THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

How do People Really Think about Climate Change?

#LSESunstein

Professor Cass Sunstein

Robert Walmsley University Professor at Harvard Law School. Former Administrator of the White House Office of Information and Regulatory Affairs (2009-2012).

Chair: Professor Lord Stern

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Hosted by the Grantham Research Institute on Climate Change and the Environment

How Good-Looking Do You Think You Are? Optimism, Brains, and Climate Change

Cass R. Sunstein

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Some Political/Legal Examples, Where We Get A Lot of Good News and Bad News

- Climate Change (how much warming)
- Immigration (crimes; employment)
- Politicians (how good?)
- Education
- Housing Market
- #MeToo (who's next)
- "Brexit"
- Others – you choose!

Relevant Preliminaries

- We will get to public policy and political opinion soon enough
- First:

Looks

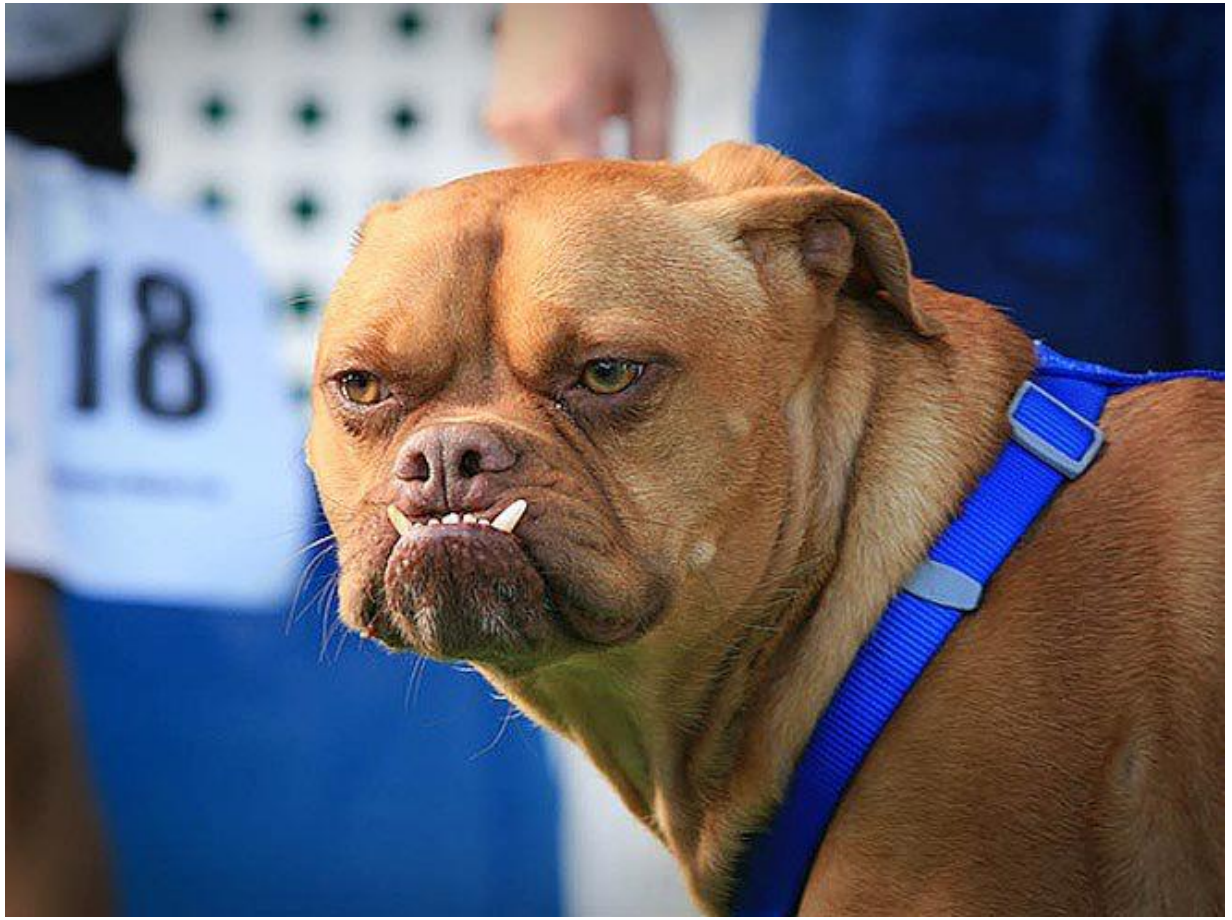
- How good-looking do you think you are?
- On a bounded scale of 1-10
- I have some news:

You!

Looks

- Some evidence: Even better looking!
- Now, how good-looking do you think you are, having received that information?
- Let’s try it again: How good-looking do you think you are?
- I have some news:

You!



Asymmetrical Updating

- Some evidence: Worse!
- Now: How good-looking do you think you are, having received that information?
- The basic finding: **People find good news more credible than bad news (about their looks)**
- More specifically:

The Effect (2011):

- Eil and Rao:
- We study processing and acquisition of objective information regarding qualities that people care about, intelligence and beauty.
- Subjects receiving negative feedback did not respect the strength of these signals, were far less predictable in their updating behavior and exhibited an aversion to new information.
- In response to good news, inference conformed more closely to Bayes' Rule, both in accuracy and precision. . . . **The results indicate that confirmation bias is driven by direction; confirmation alone had no effect.**
- Note on motivated reasoning vs. Bayesianism

Examples

- Hernia
- Being vandalized
- Death before 80
- Insomnia; infertility
- Heart failure
- Cancer
- Diabetes; obesity
- Trapped in elevator; mouse or rat in house

Brains? Sharot et al. (2015)

- **Whether a piece of news is good or bad is critical in determining whether it will alter our beliefs**. Here, we reveal **a frontal–subcortical circuit in the left hemisphere that is simultaneously associated with enhanced integration of favorable information into beliefs and impaired integration of unfavorable information**.
- Specifically, for favorable information, stronger white matter connectivity within this system, particularly between the left inferior frontal gyrus (IFG) and left subcortical regions (including the amygdala, hippocampus, thalamus, putamen, and pallidum), as well as insular cortex, is associated with greater change in belief.

Sharot et al. (2015)

- However, for unfavorable information, stronger connectivity within this system, particularly between the left IFG and left pallidum, putamen, and insular cortex, is associated with **reduced change in beliefs**.
- These novel results are consistent with models suggesting that partially separable processes govern learning from favorable and unfavorable information.

Brains? Sharot et al. (2012)

- Humans form beliefs asymmetrically; we tend to discount bad news but embrace good news.
- Here, we **selectively improved people's tendency to incorporate bad news into their beliefs by disrupting** the function of the left (but not right) inferior frontal gyrus using transcranial magnetic stimulation, thereby eliminating the engrained "good news/bad news effect."
- Our results provide an instance of how **selective disruption of regional human brain function paradoxically enhances the ability to incorporate unfavorable information into beliefs of vulnerability**.

Question: Issues of policy and law?

- Related to confirmation bias but not quite: **desirability bias**
- A form of motivated reasoning
- A not surprising hypothesis: Immigration not such a terrible problem! (Good news, so lots of updating.)
- An arguably surprising hypothesis: Immigration not such a terrible problem! (Good news, but NOT lots of updating.)
- When Prophecy Fails (old but relevant)
- Voters? Politicians? Bureaucrats?

Pedantic Note

- Confirmation bias vs. desirability bias
- Looks
- Mouse in the house
- Study of Trump and Clinton

Climate change

- Climate change believers?
- Climate change skeptics?
- Two hypotheses: 1) Weak believers will update more with good news (!!)
- 2) Strong believers will update more with bad news (??)

The Experiment: the Set-Up

- Three hundred and two volunteers (177 males, 125 females) living in the United States were recruited via Amazon Mechanical Turk (www.mturk.com) to participate in an online study.
- (1) Paris agreement?
-)2) Is man-made climate change occurring?
- (3) Are you an environmentalist?
- An index: strong, moderate, and weak
- Note: Weak are not necessarily skeptics

Step One

- Many scientists: Up to 6 degrees F
- What do you think?
- Results:
- Overall average: 5.6
- 6.3, 5.9, 3.6
- Why we gave an anchor
- Note on anchoring (pretty interesting here)

Step Two

- Participants were randomly assigned to one of two conditions.
- In the **good** news condition, they were told to assume that in recent weeks, prominent scientists had reassessed the science and concluded the situation was far better than previously thought, suggesting a likely temperature increase of only 1 to 5 degrees.
- In the **bad** news condition, participants were told to assume that in recent weeks, prominent scientists had reassessed the science and concluded the situation was far worse than previously thought, suggesting a likely temperature increase of 7 to 11 degrees.

Three Big Results

- 1) Weak believers in man-made climate change were moved by the good news: their average estimate fell by about 1 degree.
- But their belief was **unchanged by the bad news**: their average estimate stayed essentially constant. (!!!)
- 2) By contrast, strong believers in man-made climate change **were far more moved by the bad news**: their average estimate jumped by nearly 2 degrees.
- Whereas with good news, it fell by less than half of that (.9 degrees).
- 3) Moderate climate change believers **were equally moved in both cases** (they changed their estimates by approximately 1.5 degrees in each case).

Anchors Away

- What about with no anchor?
- Overall average: 5.0 F. (Pretty close!)
- Three groups: 5.3, 5.6, 4.2 (2 puzzles!)
- Basic findings replicated
- (1) Moderates showed no asymmetry (1.8 for bad news, 1.6 for good news)
- (2) Strong were more responsive to bad news (2.3 F vs. 1.4 F)
- (3) Weak more responsive to good news (1.85 F vs. 1.4 F)
- Note: Weak do show movement in this study

Some Very Preliminary Findings

- Build a wall between the United States and Mexico?
- What we find for those who want to build a wall
- Asymmetrical updating, akin to that of strong climate change believers
- But why?

Motivated Reasoning?

- Both those with low and high climate change belief scores may be invested in their attitudes and update their beliefs accordingly.
- For those with low belief scores, good news is welcome, because it is both positive (lower temperature rise is good news for the planet and mankind) and affirming (these individuals were less alarmed about climate change), leading to a large update.
- Bad news is both undesirable for the planet and disconfirming, leading to no effect on belief updating.

Motivated Reasoning

- Those with high belief scores, on the other hand, were especially likely to credit bad news. For them, such news is, in a sense, affirming, insofar as it supports their concerns and confirms that they have been right to have them. To that extent, they may well be motivated to accept bad news.
- Good news, however, causes dissonance. It suggests that they have been wrong to focus on climate change, or to be quite alarmed about it. With respect to political beliefs, good news (about the planet, country or mankind) can evoke such a reaction if and to the extent that it threatens strongly held convictions and people's sense of identity.

Bayesianism?

- The second answer does not invoke motivations or emotions; it is purely cognitive and reflects a form of Bayesianism.
- A simple note on priors. Or:
- A participant's prior regarding the likely increase in temperature is best described as a distribution rather than a discrete number (i.e. Joe believes the probability that temperature will rise by 5 degrees is 10%, that is will rise by 6 degrees 30%, that it will rise by 7 degrees 20% and so on). When asked to declare the likely increase, Joe will give a number representing the peak of his belief distribution – in this case 6 degrees.

Bayesianism?

- Now imagine two scenarios. In one, Joe is told scientists believe the increase is likely to be 7 degree (bad news) and in the other that scientists believe it is likely to be 5 degrees (good news). Joe is then asked about his new belief.
- To form his new belief, Joe will combine his prior with the evidence and report back the peak of that distribution. Because the prior was originally skewed, even if Joe was using Bayesian statistics to form a posterior, the peaks of the posteriors in these two cases will not be equal distance from the peak of the prior.
- It is possible that the priors of individuals in the high and low groups were skewed, but in opposite directions. Although in our study we controlled for people's "peak priors", we did not record the full distribution of their priors. Thus, Bayesianism could in theory be sufficient to account for both forms of asymmetrical updating

Broader Implications

- Good News As Good News
- For many people, good news for the country – in the form of an apparently credible expert judgment that things will be better than they think – will have far more weight than bad news.
- It is easy to imagine groups that will accept good news evidence (good news for the country) – and that would be highly reluctant to accept evidence to the opposite effect (bad news for the country).
- Or good news-bad news effect, population-wide (immigration?)

Good News As Bad News

- For some groups, however, our findings suggest the possibility that apparently good news of exactly these kinds may trigger a negative reaction, in part because of people's desire to be vindicated -- to see their actions and concerns affirmed rather than contradicted.
- Some people have strong investments in their attitudes, even if the implication is that things are getting much worse!
- For such people, it is possible that bad news for the country might therefore have more weight than good news.

Implications

- Thesis: A great deal of polarization in politics and law is created and fueled in this way.
- Every week, if not every day, it is possible to encounter competing (and apparently plausible) predictions about future states of affairs, suggesting that one's own current estimates are too optimistic or too pessimistic.
- If the evidence involves one's own future, good news will usually have special weight. But if the evidence involves politics and law, this is not necessarily so.

Implications

- Some people will receive objectively good news (things will be better than expected for humanity or the USA) as such and give it particular attention in updating.
- For others, the same news could contradict convictions to which they are deeply committed and receive less weight.
- Whenever this is true, the circumstances are right for polarization -- heightened or produced by asymmetrical updating of diametrically opposite kinds.
- That is not good news.
- But it is likely to be true.

Paths Forward: Three Speculations

- The role of solutions in forming beliefs about problems
- Convert communicators and surprising validators
- Technocratic democracy
- And that IS good news

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