**The Tree of Knowledge**

**The Limits of Argument**

**Howard Darmstadter asks why rational debate doesn’t often change minds.**

Political and religious opinions often seem bedded in mental concrete, immune from polite rational attempts at persuasion. (My mother cautioned me to avoid talking politics or religion with strangers.) But lately, all sorts of ostensibly non-political issues have been politicized. People with fringe politics tend to become climate change deniers, flat earthers, or anti-vaxxers. What’s wrong with these people? How can they deny the obvious facts? Don’t they care about the evidence?

I can’t explain why extremisms wax and wane, though there’s no shortage of explanations floating about. What I’ll try to do here is offer some reasons why the usual processes of argument seldom convince people on the other side. Given what philosophers and psychologists have learned about the structure of our beliefs, clinging to extreme views is what we should expect. To see why, we need to understand some belief basics.

**Logic & Context**

Our beliefs aren’t logically coherent. No one believes all of even the obvious logical consequences of their beliefs, and we all believe some logical contradictions.

For example, suppose your car won’t start. After a few simple tests – you try the horn and lights – you conclude that the battery is dead, and that you should try connecting the car to a live battery. So apparently, you believe that (1) ‘You *cannot* start a car with a dead battery’, and (2) ‘You *can* start a car with a dead battery’ (for example, by connecting it to a live battery). The two beliefs appear logically contradictory. Perhaps what you really believe is not that you can’t *ever* start a car with a dead battery, but a more carefully hedged belief: that you can’t start a car with a dead battery *in the usual way*, or that *all other things being equal*, you can’t start a car with a dead battery. But such strategies would mean that we don’t actually believe most of our expressed beliefs, at least as expressed. Perhaps a better strategy would be to admit that we believe that ‘you can’t start a car with a dead battery’ only in the sort of situations where we would invoke that belief, such as when we try to explain why the car won’t start. When the context shifts, to trying to start the car, we put aside the belief that ‘you can’t start a car with a dead battery’, and instead invoke the belief that ‘you can start a car with a dead battery by connecting it to a live battery’.

My point is that we hold all the beliefs we express or actively think, but only in those contexts in which we express or think them. If we could specify the contexts in which a belief applies, then we could say exactly what we believe: that in such-and-such particular contexts, a car with a dead battery won’t start. But we’re unlikely to know all the contexts where we believe the car won’t start, or where you can start a car with a dead battery. And in a novel context, some of us will invoke a belief that others won’t. Even where we hold the same belief, we may still differ on the proper contexts for its invocation. We all believe ‘Thou shalt not kill’, but differ about the appropriate contexts. For example, does it apply to animals? Even if we limit the context to human beings, there are still contentions over appropriate contexts: Euthanasia? Abortion? Capital punishment? War? Beliefs don’t come with instructions for their appropriate contexts.

**Models & Explanations**

That we invoke certain beliefs in certain contexts, and sometimes inconsistent beliefs in other contexts, isn’t a mental flaw, but a necessity for getting us through our days. We reason about the world and appropriate reactions to it from mental models – pictures of the world – based on beliefs we deem appropriate for that context. Our models ignore many possible complications and conditions. Thus, when we invoke the belief that you can start a car with a dead battery by connecting it to a live one, we’re likely to ignore the possibility that the car may also be out of gas. It usually isn’t part of the dead battery context.

This isn’t just a matter of being sloppy, or narrowly focused about humdrum matters. Scientists, too, work with models that they use only in particular contexts. Let’s take a well-known example. Newtonian physics and Einstein’s general theory of relativity are incompatible models of the universe in that in some circumstances (such as strong gravitational fields) they predict contradictory things. Newtonian physics has been superseded by that of Einstein, but at the kinds of scales and fields we encounter in everyday situations it still gives the correct answers more straightforwardly and intuitively, so it is still very widely used.. Therefore physicists sometimes use Newton, sometimes relativity, depending on the context. Similarly, physicists use quantum theory in many situations; but not when they’re preparing dinner.

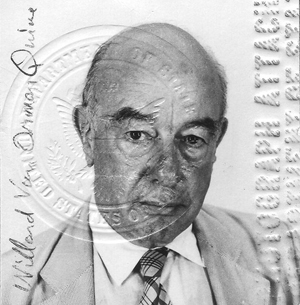
**Where Do Our Beliefs Come From?**

Right now, I believe that I’m sitting at my desk typing an article. When I get up from my desk, I’ll abandon that here-and-now belief in favor of new ones – that I’m walking down the hall, that I’m eating lunch, etc – with my former here-and-now beliefs becoming there-and-then beliefs. But many of our general beliefs about the world are not so closely tethered to immediate experience. For example, I believe that I live on a (roughly) spherical planet. We hold most of our general beliefs, such as our belief in a spherical Earth, because sources we trusted – parents, teachers, friends, books, TV, the internet, and so on – told us so. We don’t believe everything we’re told; but it’s how we get most of our general beliefs.

Our reliance on other people to provide our general beliefs is, again, not a flaw in our epistemological makeup, but a strength. True, some of the beliefs foisted on us will prove faulty, but most won’t. Indeed, the lives we lead depend on a vast network of specialized believers telling us what to think. When I drive to the market to buy a quart of milk, I don’t have most of the beliefs I would need to design a car, or to prospect for, dig up, or refine the metal the car is made of or the gasoline that fuels it. Nor do I have many useful beliefs about how to build a road or milk a cow. Luckily, my trip to buy some milk doesn’t require me to have these beliefs. It’s enough that other people had the appropriate beliefs, and that I’m able to use the products those beliefs make possible.

**Experience & Belief Change**

If I need groceries and believe that the grocery store is open, I may drive there. But when I get to the store, I find it closed. Obviously, I have to modify my beliefs about the store’s hours.

  
Quine passport photo © Dr Douglas Quine

As events unfold, and we are surprised by outcomes, we constantly revise our beliefs. It was easy to modify my beliefs about the grocery store’s hours, but not all surprises are so easily resolved. To cite another well-known example, physicists around the beginning of the twentieth century found it difficult to adjust their beliefs to take account of the surprising result of the Michelson and Morley experiment, which proved that the speed of light didn’t change with the direction of measurement, despite the Earth’s motion through space. This quandary was only resolved by Einstein developing his theory of special relativity, a theory which was also, to put it mildly, surprising. As WVO Quine said in *From a Logical Point of View* (1961), each of us has peripheral beliefs we can more easily jettison, but also more central beliefs that are increasingly more difficult to give up the more they are important or fundamental to us. Of course, what’s central for me may be somewhat peripheral for you, and vice versa.

An unexpected experience doesn’t by itself tell us which belief to change. We can hold on to any general belief in the face of unexpected experiences if we’re willing to adjust our other beliefs. According to Quine, people will make the least disruptive change to their beliefs that they can, giving up peripheral-for-them beliefs while hanging on to their more central ones. As Quine pointed out:

“The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges… A conflict with experience at the periphery occasions readjustments in the interior of the field… But the total field is so undetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to reevaluate in the light of any single contrary experience… *any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system*. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of the kind called logical laws.” [emphasis added]

This goes for scientists as much as for laymen. For example, when physicists in the Oscillation Project with Emulsion-tRacking Apparatus (OPERA) announced in September 2011 that they had observed neutrinos that appeared to travel faster than light, most physicists adopted a wait-and-see attitude. The belief in the speed of light as an absolute upper limit was too central to physics for it to be lightly abandoned. Sure enough, by the following July the OPERA scientists had traced the result to flaws in their measuring equipment.

Refusing to give up central beliefs except in extraordinary circumstances probably keeps us from a perpetual state of agitation and indecision. Without such epistemological inertia, it would be difficult to get people to cooperate, or even to act.

**The Community Connection**

However, some of our most central beliefs are only loosely related to action. Our religious beliefs may determine which church we go to and how often, but views on transubstantiation or the virgin birth may have little influence on any of our other actions. Similarly, political beliefs may determine how we vote, but that’s an infrequent and private action that takes little time. For most of us, our beliefs about trade, immigration, or other political matters, are unlikely to significantly influence our everyday actions. Even so, religious and political beliefs may be very firmly held, even to the point of being immune from civilized argument.

While their connection with action may be slight, the connection of political beliefs with a political party or religious beliefs with a religious community can be strong. Indeed, our political party may *determine* some of our policy views, and the church we go to some of our religious beliefs, rather than vice versa. So apart from being a core part of our self-identity, our religious or political beliefs may also be central for many of us because changing them may require changing our social circles.

**Why We Don’t Agree**

By now we can see why some disputes are so difficult to resolve by polite rational argument. First, people may hold what seem like contradictory beliefs because they use their beliefs in different contexts. Second, people differ as to which beliefs are central to their lives, and which peripheral; and in a quandary caused by a disturbing experience (or by polite rational argument), different people may choose to modify different beliefs. Third, many beliefs are not derived from personal experience but from a trusted community, so that giving up those beliefs may threaten ties to that community.

These obstacles to agreement arise out of pervasive but generally useful features of human psychology. Such disagreements may, however, make us search for an objective standard. There may be many opinions, we feel, but there can only be one truth about a given topic. But truth turns out to be a slippery customer.

We take our beliefs about the outside world to represent the world, and true to the extent those representations are accurate. While some philosophers have argued that the nature of the external world is ultimately unknowable, most of us nevertheless suppose that there is an outside world that exists independently of how we think about it rather than take the skeptical view about the external world. As David Hume argued, it’s a supposition impossible to avoid:

“The great subverter of… the excessive principles of scepticism is action and employment, and the occupations of common life. These [sceptical] principles may flourish and triumph in the [philosophical] schools; where it is indeed, difficult, if not impossible to refute them. But as soon as they leave the shade, and by the presence of the real objects which actuate our passions and sentiments, are put in opposition to the more powerful principles of our nature, they vanish like smoke, and leave the most determined sceptic in the same condition as other mortals.”  
(*An Enquiry Concerning Human Understanding*, Sec XII, Part II, 1748)

But believing there’s an outside world doesn’t solve our problem, for there can be many accurate representations of that world.

If we take the representation metaphor seriously, then elements of the belief correspond to elements of the world, and relations between the belief elements will track relations between the corresponding elements of the world. Our beliefs will thus represent the world in much the way that a road map represents a landscape: labeled points on the map correspond to cities and villages, and labeled lines to roads and highways. However, we can’t jump outside our own experience to comprehend the external world’s objects and interrelations in some experience-independent way. We’re stuck on the experiential side, and can only know the world independent of our experience as the hypothesized cause of our experience and our consequent beliefs.

**Truth & Pragmatism**

Another theory of truth – pragmatism – sees beliefs as true if they help us reach the experiences we desire.

The strength of this theory is its fidelity to the way we actually adjust our beliefs. When acting on our beliefs leads to unanticipated experiences, we change our beliefs without worrying about any unknowable relationships between our beliefs and the outside world.

The problem with pragmatism is that our goals vary, so conflicting beliefs may be useful for people with different goals. Charles Sanders Peirce, the founder of American pragmatism, tried to solve this problem by declaring that, in the end, our differing belief systems would converge to a single set of optimal beliefs that would best enable each of us to achieve our differing goals. Such best-for-everybody beliefs would thus become the true-for-everybody beliefs (*The Collected Papers of Charles Sanders Peirce*, p.267, 1935). But given the diversity of our goals and situations, we’re never going to have a set of beliefs that benefits everybody. We’re condemned to multiple fragmentary models of the world, so that incompatible models could best serve the needs of different people in different situations with different goals.

Once again maps provide a convenient model of this concept. In navigating our world, we use different maps depending on where we are and where and how we want to go – maps for driving roads, sailing seas, hiking trails, and so on. Each different map ignores lots of facts about the mapped territory because they’re judged irrelevant to the intended users’ purposes. We say that a map is accurate (true) when following it gets us where we want to go, even though it may lead people with other goals astray. Similarly, to guide our actions, we use beliefs (or mental models) that are appropriate for our individual situations and goals. People in other situations with different goals may benefit from having other beliefs.

**What to Do?**

With no objective standard of truth, how do we go about modifying another person’s beliefs? Should we even try? People who don’t share our beliefs may simply have different goals. Wouldn’t live-and-let-live be the proper response to differences of belief, then?

We may be content to let everyone go their own way on literary or musical preferences, and other matters of personal taste, but not when it comes to matters that affect others. For example, we might be happy to let people who reject vaccination choose and suffer the consequences. But what if those consequences make it likely that people who cannot safely be vaccinated, such as newborns, will suffer too?

Anti-vaccination beliefs aren’t there by accident, and they’re unlikely to be dislodged by argument. The arguments that anti-vaxxers present may seem silly to us – they probably feel the same about our arguments. But if argument won’t work, what will?

People do change their central beliefs, but often only as a result of a purely personal event, such as falling in love, or the death of a relative; or of a widespread catastrophe, like war or plague. Personal events are unpredictable, however, and catastrophes unwanted, so we cannot rely on them for changing beliefs. Yelling at or being snarky to those of other persuasions may make us feel good, and cement attachments to our own belief communities, but it’s unlikely to change their beliefs. After all, has all the other side’s yelling or mockery changed *your* beliefs, other than lowering your opinion of their intelligence or morals? Repression is frequently used to silence people with inconvenient beliefs, but seems inconsistent with the kind of open society most of us prefer. And although repression may work for a while, it usually fails in the long run – though some short runs can last several lifetimes.

  
*The Devolution of Man* by Farshaad Razmjouie, 2020

**Taking the Long View**

So what’s the likelihood that we can argue someone out of belief that seem aberrant to us? About as likely, I should think, of their arguing us out of whichever of our beliefs *they* find aberrant. The kinds of changes we’re talking about take time, often generations.

Some things to keep in mind: first, each of us depends on an extensive web of other believers to get to our chosen goals. Adopting beliefs from other people, or at least letting them get on with their beliefs, is a necessity if we are to live the lives we want. I don’t understand quantum mechanics, but I’m happy that other people do.

Relying on other peoples’ beliefs seldom requires us to give up our own most deeply-held beliefs. When I ventured out to buy that quart of milk, the dairy farmer’s and the grocer’s political and religious beliefs did not concern me.

We generally benefit by maximizing the number of people who contribute to our belief network. And we suffer when people are arbitrarily denied the chance to contribute – barred or discouraged from a field, or the education or facilities they need, because of their race, sex, religion, politics, or other factors that have little to do with their ability to contribute.

Finally, it’s better if we *don’t* all have the same beliefs. For a tough problem, we’ll want to choose from a range of proposed solutions. Heterodox views are to be tolerated, even if not adopted.

Extreme views ebb and flow, but the long-term trend seems favorable. Rapid transport and communication systems have mushroomed in just the last few moments of historical time. Formerly isolated societies with monolithic beliefs have suddenly found their certainties questioned. They have fought back, and continue to fight, but it’s a hopeless cause. Ideas and beliefs leak, then rush, across borders and boundaries. There may be starts and stops, progress and reverses, but the ultimate result seems clear: a global society where the various subsocieties may have their own beliefs and ways of doing things, but must be tolerant of other ways of life.

Changing fundamental beliefs may be hard, but at least our children won’t believe all the nonsense we believe. The pressure of events will gradually turn them toward beliefs that work for them – beliefs that enlarge their belief communities while globally retaining a diversity of views. It’s a process that can’t be forced, but it seems inevitable. Be patient.

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