

Theory in the practice of science

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My own scientific journey

Computers

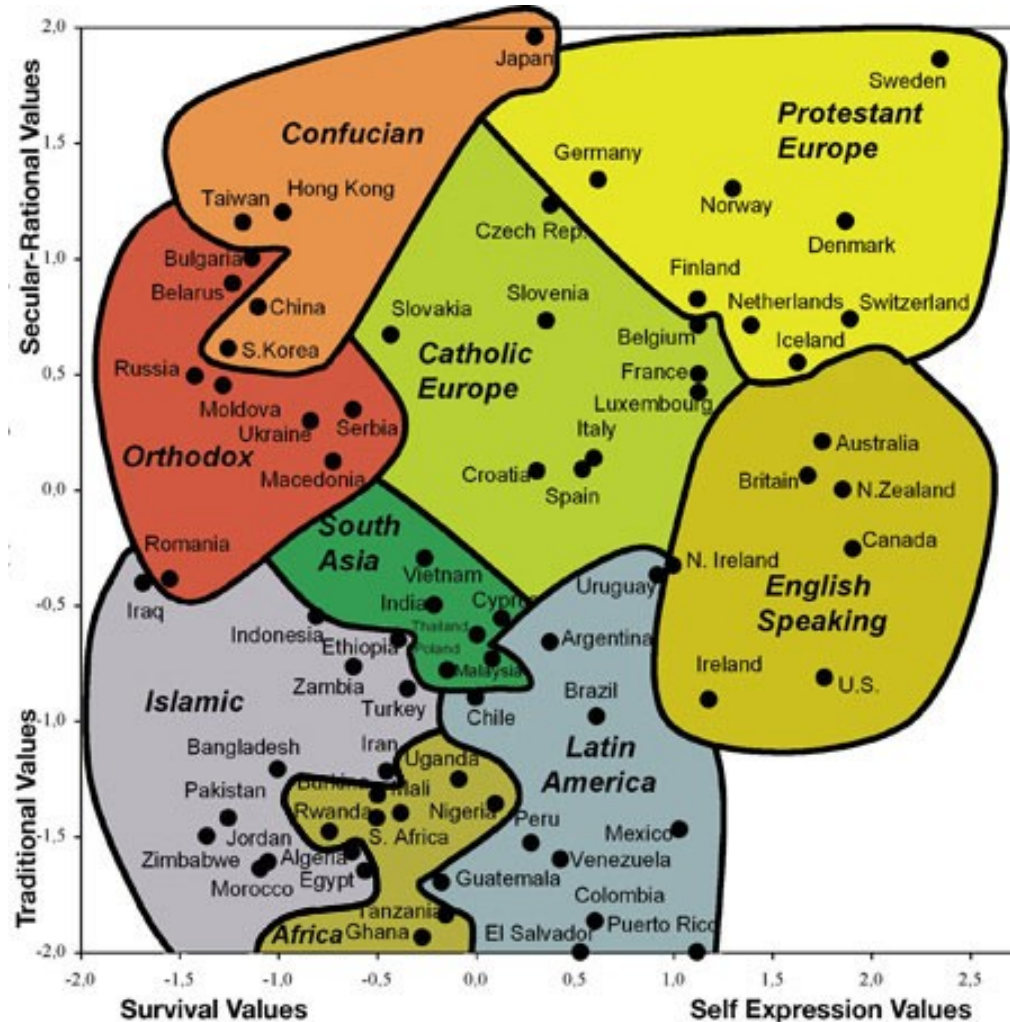
Math

Games

Cultural evolution

Social & cognitive psychology

Cultures vary greatly in opinions-norms-values; documented in the World Values Survey



Sweden is extreme.

Self-expression values: Give priority to self-expression and quality of life over security.

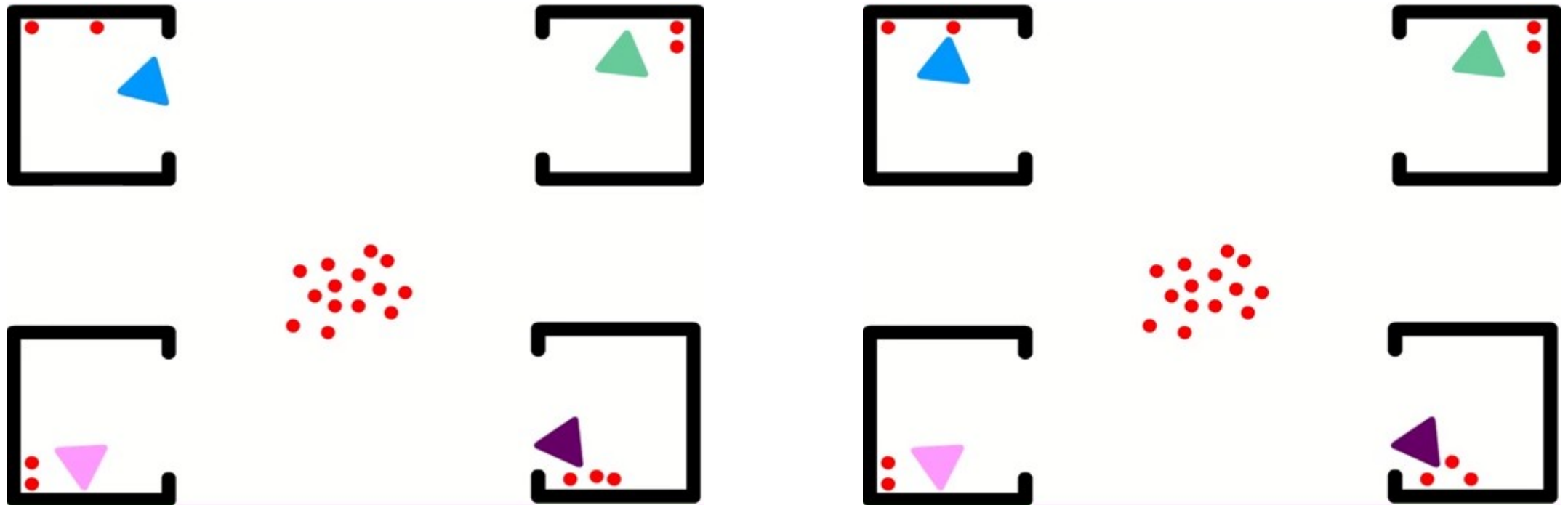
NICE MODEL.

ISSUES: Who to ask?
How to ask?
Which questions?
How to construct dimensions?

Norms vary a lot between cultures. But what about *meta-norms* (norms about how to deal with norm violations)?

ISSUES: - How measure meta-norms?
- What if meta-norms depend on the underlying norms (for which there are cultural variation)?

A novel method - abstract animations (inspired by Heider & Simmel, 1944)

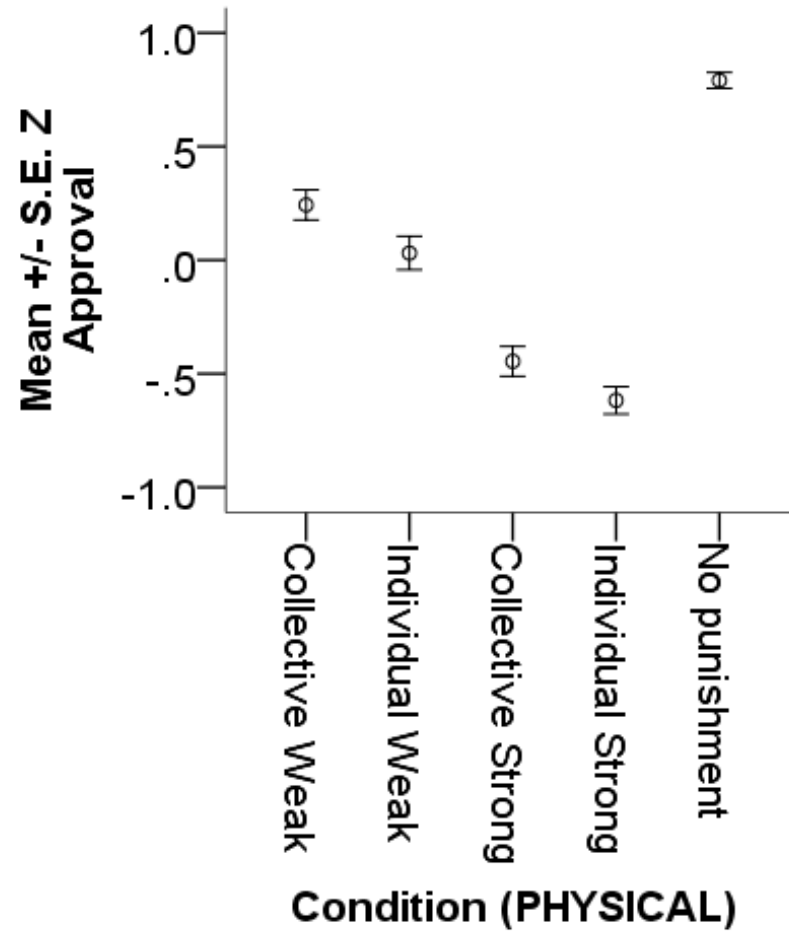


Each triangle is judged on an approval scale

1. I think the BLUE triangle's behavior was appropriate
2. I would like to spend time with a person who behaves like the BLUE triangle
3. *If a person who behaves like the BLUE triangle belonged to my group I would consider that person to be a problem (rather than an asset) for the group*

ISSUES: - How do we know it is the norm-enforcing activity that is judged?

Approval of different versions of punishment among Americans (Eriksson et al 2016)



Students in 8 countries then judged the two animations (Eriksson et al, submitted)

Netherlands

Sweden

USA

China

Japan

Pakistan

Russia

United Arab Emirates

These countries vary with respect to economic development, economic inequality, individualism, religion, climate, etc.

Our hypothesis was that meta-norms would vary with the degree of...

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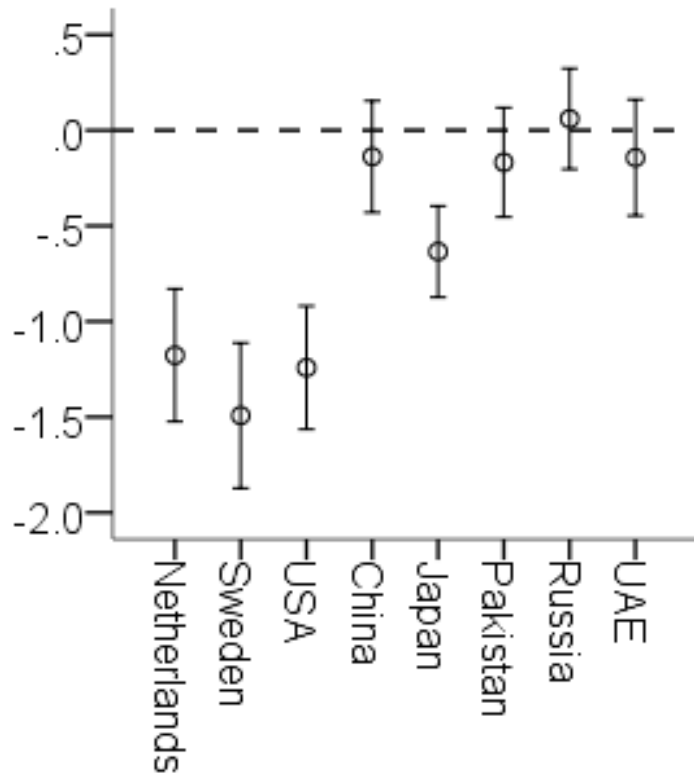
Russia

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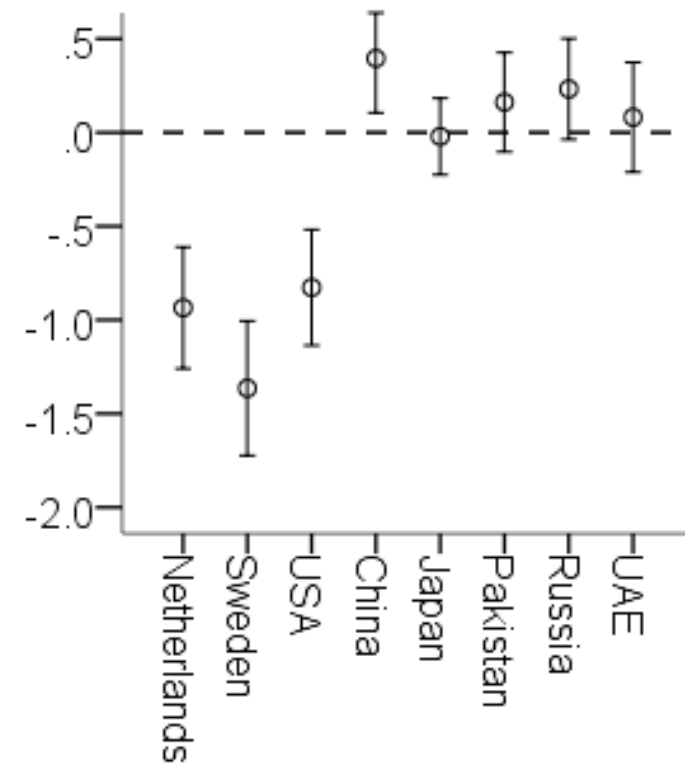
These countries vary with respect to economic development, economic inequality, individualism, religion, climate, etc.

Our hypothesis was that meta-norms would vary with the degree of *individualism* in the country (a concept closely related to self-expression values)

Results: Disapproval of punishers in individualist countries



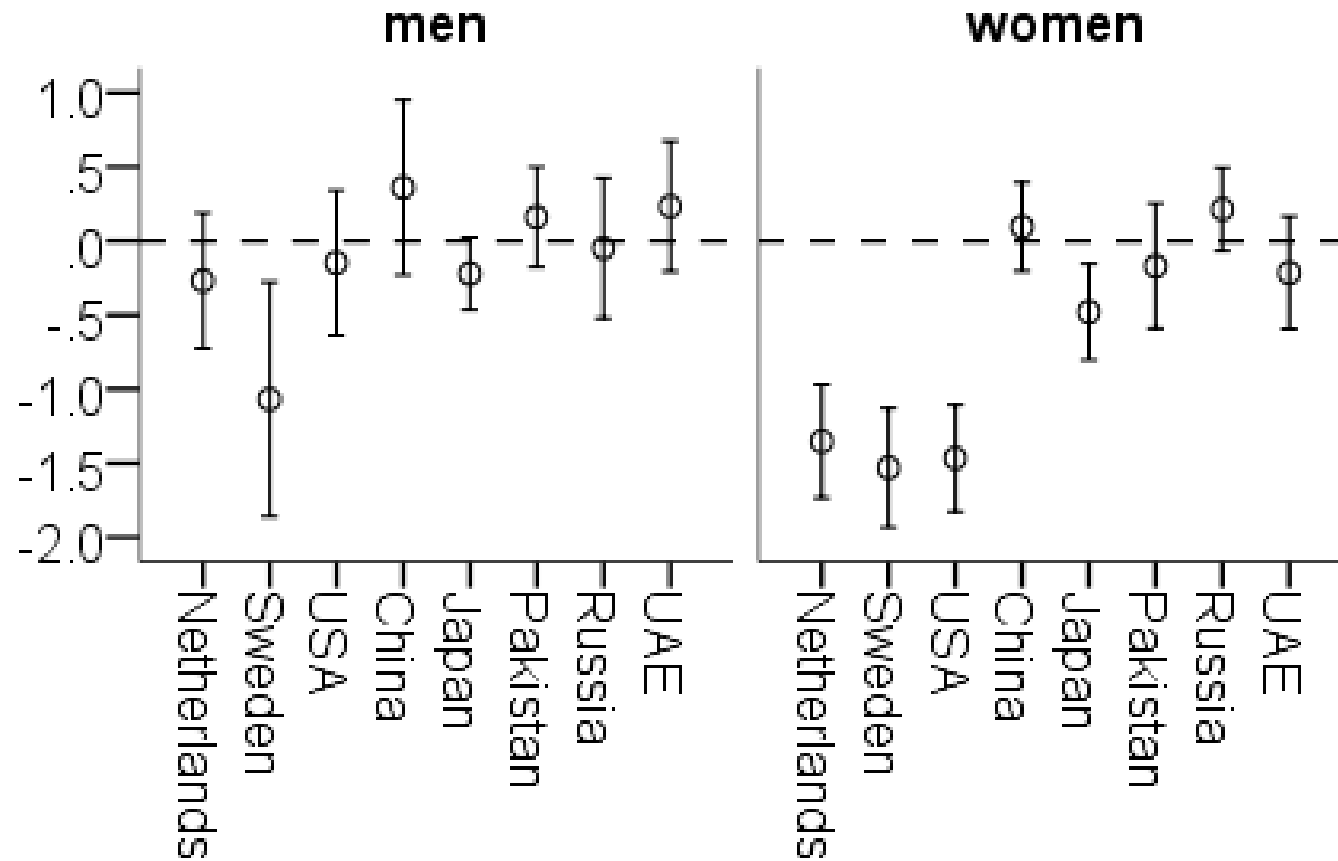
Relative approval of individual punisher



Relative approval of group-backed punisher

ISSUE: How do we know which is the crucial cultural dimension?

Surprising result: Women drive the effect of individualism



ISSUE: The important difference between expected and surprising results.

The lack of approval of punishment of norm-violators may contribute to cultural change.

If we go 200 years back in time, what used to be the common views in Sweden on:

- abortion?
- death penalty?
- caring for the climate?
- brutal treatment of potential threats to national security?
- same-sex marriage?



What unites these GOP presidential candidates is their "conservative" positions on issues such as

- abortion
- death penalty
- caring for the climate
- waterboarding of potential security threats



• same-sex marriage
In the US a candidate holding these "conservative" positions can get about 50% of the vote. In Sweden the opposing (i.e., "liberal") positions are in strong majority.

From a static viewpoint, it seems that American culture is different from Swedish culture.

But Sweden may just be ahead on a common cultural traj

ISSUE: How can we measure cultural trajectories?

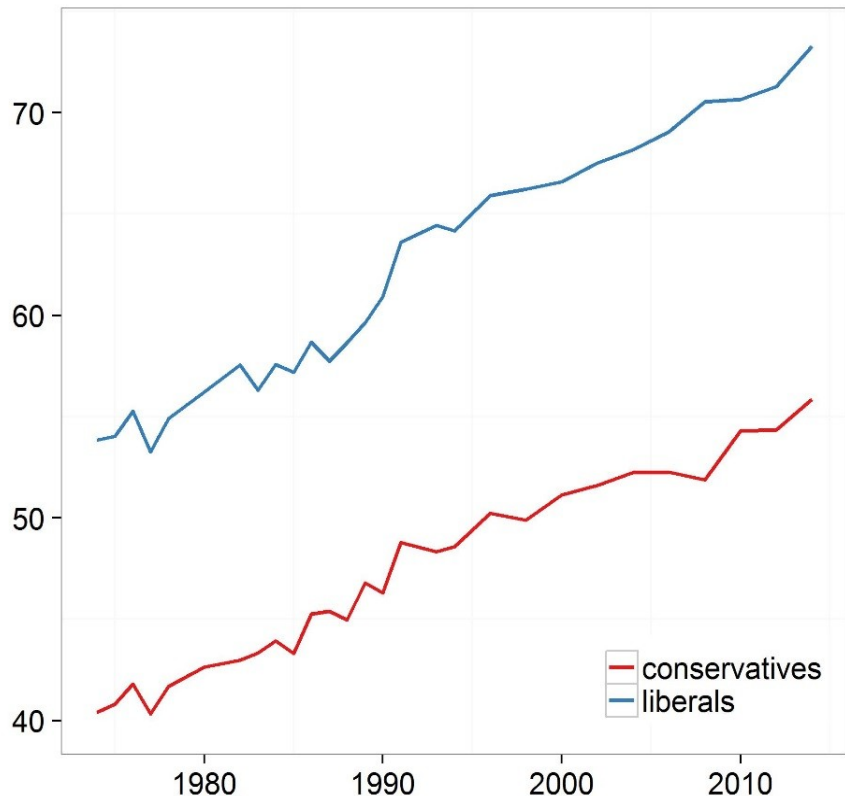
Dynamics of US moral opinion (Strimling et al., preprint)

GSS – the General Social Survey – offers an amazing dataset to study the dynamics of US moral opinions

- 30 national samples with 59,599 respondents have been collected over 40+ years
- Among items describing political-moral issues we identified 74 items that were included in at least 7 waves over at least 13 years.
- Among these items, 58 were such that the proportion who expressed agreement was either consistently higher or consistently lower among liberals than among conservatives. Thus, these items describe issues for which we can unambiguously name one position the more liberal one.

The GSS data show a general trend of public opinion *toward more liberal positions*

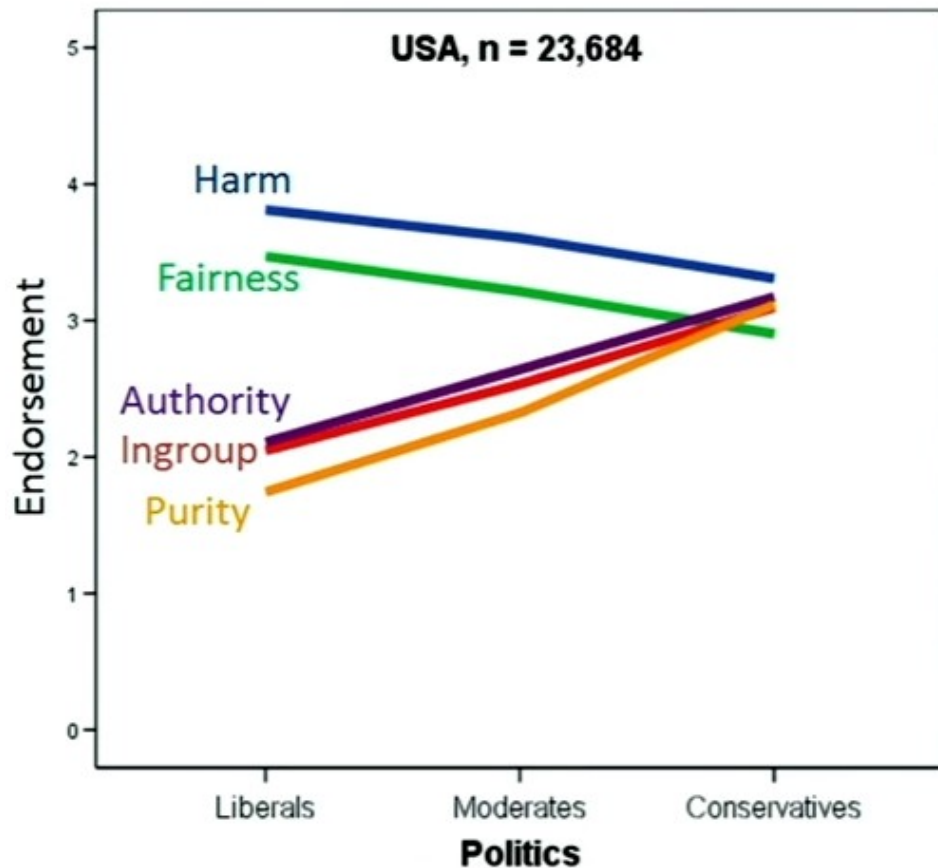
47 out of 58 items have trended towards the liberal position.



Interestingly, the average trend is similar for liberals and conservatives!

What could be the explanation?

The strongest current theory of what is the deep-down difference between liberals and conservatives is Jonathan Haidt's *moral foundations theory*

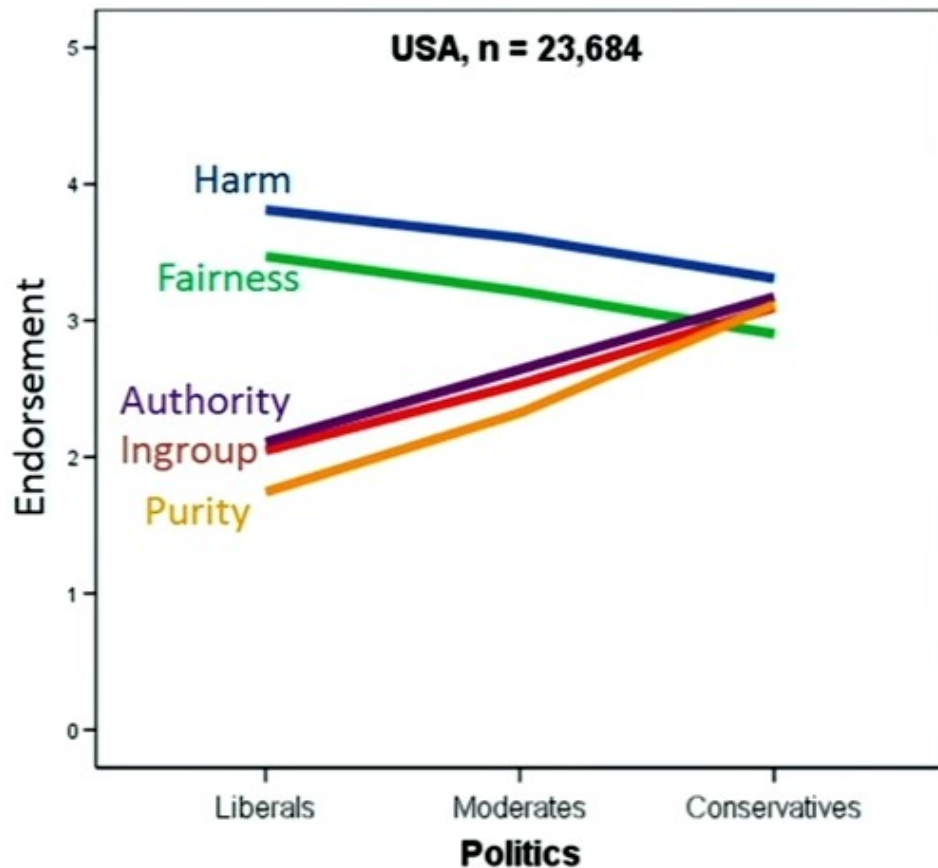


Conservatives accept the validity of Harm, Fairness, Authority, Ingroup, and Purity as bases for moral judgments.

Liberals essentially accept only Harm and Fairness.

But this is a static theory. Why do people change their moral opinions?

Making moral foundations theory *dynamic*



On any given issue there is usually a whole set of arguments that bear on it.

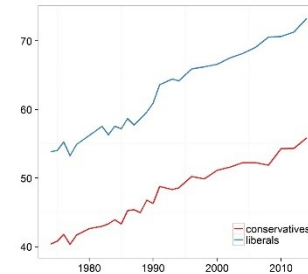
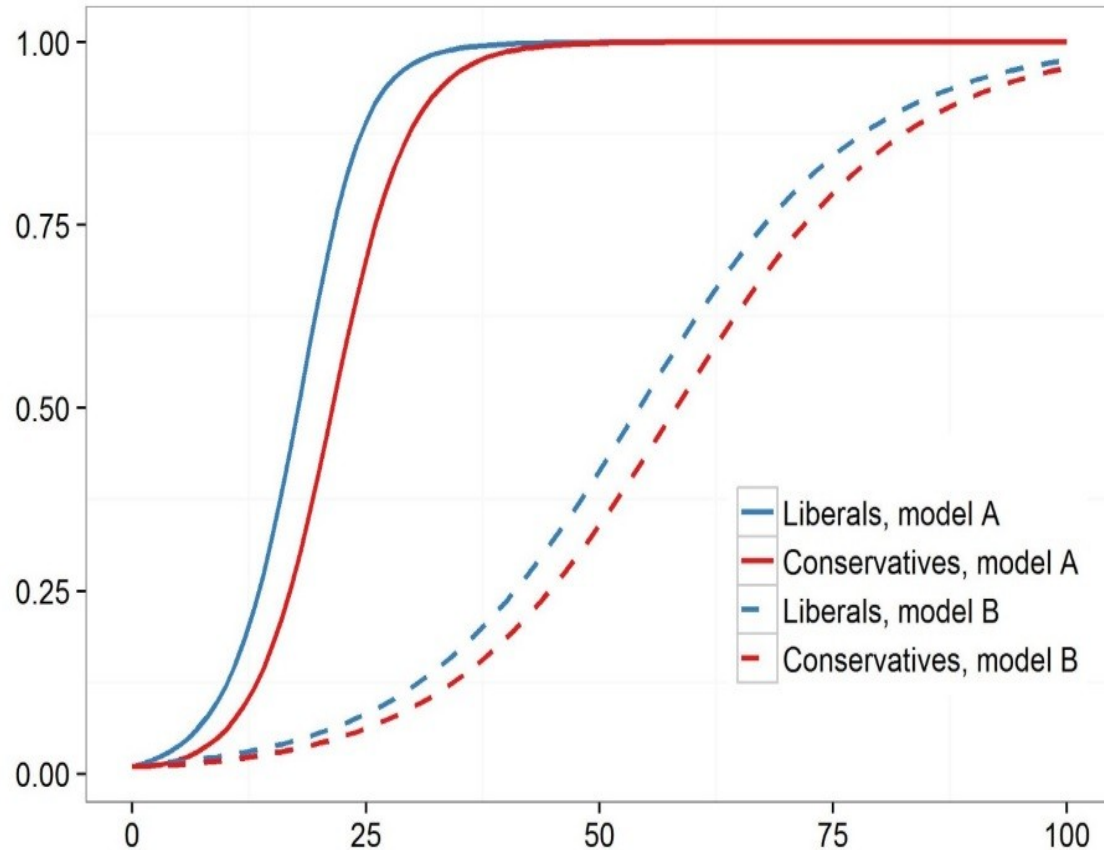
People may *change* their opinion when they hear an argument in favor of the opposite position, but only if they accept the validity of the foundation on which the argument rests.

We now have the components for a cultural evolutionary model

- Agents have different opinions.
- By interacting, agents hear other agents' arguments for their opinions.
- Agents may then change opinion. The probability that they do depend on what kind of arguments are presented and whether the agent accept that kind of argument. Specifically, conservatives are assumed to be equally swayable in both directions, whereas liberals is more swayable in the direction in which harm-and-fairness based arguments tend to point.
- Over time, the consequences of repeated interaction substantial change in public opinion.

ISSUES: - How can we know if the assumptions are correct? - How can we test the predictions made by the model?

Simulations of the model for large (A) and small (B) harm-and-fairness advantage of one position

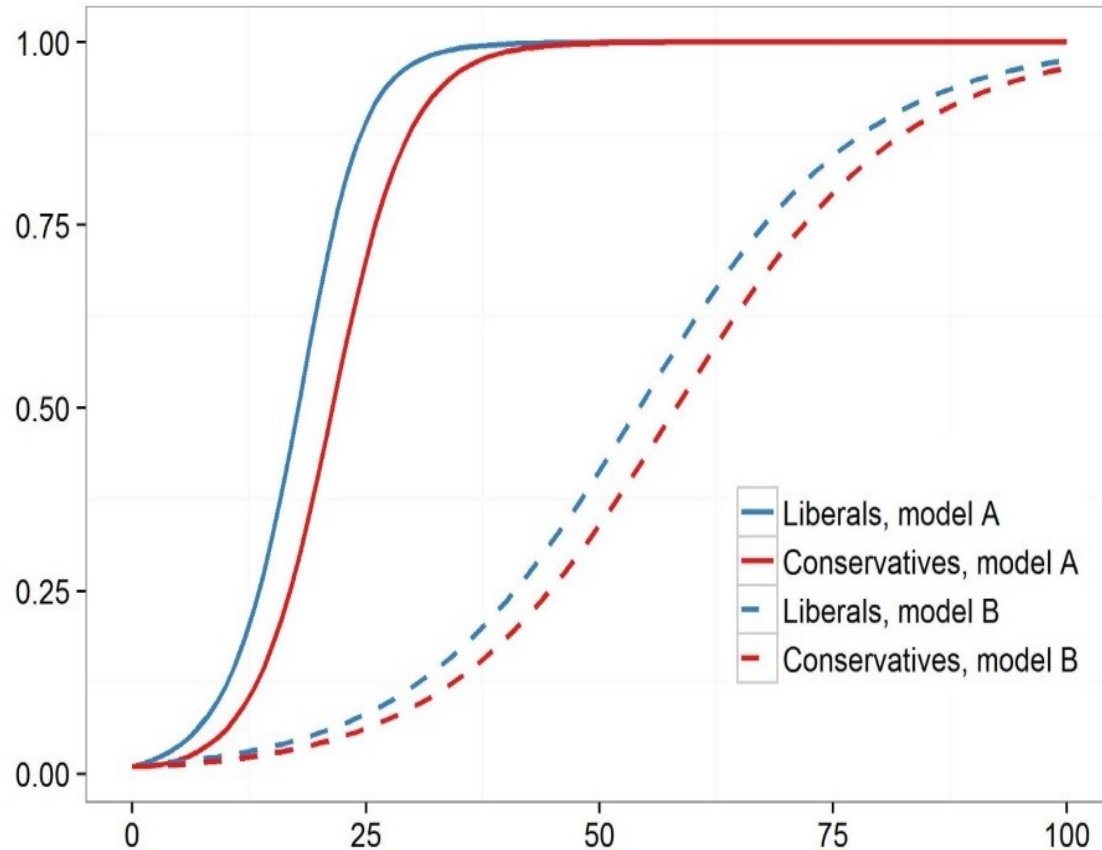


So the model offers an explanation for the actual average trends!

However, many different models may generate the same

Unique prediction from the model

ISSUES: - How can we measure harm-and-fairness advantage?
- Is it a well-defined concept?



Across a set of issues,

the *cultural evolutionary success* of a position (as measured by the rate by which it gains or loses popularity according to the GSS)

should correlate with the position's *harm-and-fairness advantage* (as measured by the extent to which harm-and-fairness based arguments favor

To obtain measures of the harm-and-fairness advantage of items, we conducted a survey

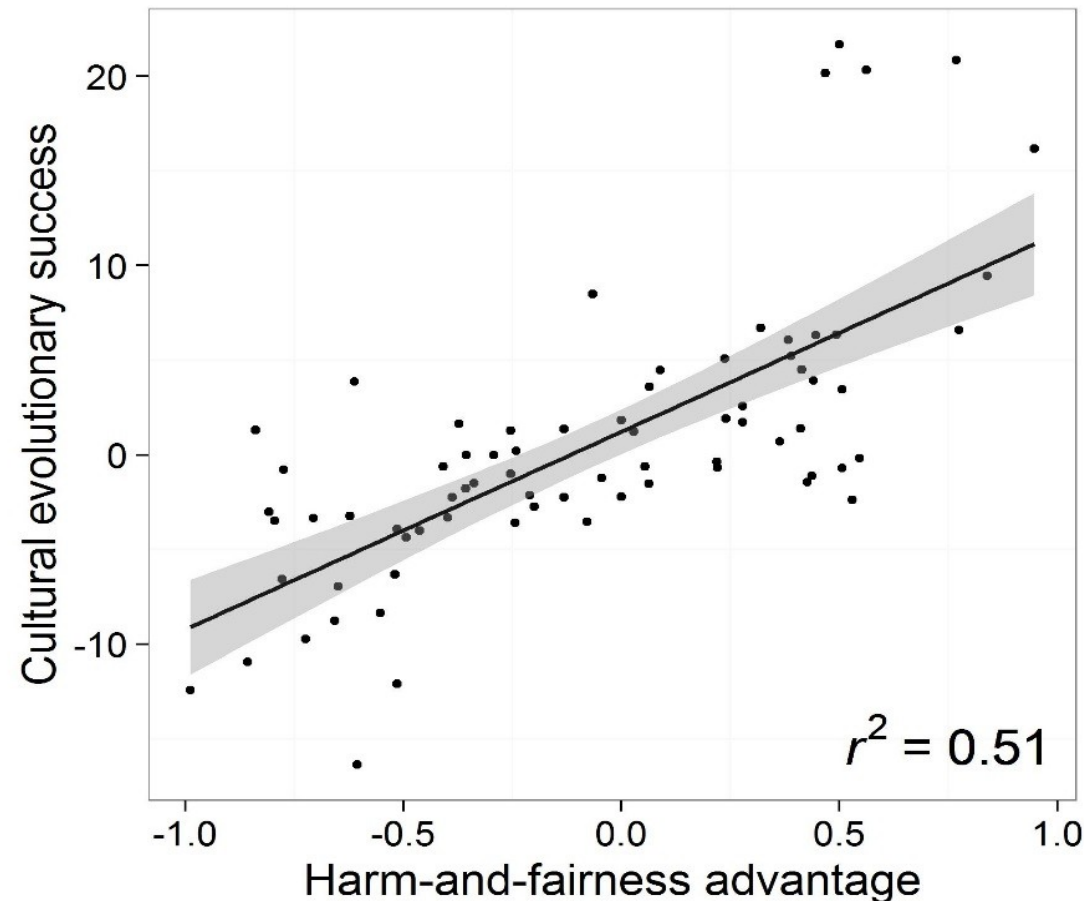
- 200 American users of the Amazon Mechanical Turk were presented with GSS items.
- For each item five arguments were presented, taken from the moral foundation questionnaire. Each argument represented one moral foundation.
- Participants were asked which of the arguments apply to their own position and which arguments apply to the opposite position. (People on opposing sides tended to agree on which arguments applied to which position.)

Calculation of the harm-and-fairness advantage of a given item

Add the measures of support (between 0 and 1) from harm arguments and fairness arguments for the position stated in the item. Subtract the corresponding sum for the opposing position.

For instance, the item *Homosexual couples should have the right to marry one another* had a relatively strong harm-and-fairness advantage of +0.77, reflecting that arguments in favor of gay marriage tend to be based on fairness, whereas arguments against gay marriage tend to be based on authority and purity.

Cultural evolutionary success of issue positions plotted against their harm-and-fairness advantage

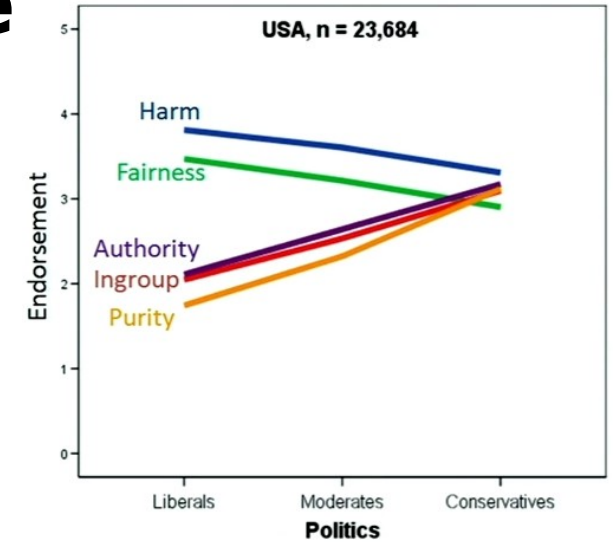
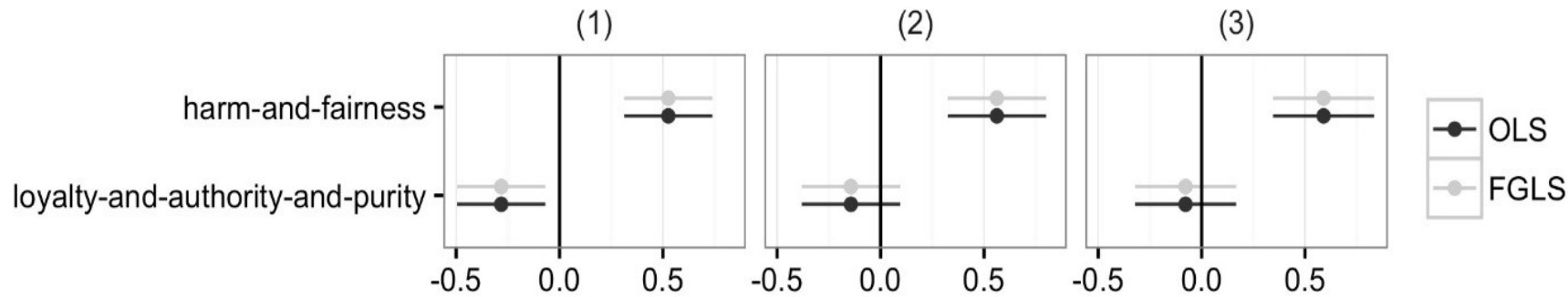


The relation is as predicted by the model!

Indeed, our crude measure of harm-and-fairness advantage was able to explain as much as half of the variance in cultural evolutionary success.

ISSUES: - Is it really harm-and-fairness advantage that matters for this result? Or could be it an artifact somehow?

A robustness check: is it specifically harm-and-fairness advantage that matte



The independent effects of harm-and-fairness advantage and loyalty-authority-purity advantage on cultural evolutionary success, using either OLS or FGLS estimation (puts greater weight on more precise data points). Different columns use different estimates of cultural evolutionary success: (1) without adjustment, (2) adjusted for demographic variables, (3) adjusted for demographic variables and cohorts.

A new understanding of why conservatives often feel as if the morals of society are moving away from them

Liberals' refusal to be influenced by certain kinds of arguments allows them to move public opinion in their direction, leaving the conservatives in a constant state of catching up to the changes occurring.

