

Science Communication, Cultural Cognition and the Pull of Epistemic Paternalism

Alex Davies, University of Tartu, alex.stewart.davies@gmail.com

Abstract: There is a correlation between positions taken on some scientific questions and political leaning. One way to explain this correlation is the Cultural Cognition Hypothesis (CCH): people's political leanings are causing them to process evidence to maintain fixed answers to the questions, rather than to seek the truth. Another way is the Different Background Belief Hypothesis (DBBH): people of different political leanings have different background beliefs which rationalize different positions on these scientific questions. In this paper I argue for two things. I argue that two attempts by proponents of the CCH to discredit the DBBH fail. And I argue that this matters, because while the CCH makes epistemic paternalistic interventions seem necessary (as some philosophers have argued compellingly), the DBBH does not. The DBBH makes it much easier to stay closer to an ideal of deliberative democracy.

1 Explanations of Recalcitrant Disagreement

In a deliberative democracy, citizens 'share a commitment to the resolution of problems of collective choice through public reasoning'.¹ Evidence and argument are shared and a solution to such problems is selected that is acceptable in light of the ensuing public debate. Yet there exist a range of (politicized) scientific questions on which: disagreement persists despite the sharing of much evidence that bears on each question; and, there is a suspicious correlation between laypersons' positions on the relevant question and those laypersons' political values. That's why:

If you are told Daisy is a 'liberal Democrat' and lives in New York, you will expect Daisy to accept that global warming is happening, and human activity is causing it; if you are told Rachael is a 'conservative Republican' and lives in Wyoming, you will expect Rachael to be more suspicious of the impact of human activity on global warming, and of the existence of global warming itself.²

These recalcitrant disagreements block the consensus required to resolve problems of collective choice that hang on the answers to politicized scientific questions. To respond to this threat to deliberative democracy, one needs to know what generates the disagreements and, on the basis of that knowledge, bring about consensus.³

A popular and popularized explanation of what generates the disagreements—the Cultural Cognition Hypothesis (CCH)—takes the suspicious correlation to reflect a causal relation. Possession and maintenance of beliefs on politicized scientific questions is pre-requisite to being a member of a community we want to be a member of: social life for the metropolitan liberal professor is made harder if she doesn't believe climate change is real, just as it is for the rural business woman who thinks it is. This causes us to adapt our assessment of the probative force

of evidence so that we can preserve the beliefs we need in order to be a member of said community: people aren't forming their beliefs on these questions in an attempt to get at the truth, they're forming them in an attempt to situate themselves in a preferred location of social space that is defined, in part, by beliefs held.⁴

The CCH does not help all that much in addressing the threat posed to deliberative democracy by these recalcitrant disagreements. For it implies that they arise because a key means for pursuing deliberative democracy has broken down (or never existed). In a deliberative democracy, citizens 'share a commitment to the resolution of problems of collective choice through public reasoning.' Carrying out that commitment requires the public provision of reasons for belief *and* a responsiveness to those reasons i.e. a readiness to change what one believes in response to the dictates of such reasons. But according to the CCH, this responsiveness is absent. That's why an anonymous *Economist* writer lampooned Ezra Klein for opening his (then) new publication *Vox* with a think-piece on the CCH: 'If it's really true, as Mr Klein would have us believe, that we are basically deaf to information we'd rather not hear, no matter how clearly and colourfully conveyed, then what's the point of *Vox*?'⁵

This can put pressure on us to seriously consider remedies other than 'public reasoning' for these recalcitrant disagreements. Thus those philosophers who have most directly engaged with the CCH have argued that beliefs formed on politicized scientific questions are epistemically defective.⁶ And that because of the unresponsiveness of such defective beliefs to the provision of reasons for (dis)belief, we should take seriously epistemic paternalism: the practice of 'interfering with someone's cognitive activities—primarily, with the conduct of their inquiries—with the aim of improving their epistemic position, but without their consent.'⁷

Does this corner of contemporary political psychology really show that, on certain politicized scientific questions, the offering of reasons and argument to achieve consensus amongst the public is stymied and, because of this, if we are to solve the problems we face, we must resort to methods that interfere with how people think, without their consent? In this paper, I argue for a negative answer to this question. My target won't be the work (by Carter and McKenna) which identifies the philosophical implications of the CCH (implications I agree the CCH has). I will focus instead on two points where the CCH is compared against an alternative explanation of the recalcitrant disagreements (*viz.* the Different Background Belief Hypothesis (DBBH)): firstly, where the DBBH is assumed to make things that the CCH explains very simply into wild coincidences; secondly, where the DBBH is assumed to imply that recalcitrant disagreements should be easily resolvable with the provision of more information (when they clearly aren't). In sections 3 and 4 I argue that neither claim has been shown to be true and thus that the DBBH is still in the running. The defence of the first claim fails to engage with any serious model of how an epistemically rational thinker would behave in the experiments used to support the CCH. The second claim rests on an underestimation of just how context-sensitive linguistic communication is.

In section 5, I argue that two effective remedies to recalcitrant disagreement which have been cast as applications of the CCH can (pending further evidence) be understood in terms of the DBBH too. These hypotheses offer two different construals of both the problem *and* its solution.

I'll conclude in section 6 by describing the significance of all this: it *matters* that the DBBH is still in the running. As the work of Carter and McKenna and, to a greater extent, McKenna makes clear, the CCH pulls us towards epistemic paternalism because it implies that a practice central to deliberative democracy is broken: science communication fails where it does because of an epistemic deficiency in those on the receiving end of the communication and is improved by facing up to the presumed fact of this deficiency. The DBBH posits no such deficiency and thus avoids any suggestion that the central practice is broken or that epistemic paternalism is called for.

Before we begin: a note about scope. The CCH has for years been defended by Dan Kahan. I focus on his work in this paper, sacrificing breadth for clarity. I am not addressing the more general literature on politically motivated cognition, where different psychologists have different ways of framing what's at issue and provide different kinds of evidence. Kahan is remarkably consistent in how he approaches both. Although I am inclined to think what I say here generalizes to the literature on politically motivated cognition, the first step in making such a generalization is getting the point to stick in the case of one clearly defined case.

2 What's the evidence for the CCH?

The evidence for the CCH takes the form of experiments with a common structure. To draw out this common structure, I'll describe it schematically first and then provide two examples.

Participants vary according to whether they want to be a member of a community, membership of which requires believing that P , or instead they want to be a member of a community, membership of which requires believing that $\neg P$. Participants are divided randomly into two groups: those in one group are shown evidence E that supports P and those in another group are shown evidence E' that supports $\neg P$. A measure is then taken of how participants react to the evidence with which they're presented. It is found that those who want to be a member of the community, membership of which requires believing that P , when shown E , take E to support P , but when shown E' , do not take E' to support $\neg P$. Those who want to be members of the other community behave in the opposite manner. Participants thus appear to adapt their estimate of the probative force of evidence to maintain the beliefs they need in order to belong to the community they want to belong to.

Here are two examples of experiments with this structure.

Judgements of Expertise. Some participants want to be members of a left-wing community, membership of which requires believing that human-made climate change is real. Other participants want to be a member of a right-wing community membership of which requires believing that human-made climate change is not real. Participants are randomly assigned to one of two conditions: exposure to E , a member of a prestigious scientific organization who claims that human-made climate change is real; exposure to E' , a member of a prestigious scientific organization who claims that human-made climate change is not real. Those participants presented with E are asked whether *that* man is an expert on climate change. Those

participants presented with E' are asked whether *that* man is an expert on climate change. It turns out that participants who want to be members of the left-wing community are more likely to take the man in E to be an expert and the man in E' to not be an expert. Participants who want to be members of the right-wing community are more likely to take the man in E to not be an expert and the man in E' to be an expert.⁸

Blocking protesters. Some participants want to be members of a left-wing community, membership of which requires believing that anti-abortion protesters are not good people but those who protest against heteronormative policies are. Other participants want to be a member of a right-wing community, membership of which requires believing the opposite. Participants are presented with a video of protesters outside a building but randomly assigned to one of two conditions. In one, E, participants are told the protesters are anti-abortion protesters. In the other, E', participants are told the protesters are anti-DADT (Don't Ask Don't Tell) protesters. Participants are asked whether, in the footage, the protesters are blocking entrance to the building. Participants who want to be members of the left-wing community think the protesters are blocking the entrance, when presented with E, but think the protesters are not blocking the entrance, when presented with E'. The opposite is true of those who want to be members of the right-wing community.⁹

In each case, it seems that a participant modifies her views of what the provided evidence means for her existing beliefs when those beliefs are required for her to be a member of a desirable social group, in such a way that she can maintain membership to that social group.

3 A problem with an *a priori* argument against a competitor to the CCH

In the experiments presented in support of the CCH, the political values of participants do not constitute an independent variable: participants are not randomly assigned to different political values. They are randomly assigned to conditions that differ in the bearing the evidence presented has upon participants' political values. Because of this, the experiments do not eliminate the possibility that factors which are distinct from political values, but which correlate with them, are doing the causal work in generating trends in reactions to evidence. Amongst these factors are participants' background beliefs and credences: for instance, there might be a correlation between which system of background beliefs you possess and whether belonging to a particular social group is important to you.

What it is reasonable to believe in response to new evidence, depends upon what you already believe. You see a man and a woman quarrelling in the street.¹⁰ You turn away. You hear a smash and a thud. You turn back to the woman on the ground, dead, and with a significant head wound; smashed glass all around her. Based on this evidence, you are confident that the man killed the woman. You later discover that some men had been drinking in an apartment above the couple, storing bottles of whisky on the windowsill. One had fallen. You lose your confidence that the man killed the woman. Had you possessed the information about the drinking earlier, then, upon seeing the man etc., you wouldn't have been confident that the man killed the woman. The most reasonable way to respond to given evidence depends upon what

background beliefs you already have. Call this *background dependence*. I take background dependence to be uncontroversial.

To see how background dependence, combined with the fact that Kahan's experiments don't eliminate doxastic confounds, can threaten the support the experiments seem to give to the CCH, let's work through one of the examples presented in section 2: *Judgements of Expertise*. Suppose that if you're left-wing, you're likely to believe that if a person denies climate change is real and human-made, then that person is unlikely to be an expert on climate change; if you're right-wing, you're likely to believe that if a person denies climate change is real and human-made, that doesn't imply that the person is not an expert on climate change. Given such a correlation of prior beliefs and political values, we would predict Kahan's findings even if political values were not causing re-assessments of the evidence in the way Kahan hypothesises.¹¹ Call the view that recalcitrant disagreements on politicized questions can be explained by relevant differences in background beliefs the *Different Background Belief Hypothesis* (the DBBH).

If not by experiment design, then how do proponents of the CCH attempt to show that the CCH is superior to the DBBH? Kahan offers the following *a priori* line of reasoning.¹² It would be a wild coincidence if background beliefs and credences that could explain Kahan's data correlated both with each other and with particular sets of political values.¹³ Just looking at the contents of the issues and values in question: there's no reason why one's view on, for instance, the effect of concealed firearms on violence should correlate with one's views about the reality of human-made climate change; and there's no reason why one's belief on these scientific issues should correlate with one's political views. Yet there are such correlations. The simplest explanation is that the political values are causing acceptance of the beliefs.

In this section, I defend the claim that this argument is unconvincing.

Whether it's a coincidence that beliefs on a cluster of logically independent questions would correlate with each other and with certain political values depends upon what distributions of belief result from (epistemically) rational practices of belief acquisition conducted by members of communities of thinkers who find themselves in the sorts of circumstances furnished by the modern world.¹⁴ To know what constitutes a coincidence we need a benchmark of how those who fit their beliefs to their evidence in rational ways should be expected to behave in such circumstances.¹⁵ If, in light of this, we have no reason to expect them to form beliefs in ways that correlate, then indeed, such a pattern would be predicted to be a coincidence (i.e. unexpected) on the assumption that they are forming these beliefs in accordance with the evidence they possess. But if we simply don't know how they would form their beliefs under these circumstances, then we shouldn't say the correlation would be a coincidence: or if we did, that would merely be an expression of our ignorance about what to expect; an application of Keynes' Principle of Indifference—if we don't know how rational thinkers would behave, we assume that the probability of them having one belief rather than another given their political values is equal.

For starters then, does Kahan have a model of how a person seeking to update their beliefs in light of the evidence would behave? To my knowledge, Kahan offers only one such model: such a thinker updates her beliefs, in response to evidence, in conformity with the objective chances of the beliefs' truth given the evidence.¹⁶ That is to say: a rational thinker is one who has an existing prior credence in a belief and who updates this credence in light of the objective probative force of evidence presented to her. However, he doesn't use this model when comparing the CCH against competitor hypotheses (he doesn't measure background credences or calculate any benchmark). The model is idle in the arguments used in support of the CCH.

When others have applied this kind of model, they have found that some of the behaviour Kahan attributes to cultural cognition turns out not to be expected given the DBBH. Here is an example. Kahan argued that improved performance on the Cognitive Reflection Test (a test of the ability to avoid intuitive but incorrect answers to questions) leads to greater influence of cultural cognition on belief updating.¹⁷ Take a statement such that, accepting it helps you maintain a preferred position in social space (e.g. Republican, Democrat, etc.). Kahan found that those who perform better on the test have a greater tendency to interpret evidence in a way that facilitates acceptance of such statements: they were more likely to take the evidence to support the statement when it helped them locate themselves socially where they wanted to be. However, Kahan did not measure participants' prior credences in these statements or calculate a benchmark (one based on the prior credence in each statement and the objective probative force of the evidence supplied in the experiment—as per his model of an epistemically rational thinker) against which to compare the doxastic behaviour of the participants. Tappin, Pennycook and Rand did do so.¹⁸ They discovered that while higher performance on the test did correlate with a tendency to update to a greater extent on evidence that supports a socially favourable statement than those for whom the statement was not socially favourable, this didn't arise for the reason Kahan believed. It arose because those who perform worse on the test tended to under-update (relative to the benchmark) on politically favourable statements. Those who performed better on the test were overriding this tendency: *better* approximating the benchmark than their underperforming peers. Thus, what looks like the increased influence of cultural cognition when viewed in the absence of a benchmark, turns out not to be, when understood in light of that benchmark.

So not only is the model idle in the comparison of the CCH and the DBBH: the consequences of applying it can be unexpected. Without its application, the comparison is simply incomplete. Its application is not optional.

But we can go further and ask: is Kahan's model of an epistemically rational thinker even plausible? The model is strongly externalist: it makes the impact of evidence on how an epistemically rational thinker should update her credence in a given proposition independent of what else she believes. But surely what it is epistemically rational to do in response to a piece of evidence is going to be shaped by what else one already believes (see the whisky example). On the most commonly accepted normative principle relating subjective credences to objective chances, the relation should be mediated by a thinker's awareness of those objective chances—a person isn't being unreasonable simply because she thinks some state of affairs is less or more likely than it really is, if her current information (misleadingly) suggests as much.¹⁹ So, even if

participants were not to behave in accordance with *this* model, that wouldn't show that they are engaging in cultural cognition.

Models of epistemically rational thinkers which do allow the probative force of evidence to be shaped (in part) by background belief can deliver the sorts of behaviours that Kahan would presume to be coincidental, given the DBBH. Weatherall and O'Connor investigated whether there are conditions under which a community of (epistemically) rational thinkers would end up polarizing along a range of logically independent questions.²⁰ They modelled what happens if rational (broadly Bayesian) thinkers treat shared (other) beliefs as a basis of whether to trust someone as a source of information on some topic: i.e. that this background belief shapes the probative force they assign to new evidence (the testimony of others). They found that a community of such thinkers would indeed polarize into two groups the members of each of which share beliefs on a range of logically independent questions. So, one of the correlations which Kahan thinks would be a wild coincidence (unexpected) were the DBBH true, turns out not to be: if people update their beliefs in light of their existing beliefs in the way modelled by Weatherall and O'Connor, then we should expect polarization into two groups along a range of logically independent questions: no cultural cognition is required for this to be expected.

The cited works of Tappin, Pennycook and Rand and Weatherall and O'Connor are but two examples of investigations into how epistemically rational thinkers would behave in relevant circumstances. But they suffice to show that we cannot know whether the correlations characteristic of recalcitrant disagreements on politicized scientific questions would be a coincidence (unexpected) given the DBBH without application of plausible models of such thinkers. Because it doesn't include application of such models, I conclude that the evidence to date put forward in support of the CCH doesn't show it to be superior to the DBBH.²¹ More of the work (work that blends epistemology with psychology) that is needed to make such a comparison possible is increasingly being done.²² But, I dare to say: not enough for the jury to be called back in.

4 Context and the ease of information interventions

Comparing the CCH with the DBBH, Tappin, Pennycook and Rand write:

[O]n the assumption that political opinion on certain issues is dominated by politically motivated reasoning [i.e. the CCH], simply communicating richer and more accurate information about those issues is unlikely to change minds. Thus, society might direct less resources toward, or largely abandon, such information interventions. In contrast, on the assumption that heterogeneous prior information causes the differing opinions [i.e. the DBBH], information interventions seem a relatively safer bet for changing minds.²³

As I'll explain, the DBBH might well imply that providing more information ('information interventions') will resolve disagreement on politicized scientific questions. But it also implies that providing the information you intend to provide to an audience which differs significantly

from you in its background beliefs is really, quite tricky. This is because of the extensive dependence of what you are trying to do by speaking (e.g. convincing someone that vaccines are effective), why you are trying to do it (e.g. to further your own financial interests or to selflessly serve the common good), and even what you are saying (e.g. that the vaccine stops infection *versus* that the vaccine reduces the risk of death), upon the context in which you're speaking. Because of this context-dependence, your interlocutors' background beliefs about the context can significantly shape: whether you succeed in doing what you're trying to do by speaking; what seems to be motivating you to try doing this; and what it seems like you're saying. If one underestimates this dependence upon background beliefs and the extent to which background beliefs differ, then one will wrongly take difficulties that have arisen in attempts to address such disagreements through information interventions as evidence against the DBBH.²⁴

I'll present two illustrations of this. Each focuses upon a particular kind of speech act (perlocutionary acts and illocutionary acts respectively) and its dependence on context.²⁵

A perlocutionary act is the achievement of an effect on one's audience by means of uttering a sentence; for instance, impressing (or scaring) someone by uttering "I met the Russian ambassador." I focus here on one perlocutionary act in particular: convincing someone of the truth of a claim by giving them evidence for it. Note that different background beliefs can result in different rational credences in evidence presented as well as different rational credences in a hypothesis conditional upon the evidence presented. So, if you're aiming to convince your audience of the plausibility of a hypothesis by providing them with evidence for it, but, unbeknownst to you, your audience has beliefs which make the evidence you present seem implausible, or which don't make the target hypothesis more probable conditional upon the evidence presented, then you'll overestimate how compelling a case you have made to your audience about the hypothesis. Recall the whisky bottle incident. Suppose A doesn't believe that there were people drinking whisky above whereas B does. A tries to convince B that the man killed the woman. A does this by describing the events he observed. A believes this evidence should convince a reasonable person that the man killed the woman. But A fails: B is unconvinced. B is unconvinced because all of this is consistent with the bottle having fallen from the window above. We don't need the CCH in order to expect the ineffectiveness of this "information intervention" when background beliefs between speaker and hearer diverge relevantly. The same applies to attempts to convince others of the reality of, for instance, human-made climate change: even something as simple as failing to recognize that one's audience doesn't distinguish climate from weather could scupper rudimentary attempts at persuasion. Persuasion attempted without proper consideration of divergent background beliefs obviously risks failure.

An illocutionary speech act is an act one performs *in* uttering a given sentence. One example of an illocutionary act is the making of a statement. Many sentences are composed of words that have context-sensitive constructions. Gradable adjectives, modal adverbs and adjectives, verb phrases, and many others, are words which are known to result in different statements being made (different information being expressed) when used in the same sentence uttered in different contexts.²⁶ Often, what statement a sentence seems to express is influenced by background beliefs because those beliefs pertain to features of the context that are relevant to

the content of the language employed.²⁷ For this reason, the DBBH implies that there's great potential for "talking past" and concomitant failures at persuasion.

For instance, many do not interpret statements about the effectiveness of Covid vaccines as having the content their authors intend.²⁸ Some people think that the vaccine is supposed to stop you getting the virus. So if it doesn't stop you from getting the virus, it doesn't work. Others believe that the vaccine is not supposed to stop you getting the virus. It's supposed to reduce the risk that you'll need hospital treatment. Now imagine that you're trying to convince someone to get vaccinated and you say something like "Vaccines work" meaning that vaccines reduce the risk of needing hospital treatment. But suppose the hearer thinks that vaccines are supposed to stop you getting infected and they know full well that vaccines fail to do that. You will think you stated one thing, but your audience will think you stated another. This will have nothing to do with either interlocutor's desire to belong to a given social group. It'll just be a result of their diverging beliefs about what the vaccine is supposed to do. The result will nonetheless be that your attempt to change the mind of your interlocutor will fail (this perlocutionary act will fail) and it will fail because you do not appreciate the fact that what you intend to state is not what you were understood to state. Once you know where to find linguistic context-sensitivity, examples of how divergences in background belief can cause divergences in what statement a speaker and hearer think is being made with a given sentence can be multiplied with ease.²⁹

For these reasons, when combined with an acknowledgement of the deep extent to which linguistic communication is context-sensitive, although the DBBH might well imply that recalcitrant disagreements can in principle be resolved by 'simply communicating richer and more accurate information' in contexts where all interlocutors share all relevant background beliefs (what Peet calls 'non-defective contexts'), it also implies that the task of communicating richer and more accurate information to an audience heterogenous in their background beliefs (a 'defective context')—and convincing them of its truth—is likely to go wrong when attempted in ignorance of the shape of this heterogeneity. But if it does, it won't be going wrong because of any epistemic deficiency in the audience.

5 Successful Science Communication Interventions Through Two Different Lenses

Certain methods for getting those who did not accept claims coincident with scientific consensus to accept such claims are successful. Such attempts have been described through the lens of the CCH: i.e. as methods which are *not* information interventions.³⁰ In this section I want to show that two of these methods can be understood as, in effect, information interventions if recalcitrant disagreements arise for the reason described by the DBBH. I want to do this because one might think that those working under the assumption that the CCH is true have a research programme that is producing solutions to the problem of recalcitrant disagreement. The DBBH doesn't. So, this counts in favour of the CCH. I want to rebut this line of reasoning. I want to make clear that the methods that work can also be understood through the lens of the DBBH.

Firstly, then, one can achieve a change of minds amongst those not already in agreement by ensuring that the person delivering the information belongs to a social group membership to which the intended audience values for herself.³¹ One explanation of why this method works is based on the assumption that recalcitrant disagreement arises because of cultural cognition: by ensuring that the deliverer of information belongs to the valued social group, one changes what beliefs one needs to have to occupy the position in social space one wants to occupy. Thus understood, changes to the identity of the deliverer of information are an alternative to an information intervention: a way of modifying something other than the information being presented. Notice though that this method (so understood) doesn't do anything to change what thinkers are attempting to achieve through cognition (i.e. whether they are engaging in cultural cognition). It is rather to change someone's environment so that, when she engages in cultural cognition, she'll end up believing the scientific consensus.

But this is not the only explanation of why the method is effective. The identity of a speaker is one part of the context that sometimes has an effect on what information we think is being delivered. A perfectly ordinary facet of linguistic communication is to shape one's interpretation of what's being said in part by what one knows or believes about who's saying it *because the latter is evidence of the former*. Suppose I need a man who's tall enough to join our basketball team. Angie (who's 5) tends to think that anyone over 4-foot is tall. But Billie (who's already in the team) tends to think that you're tall only if you're 7-foot tall. Clearly Billie's standard is the standard that I'm using in my search for a new player—not Angie's. So if both say the sentence "Omar's tall" (and suppose I've never met Omar), I will significantly raise my confidence in the proposition that Omar is tall according to the standard I'm interested in, when I hear Billie's utterance, but I will not do so when I hear Angie's. I will do this not because I want to belong to a social group, access to which requires me to preserve the belief that Omar is tall (by some standard). I will do this simply because I'm a competent user of context-sensitive language and so recognize that different information is given, depending upon who's speaking.³² Although context-sensitive language is bound to be employed when conveying information on politicized scientific questions (it's hard to avoid), the effects of speaker identity on the interpretation of such messages and the credibility of the speaker were not controlled for when testing the intervention under discussion. This alternative account of how it works (one congenial to the DBBH, standing as an alternative to the CCH construal) remains open.

Secondly, one can increase climate change sceptics' readiness to accept that climate change is real by expanding the range of policy options on the table for responding to climate change. Once a policy that does not involve reducing carbon emissions (e.g. geoengineering) is in the offing, there is greater acceptance of the reality of climate change than in a control condition.³³ Whether the climate *is* changing does not depend upon the methods for stopping climate change's effects. So (epistemically speaking) you shouldn't change your view on the reality of climate change when you're given information about the means to address it. But we can understand why people do so through the lens of the CCH. Suppose that admitting the reality of climate change seems to commit you to a course of action (endorsement of reductions in carbon emissions) which threatens your preferred position in social space (a position that requires you, say, to protect businesses by resisting calls to reduce carbon emissions). So when

you learn that you can admit the reality of climate change without being committed to this course of action (because geoengineering is an available course of action), then you can admit the reality of climate change without losing your preferred location in social space. As before: the remedy doesn't do anything to reduce the tendency to form beliefs—in part—to maintain a location in social space. It re-arranges the environment in a way that exploits this tendency in order to get persons to accept the scientific consensus.

But this is not the only explanation of the intervention's success. Epistemic contextualism is the thesis that epistemic language has context-sensitive content.³⁴ This content is thought to be sensitive to the costs of believing something false. Suppose it is regularly the case that Kalbir's hat is on the hat stand if and only if Kalbir is in the office. Someone asks, "is Kalbir in the office today?" and you say, "No", and you're asked how you know that he's not when you haven't gone up to his office to check, and you reply, "I know that he's not here, because his hat's not on the hat stand." Is this epistemic claim true? The epistemic contextualist will say: it depends on what the costs are of being wrong. Suppose that the person asking wants to ask if Kalbir can come to lunch out of sheer politeness but doesn't care if Kalbir doesn't come along. Then the hat-stand might surpass the strength of evidence required for the knowledge claim to be true. But suppose instead that the person asking needs to know because Kalbir's father is in hospital and this is Kalbir's last chance of seeing his father alive. In that case, the hat-stand may well not surpass the strength of evidence required for the knowledge claim to be true. Epistemic contextualists infer from this that the strength of support required for the truth of the claim that Kalbir's not in today required for the knowledge claim to be true goes up when the cost of believing this when it's false goes up. Thus, the content of the sentence "I know that he's not here" (what statement one makes in uttering it) changes with changes in these costs.

Now consider the case of climate change. Do we *know* that climate change is happening? Has this been *shown, demonstrated, proved* etc.? If you're a person who thinks there are high costs to thinking that climate change is real when it isn't, then you'll understand the truth of epistemic claims about climate change to require much more support for the existence of climate change than those who think these costs are not that great (or are grossly outweighed by the costs of inaction): i.e. such epistemic claims would actually *be* false given what you think is being said by them. But if we lower the perceived costs of thinking that climate change is happening when it isn't, then the epistemic contextualist would expect this to change the perceived content of epistemic claims about climate change. The epistemic contextualist will then predict the following: if the climate change sceptic thinks, for instance, that reductions in carbon emissions will bring about severe negative consequences (e.g. to the economy), then, upon learning that there are other ways to handle climate change than through such reductions, she will take the content of epistemic claims about climate change to be less epistemically demanding than she would otherwise and so be more likely to accept them as true because *those* claims are more likely to be true. This account of her behaviour in no way implies that she's reasoning in order to preserve her location in social space. She's aiming to believe the truth. But which epistemic claim she's being asked to assess changes. That's why her judgement changes. She finds the science communicator's claim "We know that climate change is real" to be implausible because

she interprets it with *sceptically* high epistemic standards: far higher than the science communicator intended.³⁵

In each case, understood in terms of the CCH, the remedy doesn't fundamentally change what people are doing in handling scientific evidence: they were believing with the aim of locating themselves socially before the remedy was applied, and they continue to do so afterwards.³⁶ The interventions merely change what people have to do in order to keep themselves where they want to be. But there is a construal founded on the DBBH, which posits no cultural cognition. On this construal, what we see in application of the remedy is modification of factors that shape which content (which information) is being presented. Each method amounts to a change in the content the science communicator is understood to be expressing: i.e. what information is being conveyed.

The fact that working solutions have been described in terms that presuppose the CCH construal of the problem doesn't force us to accept the presupposition.

6 Experimentally hard but important to distinguish

It's very difficult to distinguish between the DBBH and the CCH experimentally. You would need both to document and control for differences in background beliefs which could change what makes it seem reasonable to believe in response to a given piece of evidence and you need to have a pretty good idea of what (normative) principles govern what an epistemically reasonable response on this score would be. Only then can you know whether observed reactions to given evidence are other than they should be, were the reactor being *epistemically* reasonable.

Yet the difference between the CCH and the DBBH is important. One might indeed conclude, from either hypothesis, that science needs a better communications team. But this would mean different things depending upon which hypothesis you use to understand recalcitrant disagreement and its resolution. Suppose a science communicator attempts to convince an interlocutor to believe in line with the scientific consensus. The interlocutor does not oblige. The CCH explains the perlocutionary failure of the science communicator by postulating an epistemic deficiency in the interlocutor: the interlocutor forms her beliefs in order to preserve her place in social space—that's why she's not responding as the science communicator would hope. The science communicator over-estimated the epistemic rationality of her audience. To be more convincing, the science communicator should work on the assumption that on politicized scientific questions, her audience is not epistemically rational. In contrast, the DBBH does not explain the perlocutionary failure by postulating any epistemic deficiency in the interlocutor. It does so by postulating a reasonable difference in background beliefs between science communicators and their interlocutors which are relevant to what an epistemically reasonable person would take the science communicator to be saying and why, but which have gone unnoticed by the science communicator. The CCH thus encourages what McKenna describes as 'a sort of distrust in the capacity of laypersons to form views about complex issues like climate

change' and for that reason epistemic paternalism as a means for achieving consensus.³⁷ The DBBH doesn't do the latter because it doesn't do the former.

The difference doesn't only change the pull of epistemic paternalism. If we accept the CCH and we're wrong (as we might well be, given the questionable philosophical assumptions deployed in its defence), then we'll be perpetrating a wrong against those unconvinced by science communicators.³⁸ We'll be treating them as failing to understand the real reasons why they believe what they do (such is the epistemic deficiency described by Carter and McKenna) when they aren't.³⁹

The difference matters—even if in an experiment, it's hard to see.

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NOTES

¹ Cohen, J. (1989). "Deliberation and Democratic Legitimacy". In A. Hamlin, & P. Petit (Eds.), *The Good Polity: Normative analysis of the state* (pp. 17-34). New York: Blackwell, p. 21.

² McKenna, R. (2019). "Irrelevant Cultural Influences on Belief". *Journal of Applied Philosophy*, 36(5), 755-768, p. 755.

³ Kahan, D., Slovic, P., Braman, D., & Gastil, J. (2006). "Fear of Democracy: A Cultural Evaluation of Sunstein on Risk". *Harvard Law Review*, 119(4), 1071-1109.

⁴ Kahan, D., Peters, E., Wittlin, M., Slovic, P., & Ouellette, L. (2012). "The polarizing impact of science literacy and numeracy on perceived climate change risks". *Nature Climate Change*, 2, 732-735, p. 734; Kahan, D., Hoffman, D., Braman, D., Evans, D., & Jeffrey, R. (2012). "'They saw a protest': Cognitive Illiberalism and the speech-conduct distinction". *Stanford Law Review*, 64(4), 851-906, p. 859; Kahan, D. (2013). "Ideology, motivated reasoning, and cognitive reflection". *Judgment and Decision Making*, 8(4), 407-424, p. 408; Kahan, D. (2016). "The Politically Motivated Reasoning Paradigm, Part 1: What Politically Motivated Reasoning Is and How to Measure It". *Emerging trends in the social and behavioral sciences: An interdisciplinary, searchable, and linkable resource*, 1-16, p. 2; Kahan, D., Peters, E., Dawson, E., & Slovic, P. (2017). "Motivated Numeracy and Enlightened Self-government". *Behavioural Public Policy*, 1(1), 54-86, p. 2.

⁵ W.W. (2014). "Ezra Klein's strangled Vox". *The Economist*. Retrieved from <https://www.economist.com/democracy-in-america/2014/04/11/ezra-kleins-strangled-vox>

⁶ Carter, J., & McKenna, R. (2020). "Skepticism Motivated: On the Skeptical Import of Motivated Reasoning". *Canadian Journal of Philosophy*, 50(6), 702-718; McKenna, R. (2021). "Asymmetrical

Irrationality: Are Only Other People Stupid?" In y. J. Ridder, & M. Hannon (Eds.), *Routledge Handbook of Political Epistemology* (pp. 285-295). New York: Routledge.

⁷ McKenna, R. (2020). "Persuasion and Epistemic Paternalism". In A. Bernal, & G. Axtell (Eds.), *Epistemic Paternalism: Conceptions, Justifications, and Implications* (pp. 91-106). London: Rowman & Littlefield, p. 97.

See also: McKenna, R. (2019). "Irrelevant Cultural Influences on Belief". *Journal of Applied Philosophy*, 36(5), 755-768, p. 765.

⁸ Kahan, D., Jenkins-Smith, H., & Braman, D. (2011). "Cultural Cognition of scientific consensus". *Journal of Risk Research*, 14(2), 147-174.

⁹ Kahan, D., Hoffman, D., Braman, D., Evans, D., & Jeffrey, R. op. cit.

¹⁰ Towler, J. (1960). *Practical Police Knowledge*. Springfield, IL: Charles C Thomas, pp. 112-113.

¹¹ For discussion of the widespread existence of doxastic confounds in experiments in political psychology which purport to provide evidence of cultural cognition, see: Jern, A., Chang, K.-m., & Kemp, C. (2014). "Belief Polarization is Not Always Irrational". *Psychological Review*, 121(2), 206-224; Tappin, B., Pennycook, G., & Rand, D. (2020a). "Thinking clearly about causal inferences of politically motivated reasoning: why paradigmatic study designs often undermine causal inference". *Current Opinion in Behavioral Sciences*, 34, 81-87.

¹² See also: Greco, D. (2021). "Climate Change and Cultural Cognition". In M. Budolfson, T. McPherson, & D. Plunkett (Eds.), *Philosophy and Climate Change* (pp. 178-197), Oxford: OUP; Kunda, Z. (1990). "The Case for Motivated Reasoning". *Psychological Bulletin*, 108(3), 480-498.

¹³ Kahan, Slovic, Braman, & Gastil, op. cit., pp. 1091-1092; Kahan, D. "Ideology, motivated reasoning, and cognitive reflection", p. 407; Kahan, D. "The Politically Motivated Reasoning Paradigm, Part 1", pp. 1-2.

¹⁴ Throughout, I'm not talking about practical rationality: norms governing the relation between attitudes and representational states. I'm talking about theoretic or epistemic rationality: norms concerning the relation between one's beliefs, the world they represent, and the evidence one possesses. Cultural cognition might be practically rational (e.g. Kahan, D. "Ideology, motivated reasoning, and cognitive reflection, p. 419; Kahan, D., Peters, E., Dawson, E., & Slovic, P. op. cit., p. 16). But judged by the usual suspects for norms of epistemic rationality, cultural cognition is epistemically irrational (Carter, J., & McKenna, R., op. cit.).

¹⁵ On this point in relation to the rationality of the Dunning-Kruger effect see: Dorst, K. "Being Rational and Being Wrong", manuscript.

¹⁶ Kahan, D., "The Politically Motivated Reasoning Paradigm, Part 1", pp. 2-4.

¹⁷ Kahan, D., "Ideology, motivated reasoning, and cognitive reflection".

¹⁸ Tappin, B., Pennycook, G., & Rand, D. (2020). "Bayesian or biased? Analytic thinking and political belief updating". *Cognition*, 204.

¹⁹ Lewis, D. (1980). "A Subjectivist's Guide to Objective Chance". In R. Jeffrey (Ed.), *Studies in Inductive Logic and Probability* (Vol. 2, pp. 263-293). Berkeley: University of California Press.

²⁰ Weatherall, J., & O'Connor, C. (2020). "Endogenous epistemic factionalization." *Synthese*.

²¹ Given that there are interested parties who distribute misrepresentations of scientific findings in order to get target groups to doubt those findings (Oreskes & Conway, 2010), it seems very likely that these groups will differ systematically in relevant background beliefs. If these groups differ politically, we should expect another correlation: viz. between political values and background beliefs. Indeed, the fact that information interventions aimed specifically at preventing acceptance of such misinterpretations are effective constitutes further reason to doubt prefer the CCH over the DBBH (Cook, 2016).

²² Bullock, J. (2009). Partisan Bias and the Bayesian Ideal in the Study of Public Opinion. *The Journal of Politics*, 71(3), 1109-1124; Dorst, K., op. cit.; Druckman, J., & McGrath, M. (2019). "The evidence for motivated reasoning in climate change preference formation". *Nature Climate Change*, 9, 111-119; Hahn, U., & Harris, A. J. (2014). "What does it mean to be biased: Motivated reasoning and rationality". In B. H.

Ross (Ed.), *The psychology of learning and motivation: Vol. 61. The psychology of learning and motivation* (pp. 41-102). Cambridge, MA: Elsevier Academic Press.

²³ Tappin, B., Pennycook, G., & Rand, D., "Thinking clearly about causal inferences of politically motivated reasoning", p. 85.

²⁴ E.g. Kahan, D. (2010). "Fixing the Communications Failure". *Nature*, 463, 296-297, p. 296; Kahan, D., Jenkins-Smith, H., & Braman, D., op. cit., p. 147.

²⁵ Following Austin, J. (1975). *How to Do Things With Words*. Oxford: Oxford University Press.

²⁶ Kennedy, C., & McNally, L. (2005). "Scale Structure, Degree Modification, and the Semantics of Gradable Predicates". *Language*, 81(2), 345-381; Kratzer, A. (1977). "What 'Must' and 'Can' Must and Can Mean". *Linguistics and Philosophy*, 1(3), 337-355; Hansen, N., & Chemla, E. (2013). "Experimenting on Contextualism". *Mind and Language*, 28(3), 286-321.

²⁷ Peet, A. (2021). "Defective Contexts". In R. Sterken, & J. Khoo (Eds.), *Routledge Handbook of Social and Political Philosophy of Language* (pp. 193-207). New York: Routledge.

²⁸ Tentori, K., Passerini, A., Timberlake, B., & Pighin, S. (2021). "The misunderstanding of vaccine efficacy". *Social Science & Medicine*.

²⁹ Abreu Zavaleta, M. (2019). "Communication and Variance". *Topoi* 40, 147-169; Bowker, M. (2019). Ineliminable underdetermination and context-shifting arguments. *Inquiry* 65, 215-236; Cappelen, H., & Lepore, E. (2005). *Insensitive Semantics: A Defence of Semantic Minimalism and Speech Act Pluralism*. Oxford: Oxford University Press; Peet, A. (2016). Testimony and the epistemic uncertainty of interpretation. *Philosophical Studies*, 173(2), 395-416.

³⁰ Kahan, D., Jenkins-Smith, H., & Braman, D., op. cit.; Kahan, D., Jenkins-Smith, H., Tarantola, T., Silva, C. L., & Braman, D., op. cit.; McKenna, "Irrelevant Cultural Influences on Belief", p. 765; McKenna, "Persuasion and Epistemic Paternalism", pp. 95-98.

³¹ Kahan, D., Jenkins-Smith, H., & Braman, D., op. cit.

³² I might also be similarly differential in my reaction simply because I have the background belief that Angie gets things wrong easily whereas Billie doesn't.

³³ Kahan, D., Jenkins-Smith, H., Tarantola, T., Silva, C. L., & Braman, D. (2015). "Geoengineering and Climate Change Polarization: Testing a two-channel model of science communication". *The ANNALS of the American Academy of Political and Social Sciences*, 658(1), 192-222.

³⁴ Rysiew, P. (2020). "Epistemic Contextualism". *The Stanford Encyclopedia of Philosophy*. Retrieved from <https://plato.stanford.edu/archives/spr2021/entries/contextualism-epistemology/>.

³⁵ As a referee for this journal pointed out to me: even invariantist accounts of the stakes-cases motivating epistemic contextualism can be used to explain the workings of this remedy without need of the CCH. I nonetheless focus on contextualism because of its potential to offer an "information intervention" construal of the remedy.

³⁶ Moreover, one reason beliefs formed through cultural cognition are epistemically deficient is that the reason why the believer holds them is not the reason she takes herself to have for holding them (crudely put, that's Carter and McKenna's (2020) point). These interventions (understood *a la* the CCH) do not change this. So it's not clear how these interventions (again, so understood) improve epistemic quality.

³⁷ McKenna, "Persuasion and Epistemic Paternalism", p. 101.

³⁸ Mitova, V. (2020). Explanatory Injustice and Epistemic Agency. *Ethical Theory and Moral Practice*, 23, 707-722.

³⁹ Carter and McKenna, op. cit.