Digital age: the long view

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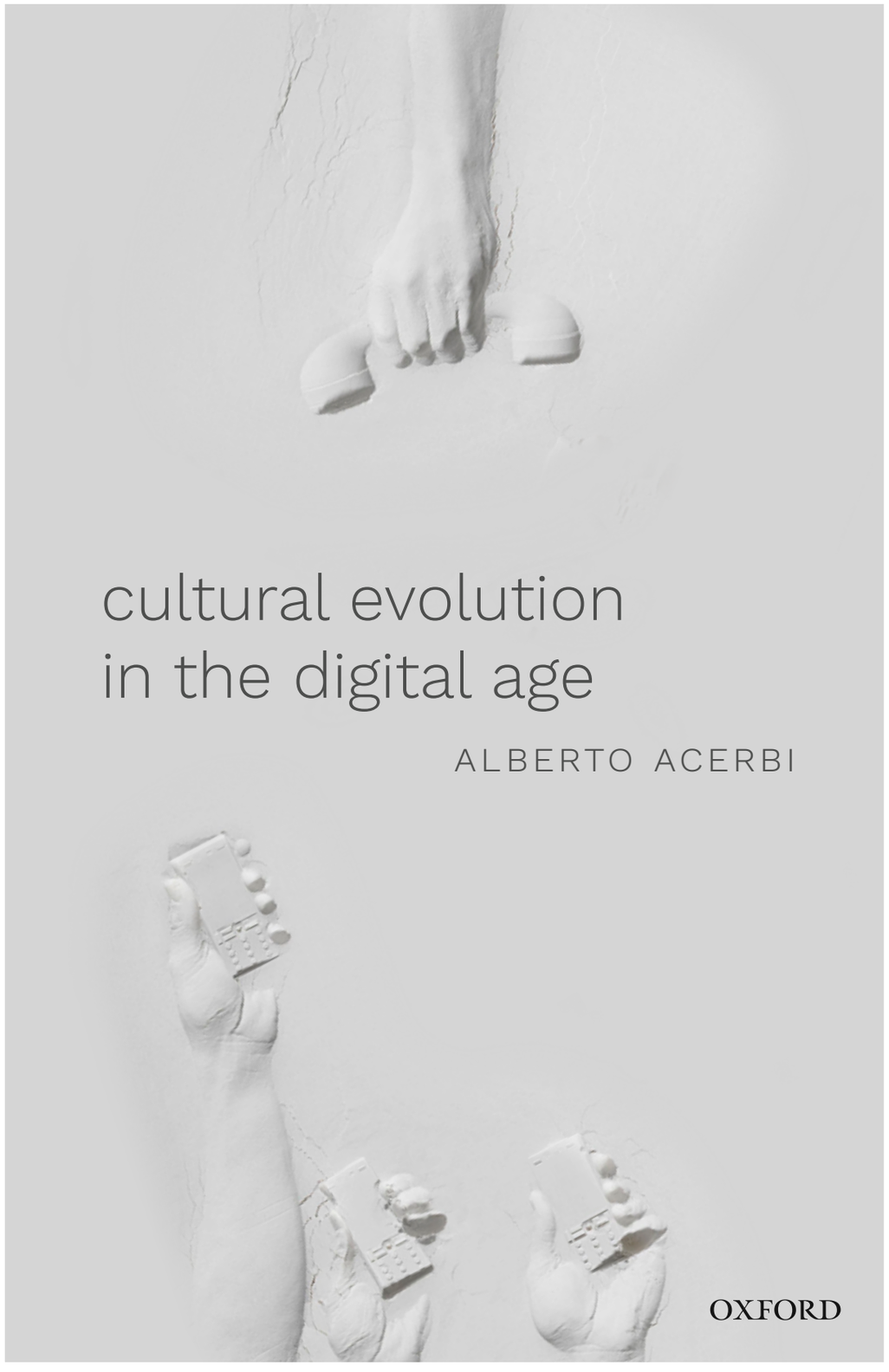
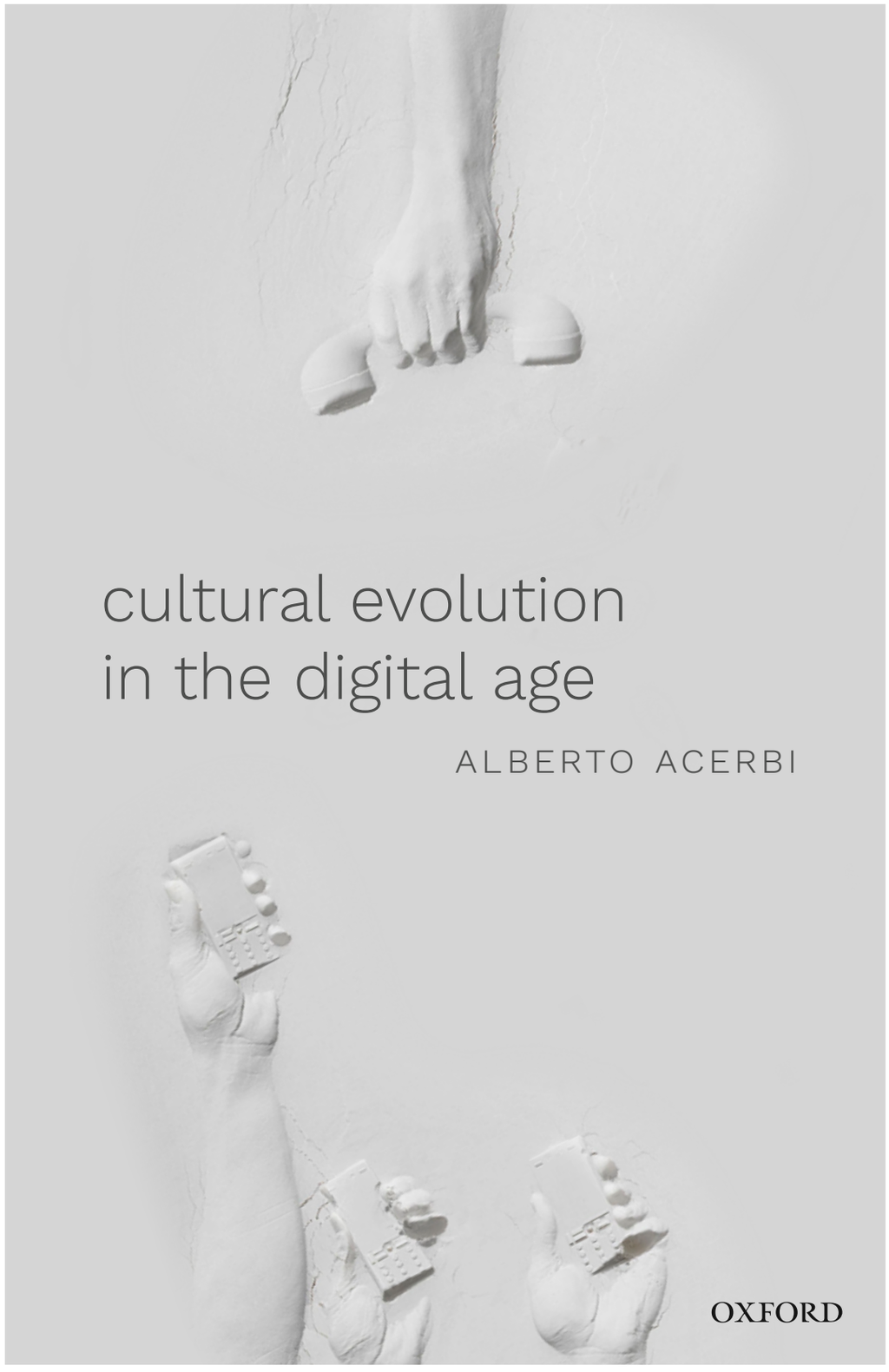


- First application of cultural evolutionary theory to digital and online media

- “Big data needs big theory”

Digital age: the long view



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

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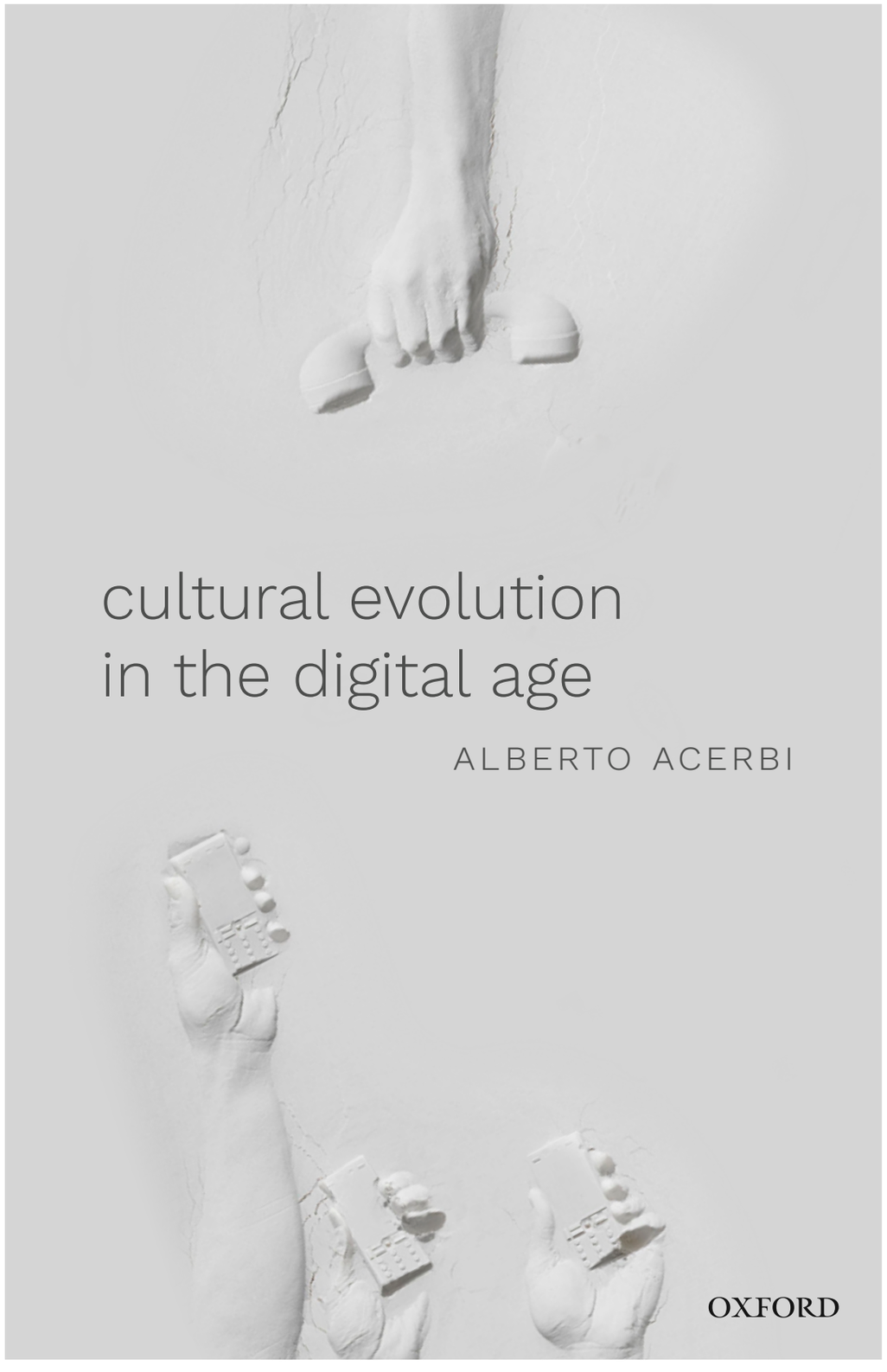

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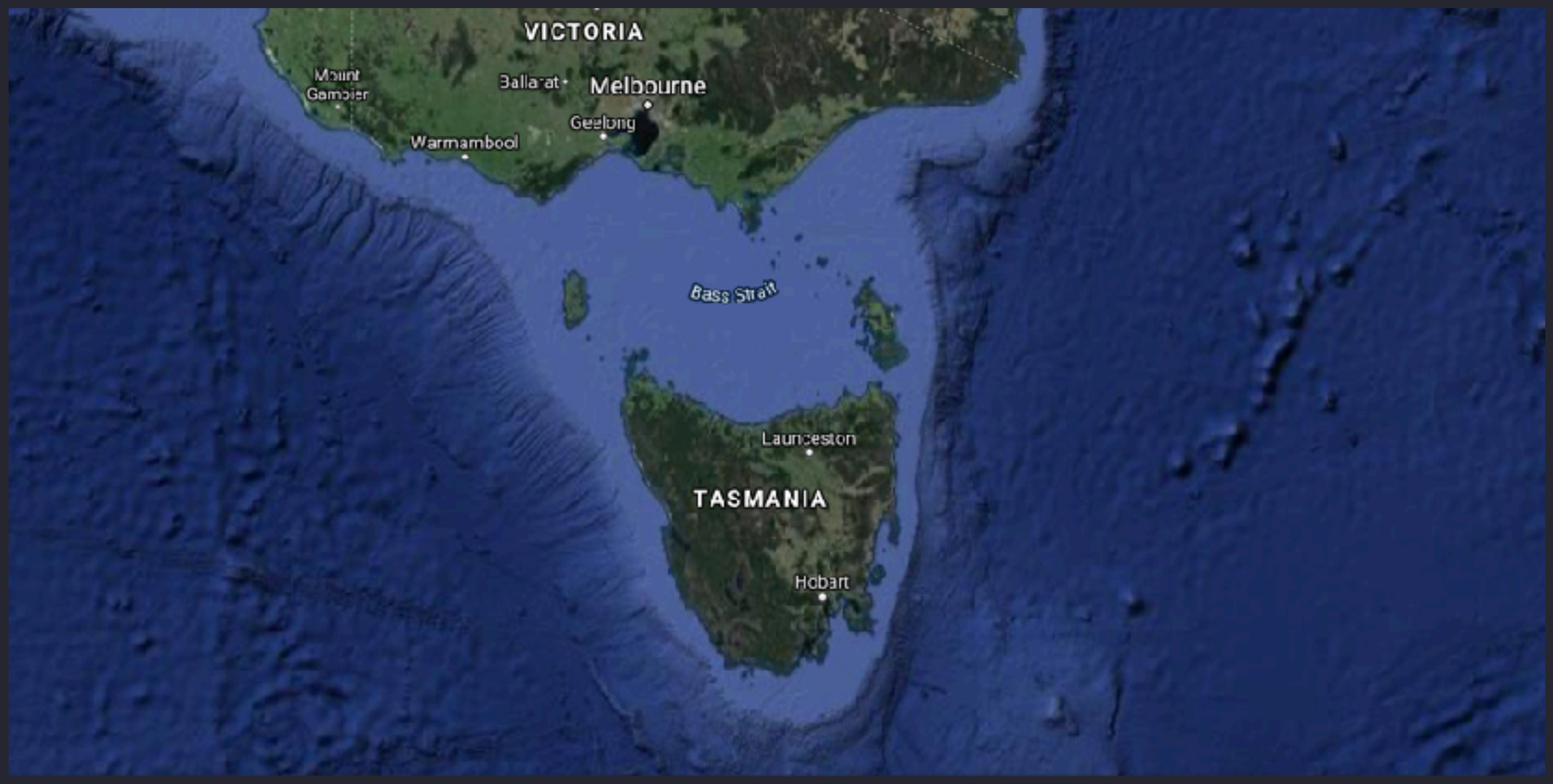
Digital age: the long view

What is cumulative culture?

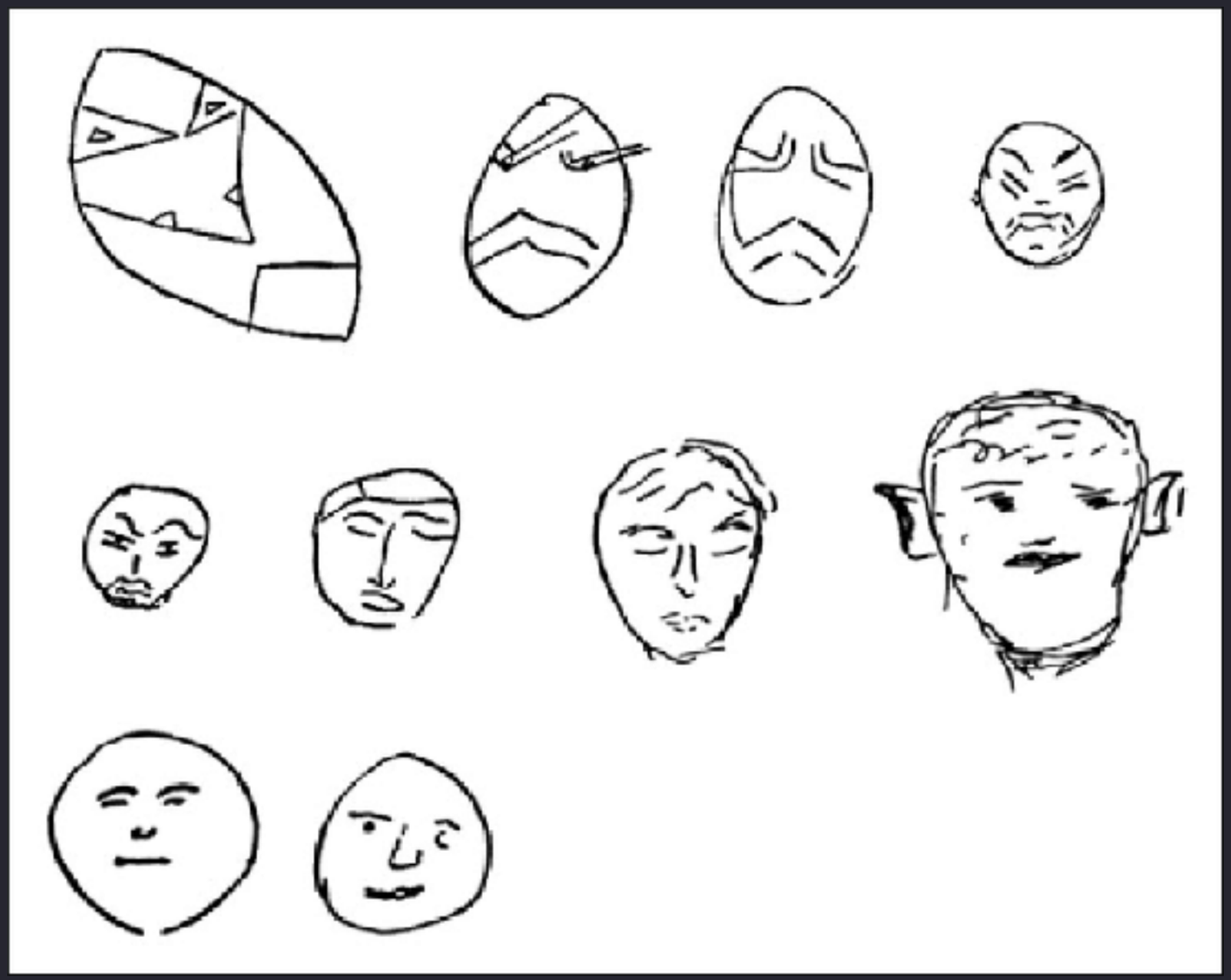
Cumulation is different in different domains

Cumulation depends on availability



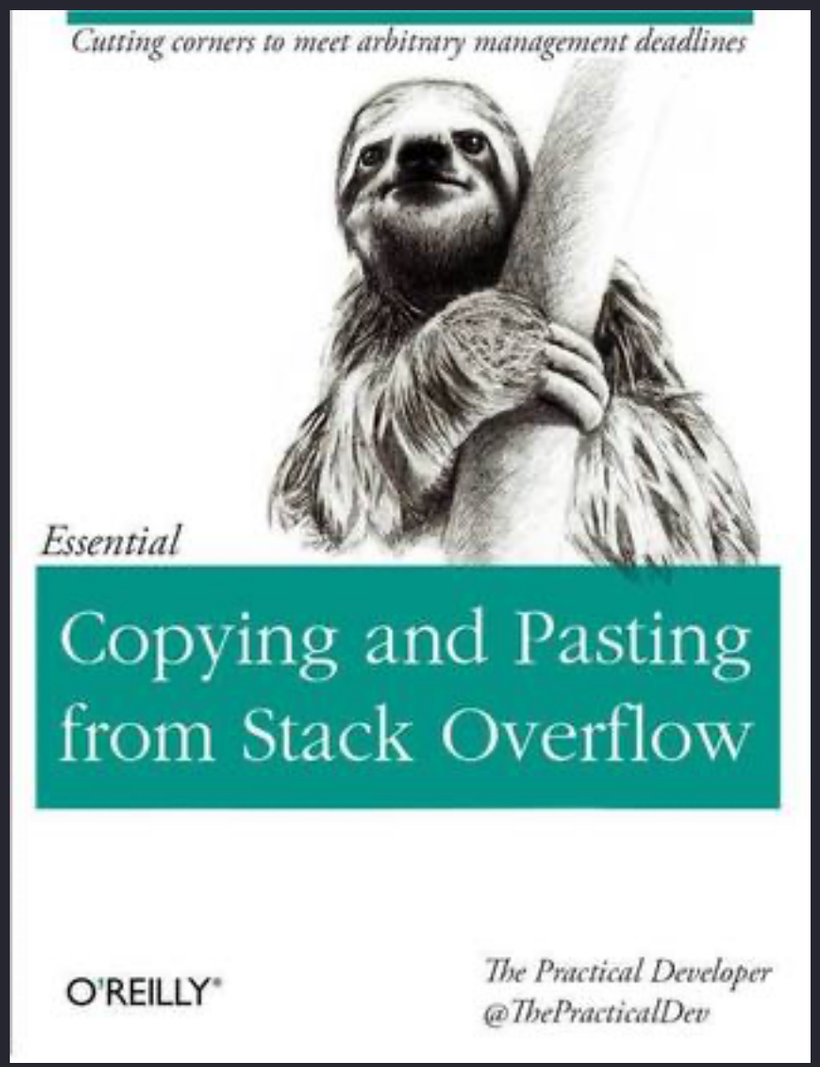
Henrich, 2004

Cumulation depends on fidelity



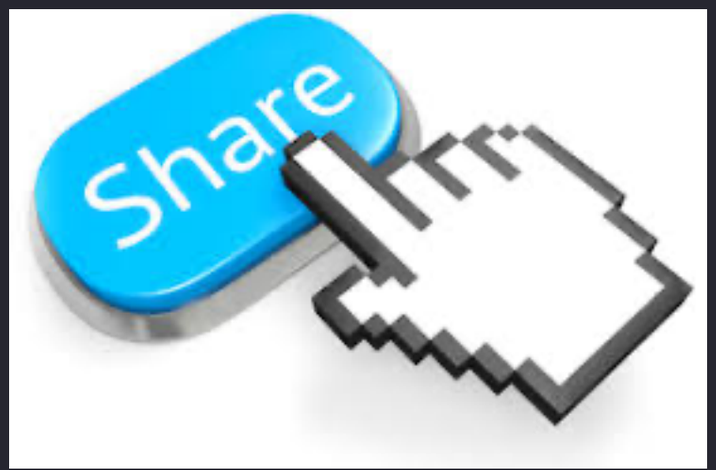
Bartlett, 1926

Online digital media provides hyper-availability



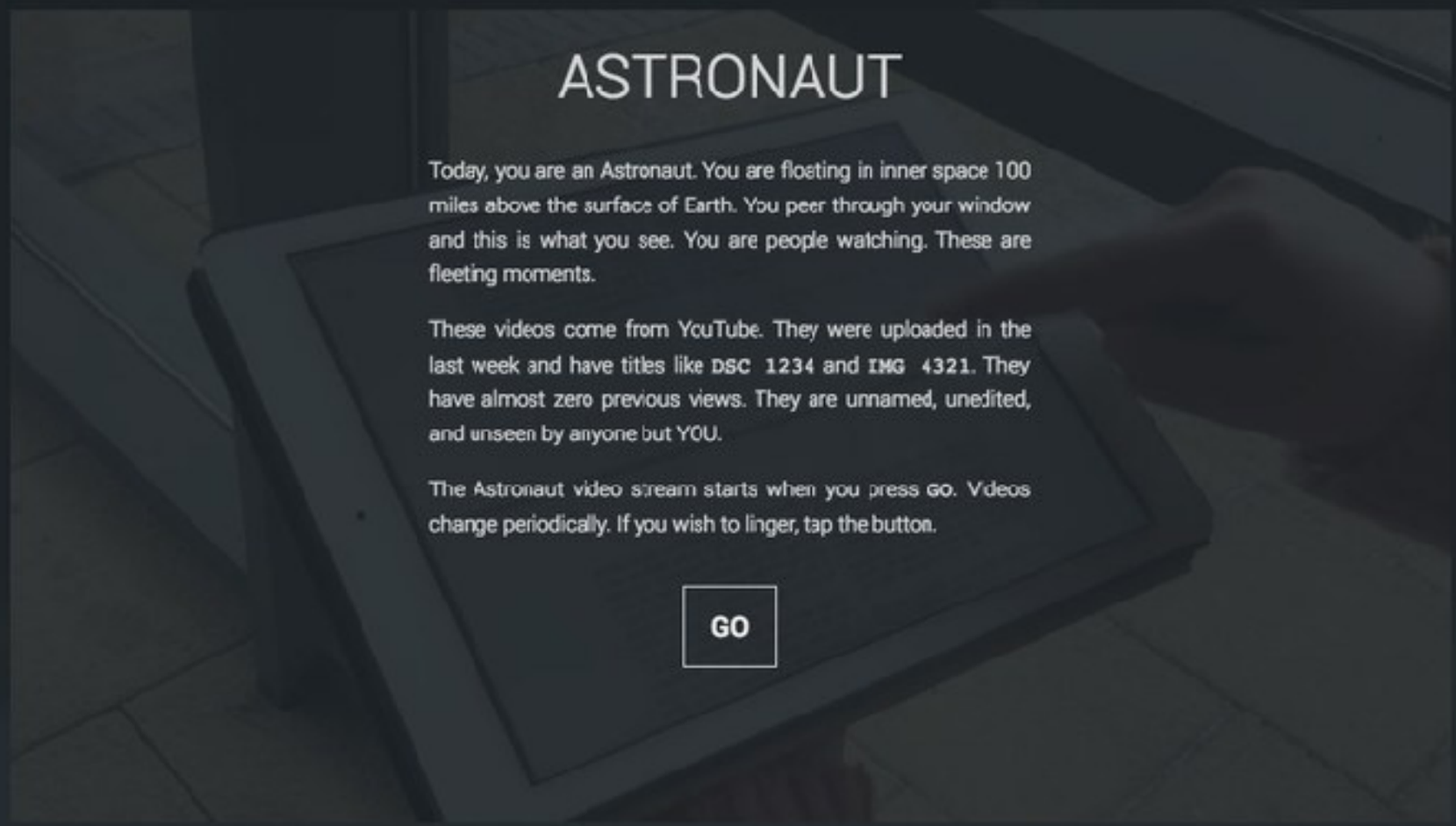
Cumulative culture online

Online digital media increase fidelity

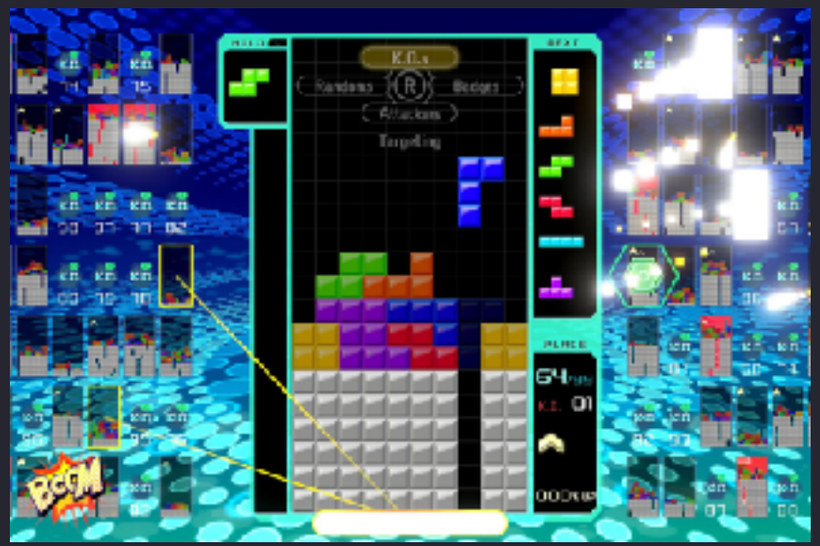


Cumulative culture online

Do hyper-availability and increased fidelity boost cumulation online?



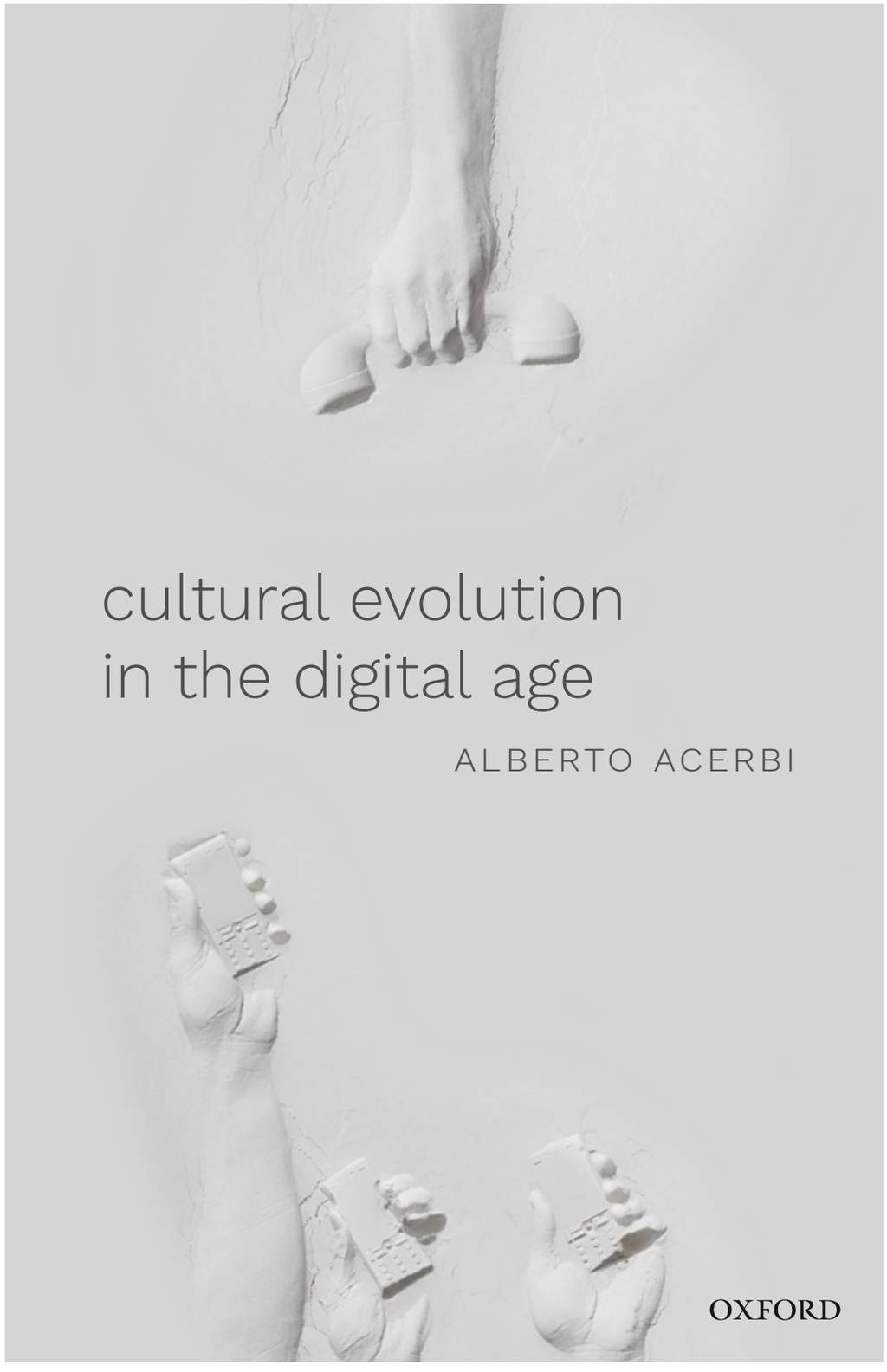
Do hyper-availability and increased fidelity boost cumulation online?



Cumulative culture 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 online digital media increase cumulation? Possibly (but remember junk culture)



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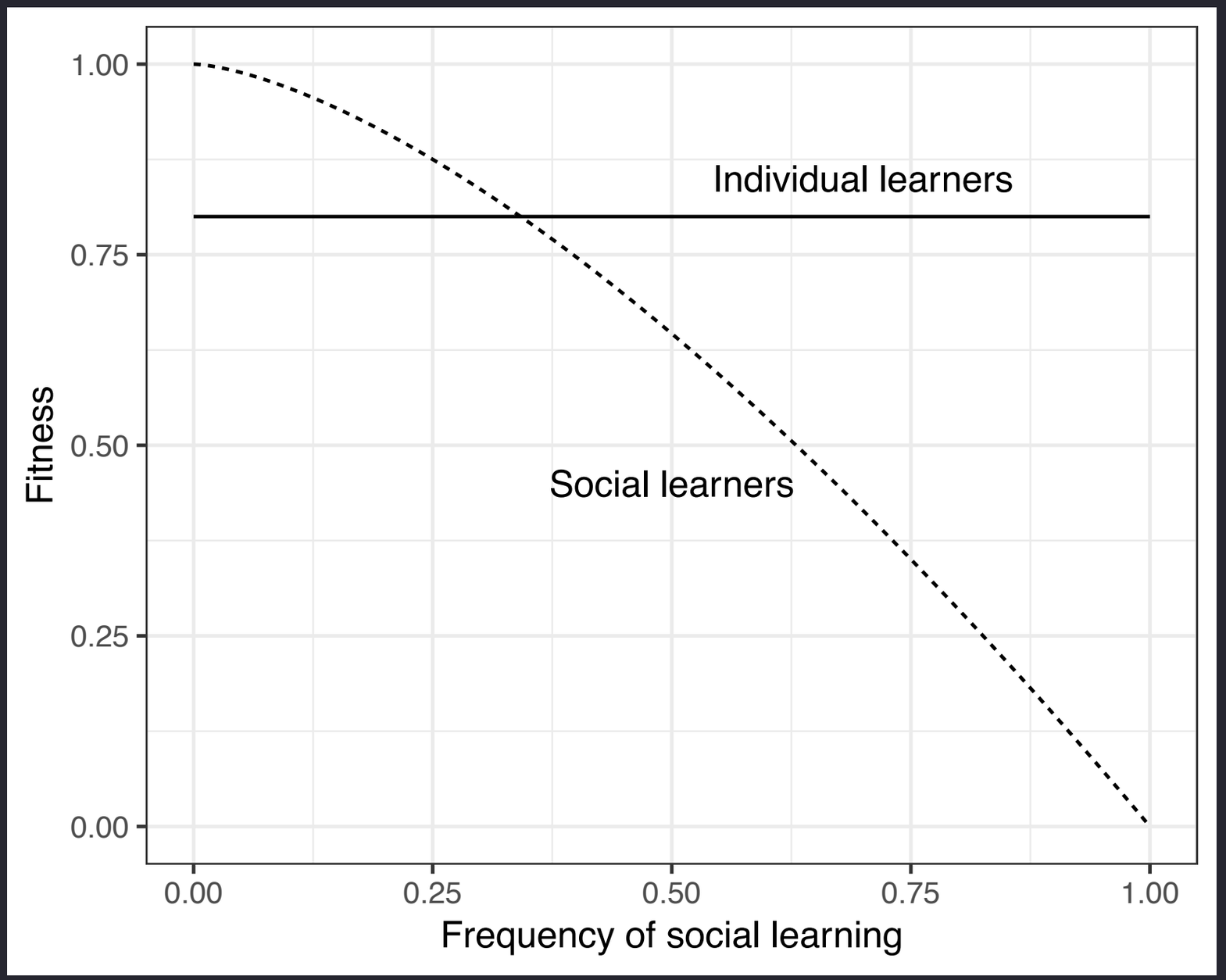
Roger's paradox



Rogers, 1988

Wary learners

Strategic learners

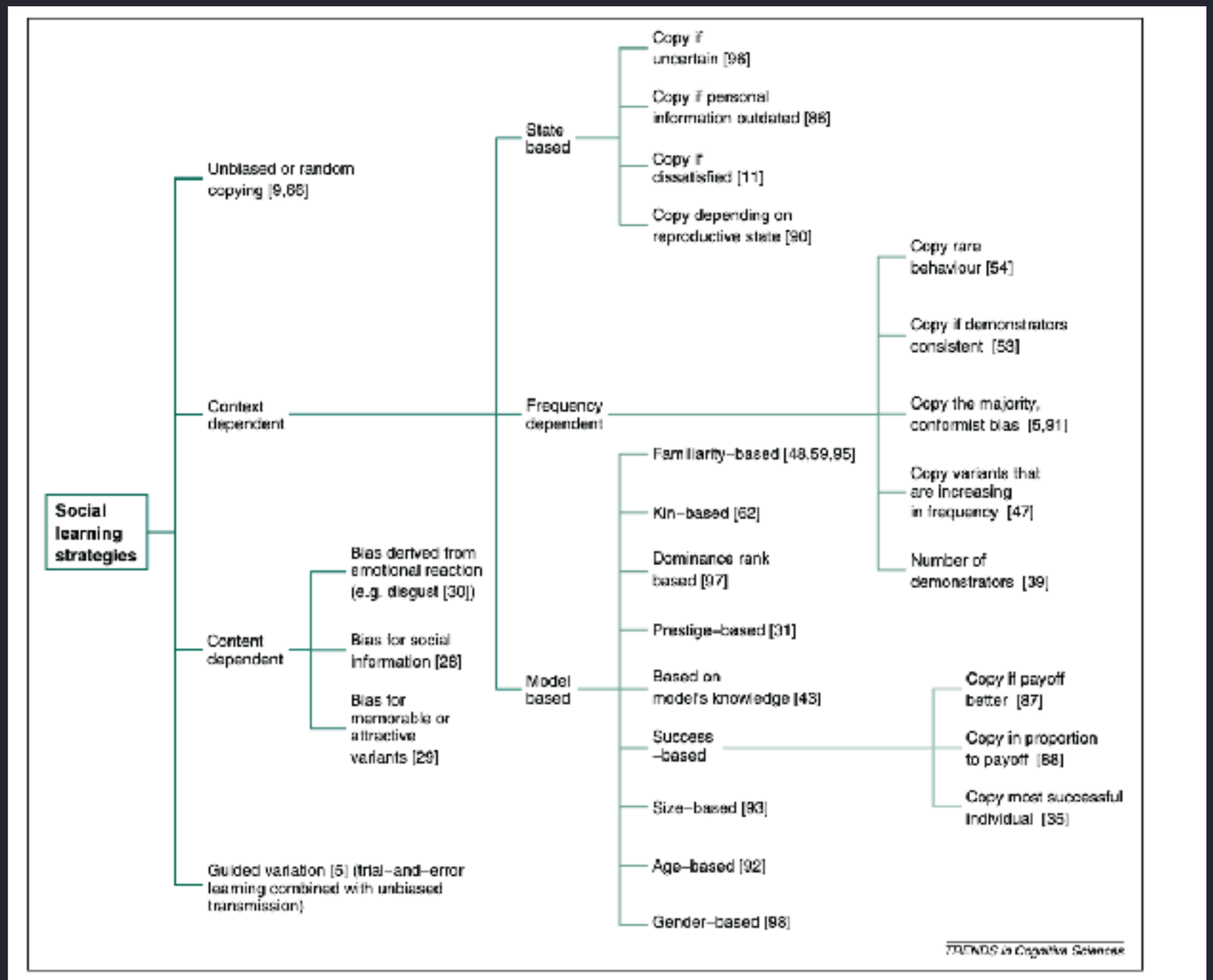


Figure 1. Social learning strategies for which there is significant theoretical or empirical support. The tree structure is purely conceptual and not based on any empirical data on homology or similarity of cognition. The sources given are not necessarily the first descriptions or the strongest evidence,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

McElreath et al., 2005

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.

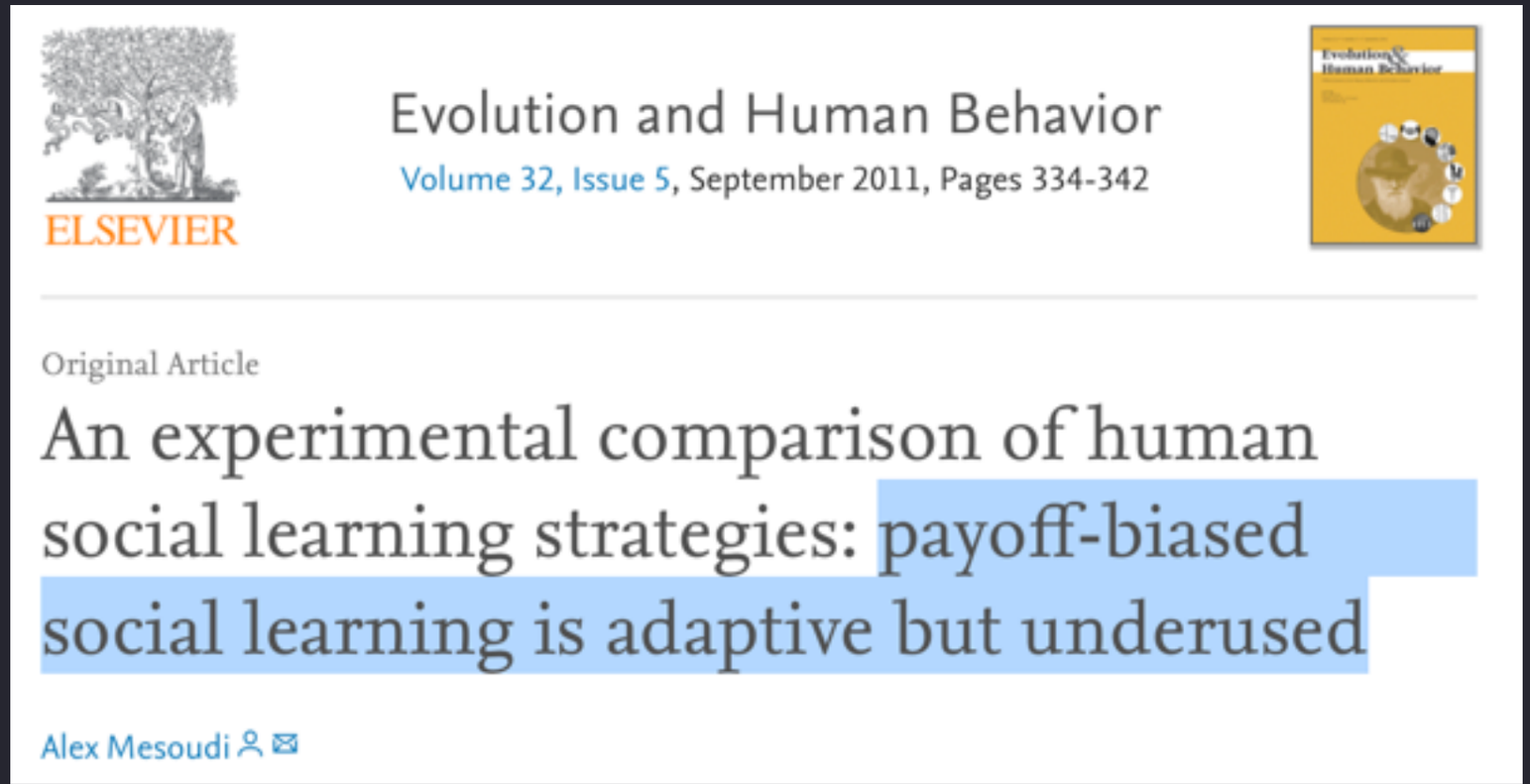
Journal of Evolutionary Psychology, 7(2009)4, 309–329
DOI: 10.1556/JEP.7.2009.4.4

BIASES FOR ACQUIRING INFORMATION INDIVIDUALLY RATHER THAN SOCIALLY

KIMMO ERIKSSON[1,2*] AND PONTUS STRIMLING[2]

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.



ELSEVIER

Evolution and Human Behavior

Volume 32, Issue 5, September 2011, Pages 334-342

Original Article

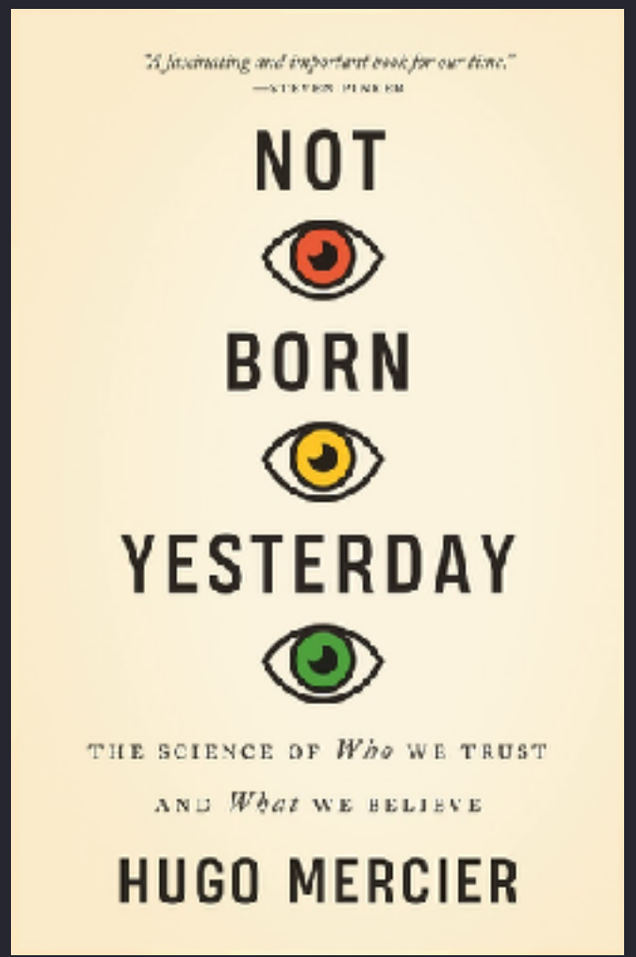
An experimental comparison of human social learning strategies: payoff-biased social learning is adaptive but underused

Alex Mesoudi

Wary learners

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

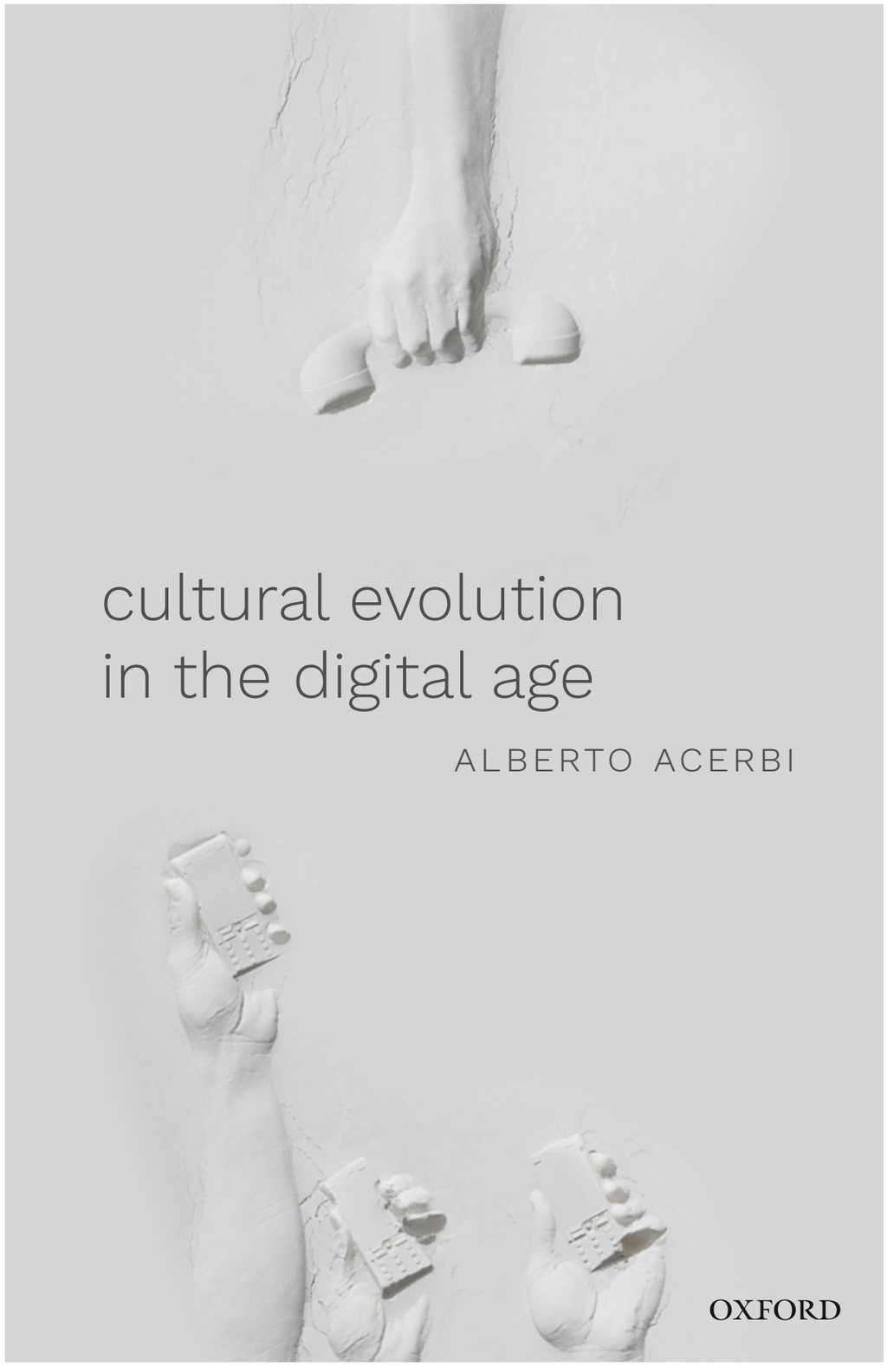
- Compatible with research that shows a restricted reach of online misinformation (e.g. Fletcher et al. 2018, Guess et al. 2019, etc.)…
- …and selective access (e.g. Guess et al. 2018, Grimberg et al. 2019, etc.)

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 (epistemic vigilance)

- Consistent with a reassuring view of the dangers of online social influence



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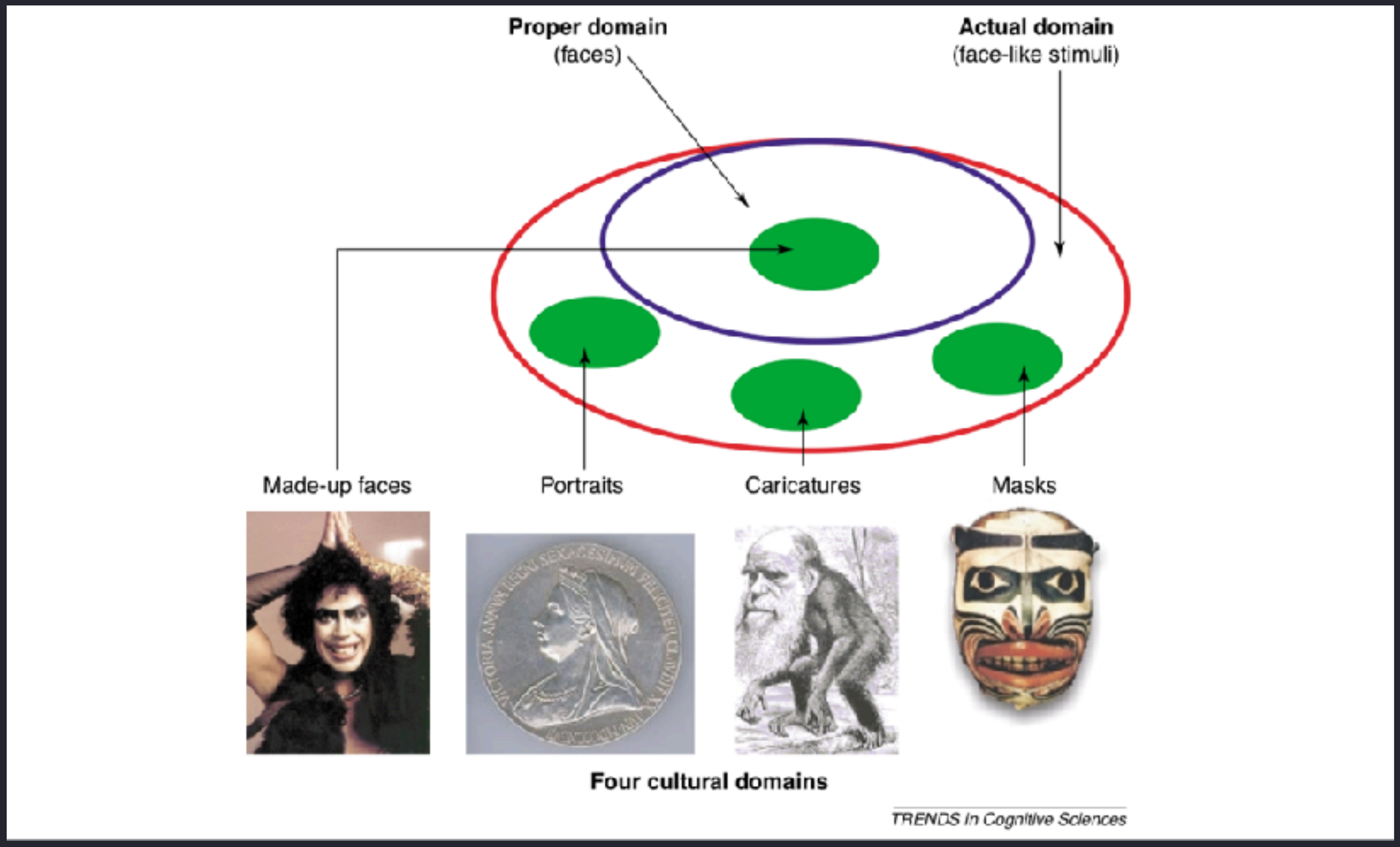
Not all cultural traits are equal



Sperber & Hirschfeld, 2004

Cognitive attraction and online misinformation

- **Why** do people enjoy 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

Cognitive attraction and online misinformation

- an illustrative/exploratory investigation:
  - content analysis of 260 articles from “suspect” websites (lists provided by snopes.com and buzzfeed.com)
  - articles coded for the presence/absence of specific features (cognitive attractors)
  - relatively small sample, but we wanted to *read* the articles

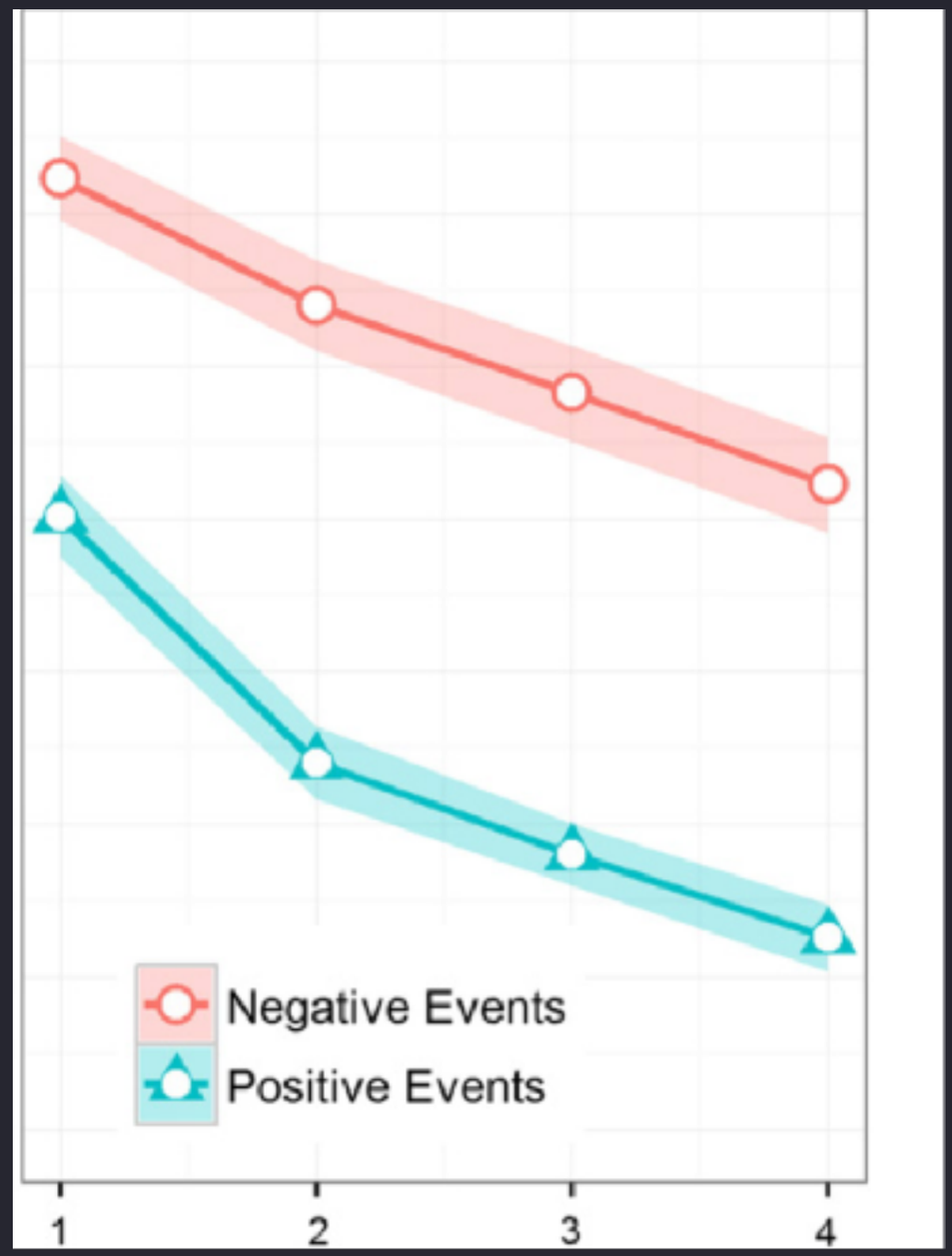
Acerbi, 2019

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

Negative content

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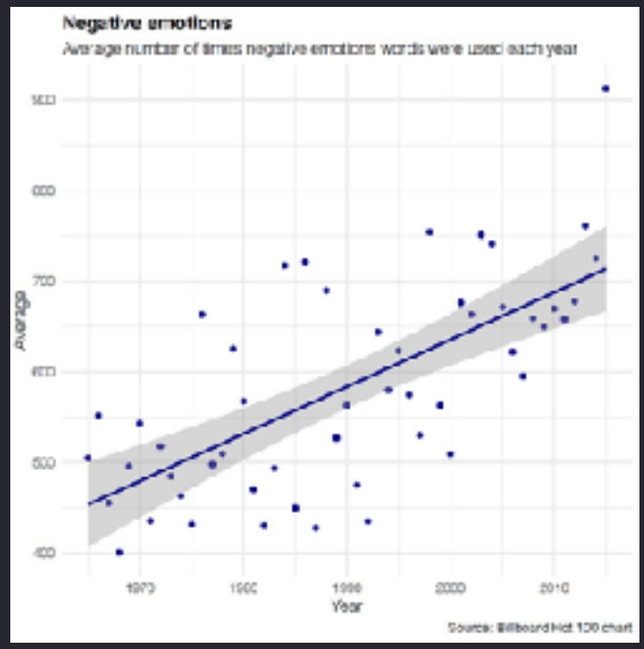
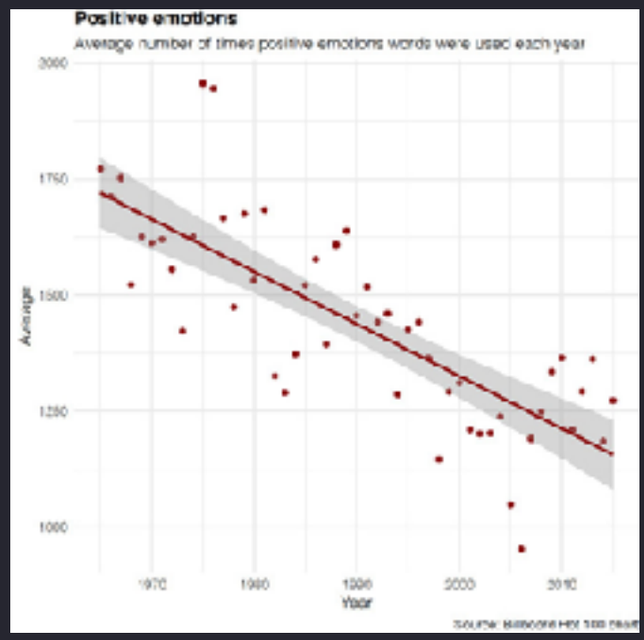
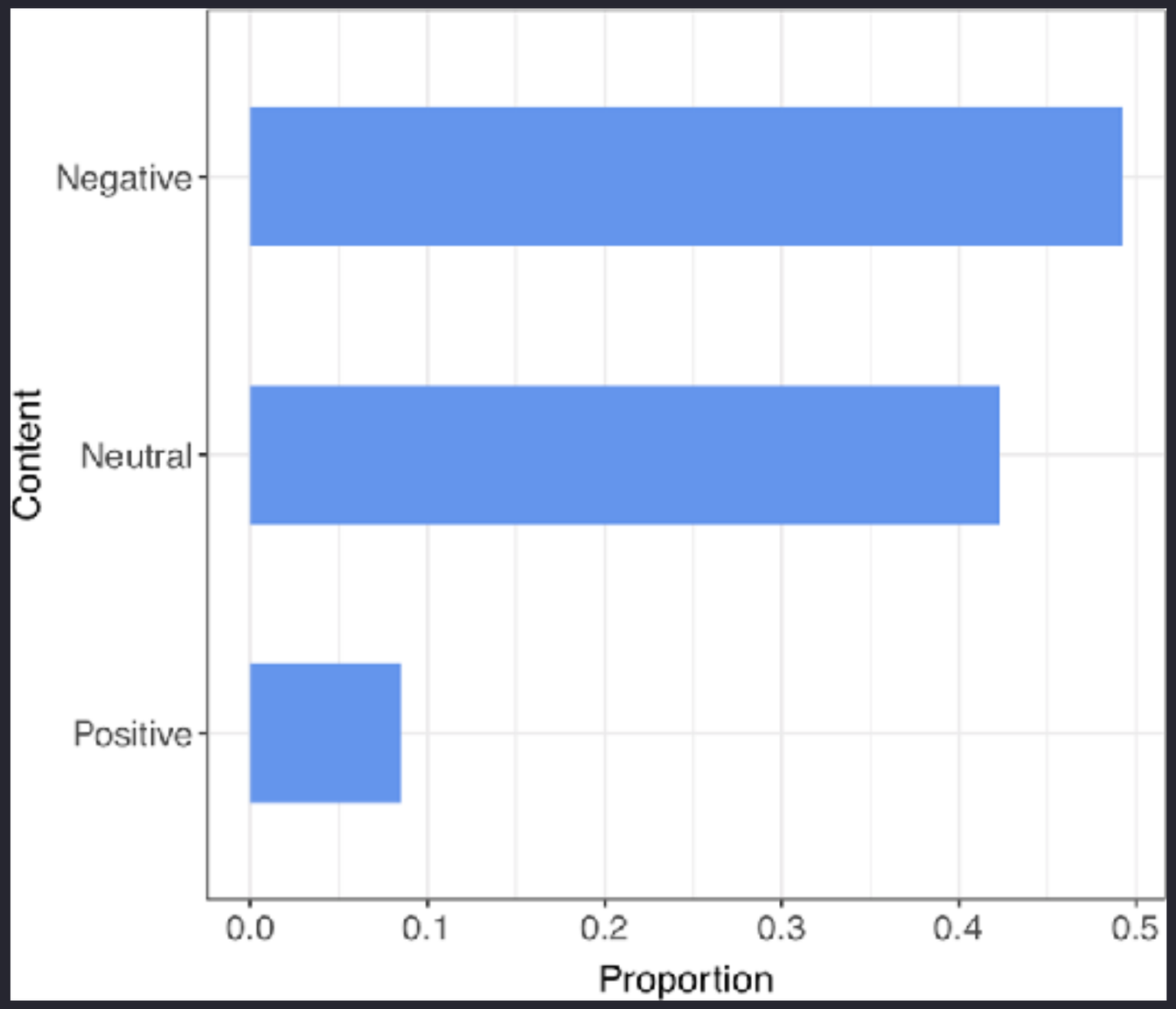




Acerbi et al., 2019

Negative content



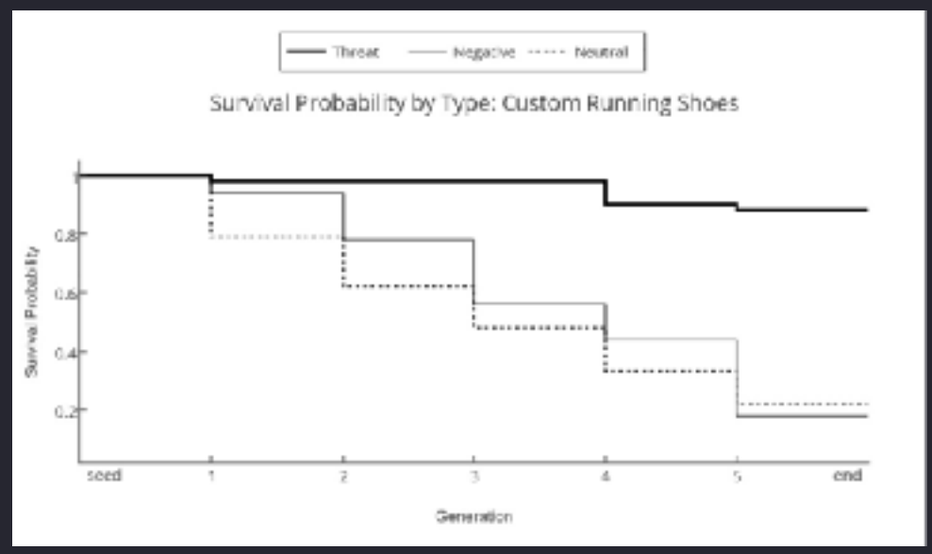
Negative content is **5 times** more common then positive content

Threat-related information

- evolutionary explanation for negative information.
- The threat does not need to be relevant

‘Lancer™ special fabric may smell if not cleaned properly’

‘Lancer™’s strap design can cause sprained ankles when used for activities other than running’



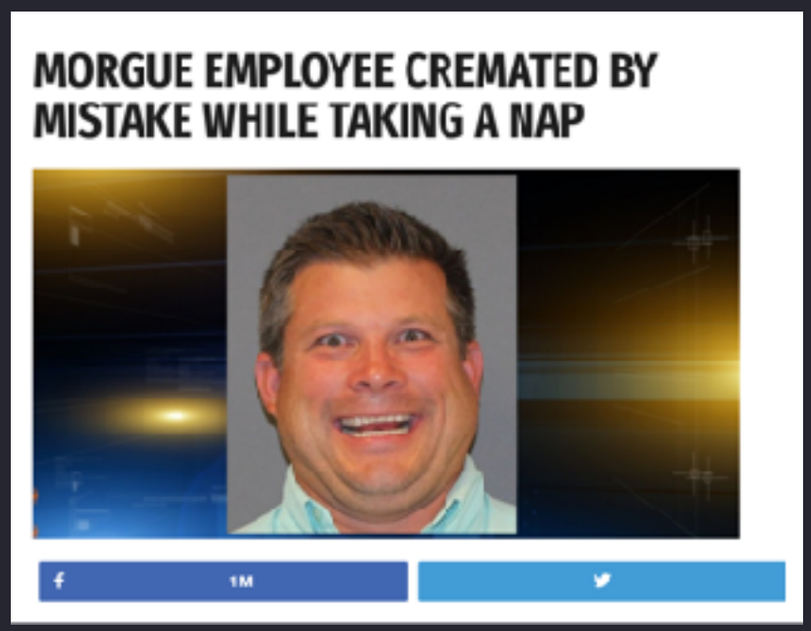
Blaine & Boyer, 2018

Threat-related information

- evolutionary explanation for negative information.

In 2% of users 'Lancer™'s strap design can cause sprained ankles when used for activities other than running'

- The threat does not need to be relevant

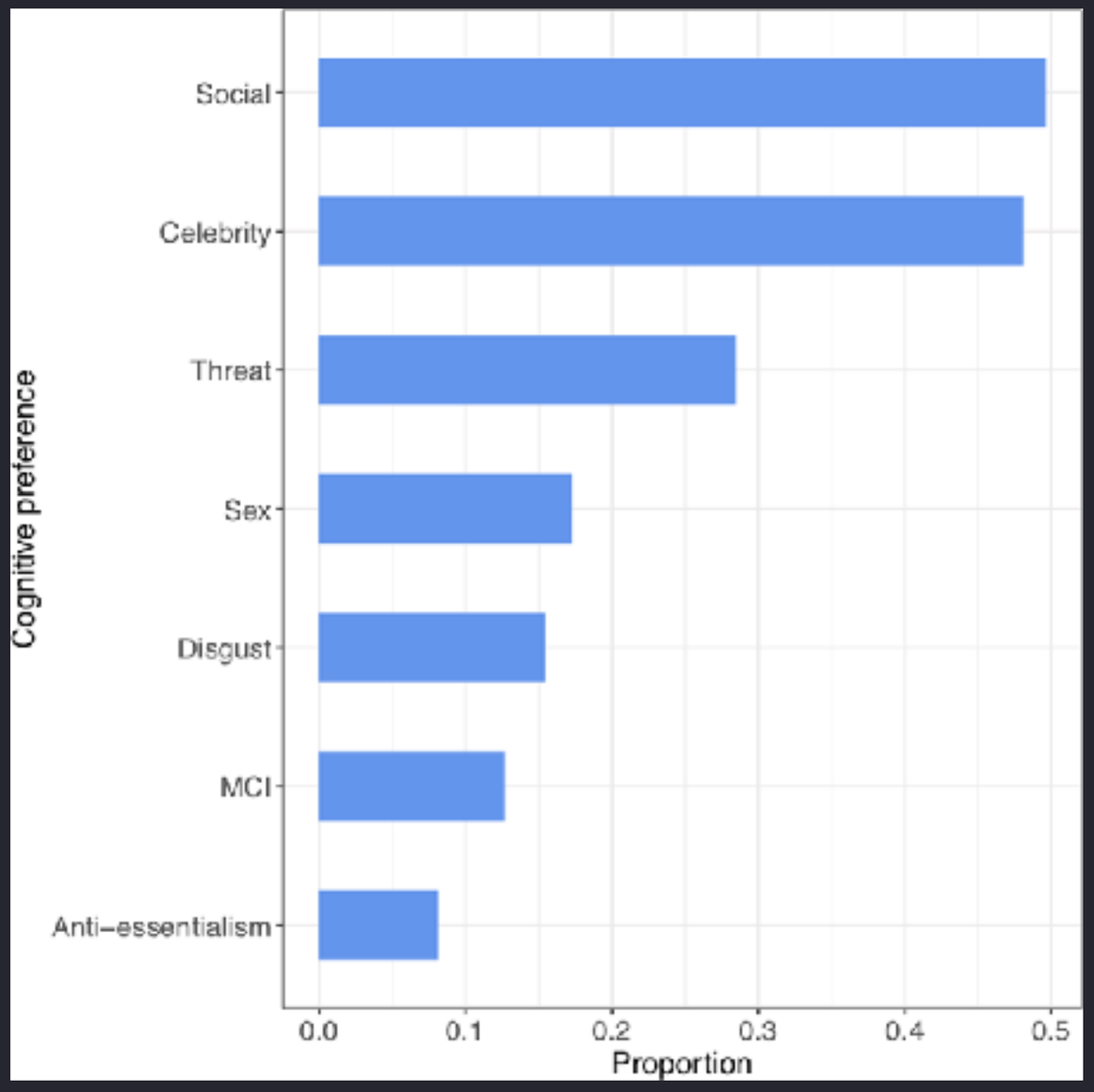


Blaine & Boyer, 2018

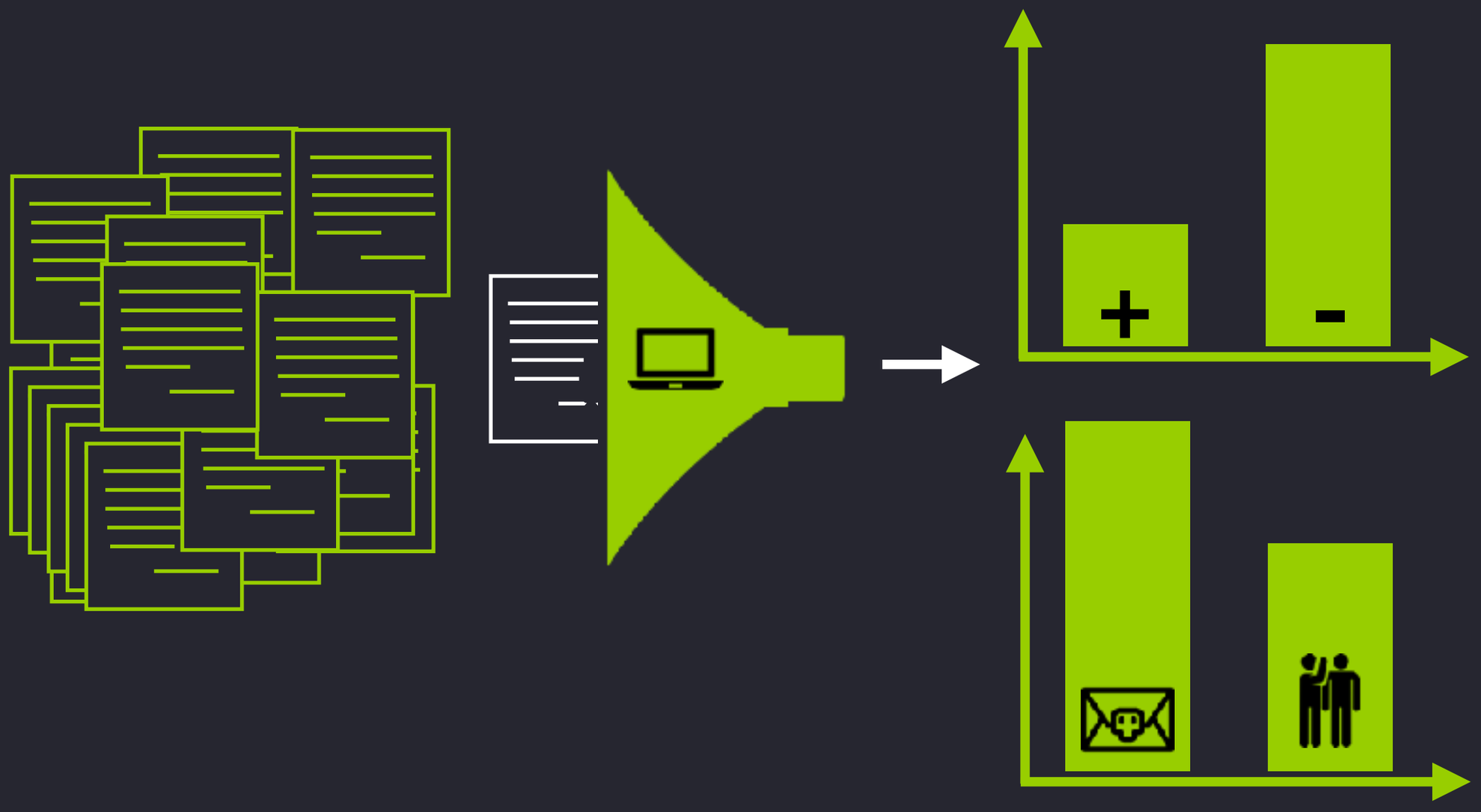
Threat-related information

- **One third** of articles classified as “threat-related” information

- **~50%**: “gossip”



Topic modelling

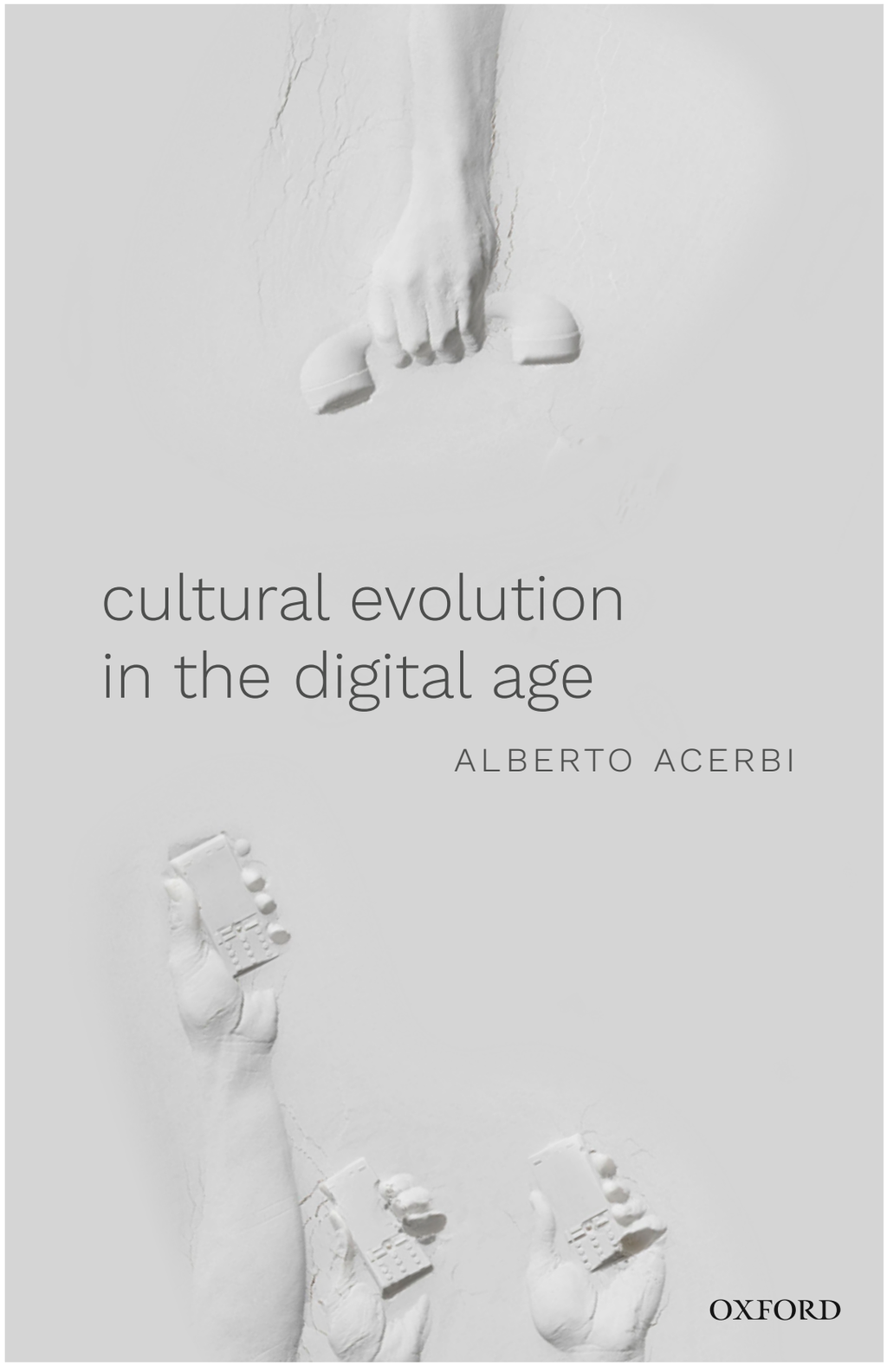


Summary

- Cognitive preferences make some cultural traits more attractive than others

- Misinformation, not constrained by reality, can exploit there 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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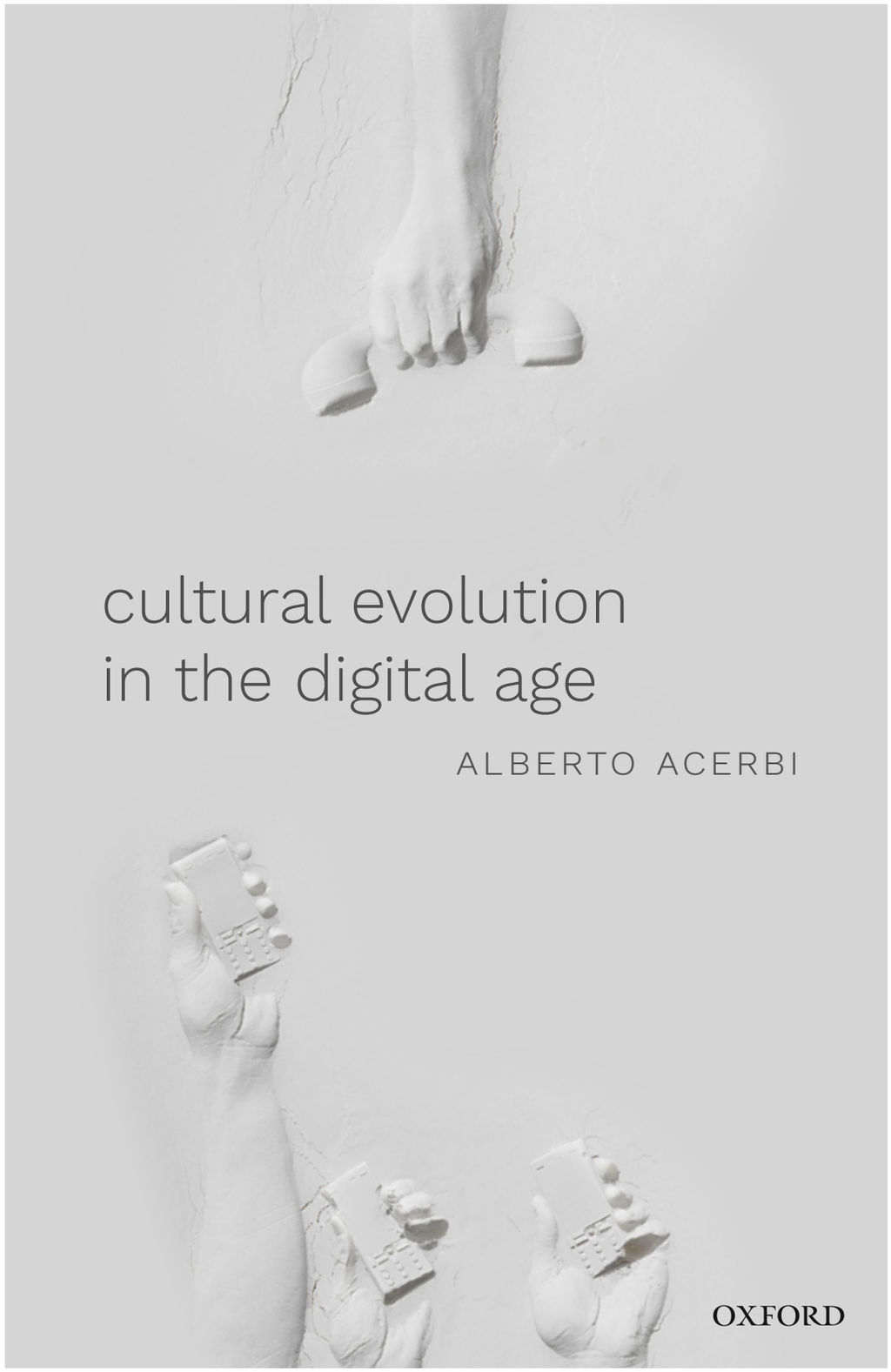

Thank you!

@acerbialberto

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ACADEMIC

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