

4.2 What Does It Mean to Know?

Perspectives on Truth

Let's take a little step backwards, but an important step backwards, for just a touch of philosophy of science. And we're doing this because I want to contextualize how hard a problem this really is and has been for a very long time, way before anyone even imagined anything like data science. And so I want to talk about three slightly different perspectives. The first perspective is what I like to call the kind of ancient correspondence notion of truth. And it still exists actually in some forms. This isn't like, only ancient. The core theory is really simple. It's just that true beliefs and true statements, things that are true, correspond to the actual state of affairs in the world-- what's really happening. This is what Plato was looking for in his theory of truth, his epistemology. What we're looking for here is an accurate description of things as they are. It sounds self-evident in one sense, but also impossible in another. And anyone who has ever built or worked with any kind of reasonably complex model-- scientific, social scientific, model airplane, for that matter-- realizes that correspondence of truth isn't actually possible for any meaningfully complex system, because after all, the whole point of a model in any of those domains is to simplify, exaggerate the important stuff, and then add the complexity back. A model that was an accurate representation of reality wouldn't be a model anymore, and it almost certainly wouldn't be tractable in a scientific manner. And for purists, the model would still need to be described in words or symbols. And since neither of those perfectly represent reality, there's always going to be some form of non-correspondence. The point of this is to make it work for you, not against you. But that's only one way of thinking about what truth actually means in practice. There is a second notion which I like to call the social constructivist notion of truth. Social constructivist. This is just what it sounds like. What counts as truth is really a social construction-- what people in a specific place at a specific time agree amongst themselves is true. And in this view, what is true depends on culture, depends on history, and of course, it depends on who's powerful. I mean, not everyone has an equal say in the discussion over what is true and is not true. For example, inside a country, inside a family. And if you have more money, you can buy ads on TV or the internet and you can try to move the levers of truth. If you're respected for having been extraordinarily successful these days in a technology startup, you get the power to define what is or ought to be true in other areas of human action. I mean, think about Bill Gates with developing country public health programs and now with education. He was extraordinarily successful in technology and he's now getting to define what is true in these other areas. If you're the CEO of a large corporation, you know, it's not really enough to say that you get to make the most important decisions. In practice, it's really more than that. To a certain degree and to a degree that I think will surprise many scientists, the CEO actually gets to define what is true inside that company. Think about someone saying, you know, we are a design company. That's not just a statement about what's true, that's a statement about who we

are. It's more than a strategic conversation about what markets to enter. It's really about identity. And you know, Karl Marx understood this. It's what kept him up at night. In fact, John Searle, philosopher here at Berkeley, had a really simple and powerful way to think about this. He called them brute facts and social facts. Now look around you for a minute. Knock on a wooden desk. [KNOCK] You know, that's a brute fact. What you just hit your head on is wood. But it's a social fact that it's a desk. Nothing in nature says, we sit at this desk and work. In some other society, people might think this is a prayer bench. Somewhere else, people might agree that it's god. So what is truth? Actually all of these things and none of them. It depends on where you are at the moment. And then finally, a third concept. It doesn't really rise to the same level of generality, but it's particularly important inside contemporary organizations in the way people try to determine what's true. I call it the John Stuart Mill method of truth, or JSM for short. John Stuart Mill. Come back later, you probably know, was a British philosopher and economist from the mid 1800s. He argued that truth is something that human beings arrive at. And the way they arrive at it is through a particular form of argumentation-- the clash of opposing viewpoints. Think of truth is what you get closer to over time kind of asymptotically through hard-edged debate. You know, you take this position. I take that position. We bang them up against each other. We do that over and over again. And over time, the debate kind of starts to extrude the false statements and selects for the one that are closer to the truth. Now John Stuart Mill believed also importantly, and this is very significant for most organizations, that truth has a kind of entropy built into it, that it tends to corrode over time, and that if you don't constantly reinforce it, it will corrode. That's a really interesting notion. And I suspect it really rings true particularly for people who spend much of their lives inside large organizations. You can't win the truth debate only once. But it's a hard notion for people who are scientifically and technically minded to accept. I mean, once we know something is true, unless the environment changes, why should that truth corrode. But think about how you've lived that reality in your own business. So what is a data scientist going to do with all that? How can you most effectively move the search for important, actionable truths forward inside a real, living, breathing company? Let's look at a simple set of instructions that just might be useful.