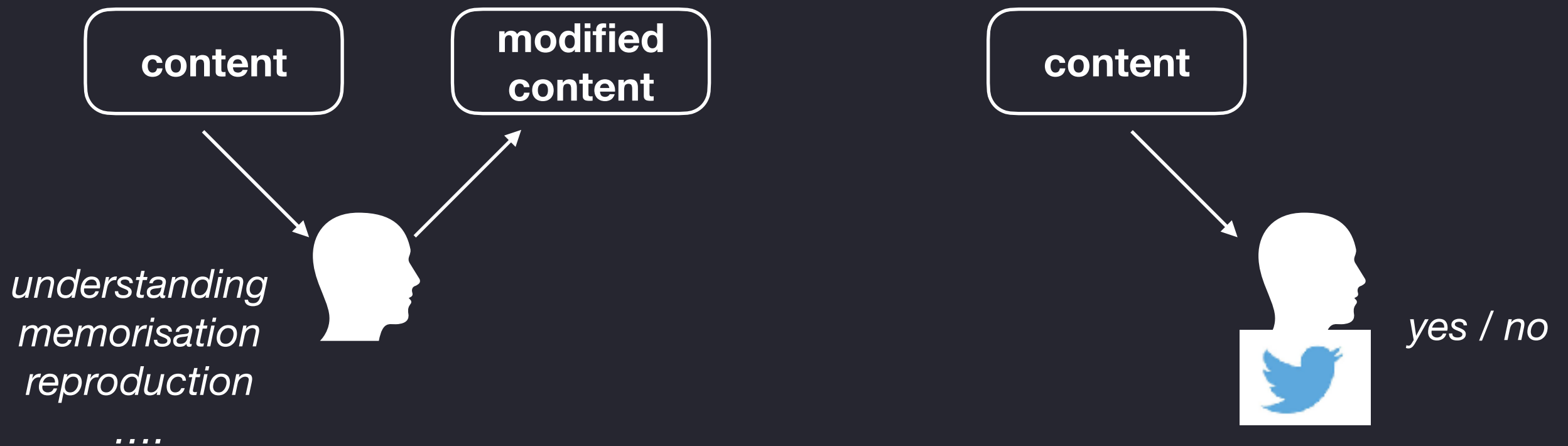


Acerbi, 2019

Topic modelling

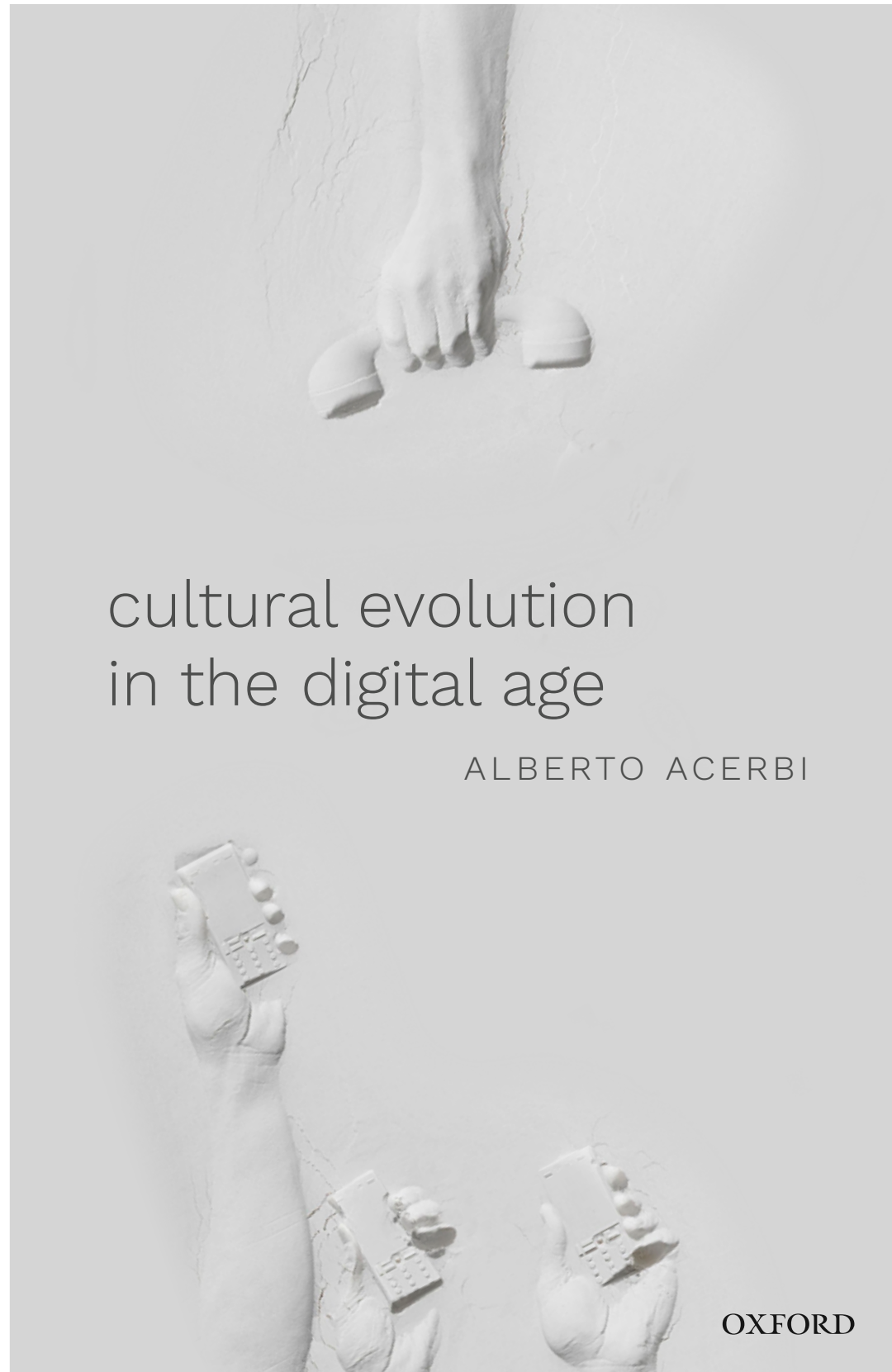


Transmitting and sharing



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)



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

Thank you!



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