Truth, and How not to find it

Joshua Cogliati

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Not long after I first came to this church, the ministers at the time decided to do a discussion on the movie "What the Bleep Do We Know!?" There was a lot to the movie, but one part I remember was in the movie it showed someone thinking different thoughts like anger or joy while freezing water, and then showing how with the different thought there was different looking ice under a microscope in what seemed like joyful water or angry water. This sounds magical and supernatural, but if you read how it was done, the person choosing the pictures knew which thought went with the water, so could easily choose a picture to match the thought, as opposed to the thoughts actually directly affecting the water.

So what can I learn from that experience? I suppose not to trust everything I hear in this UU congregation and not to trust everything I hear on a TV are useful lessons. I recommend that people in the audience follow that lesson of not trusting everything you hear when I am speaking. But a lesson that I learned again that day and have learned many times in my life is that finding out truth is hard.

For this talk, I am primarily concerned with four types of truth where I think correctness is important. These types are: logical, scientific, historical, and ethical.

Logical truth is truth that can be determined by using axioms and inference rules and then creating proofs.

Scientific truth is truth that can be verified by repeating an experiment.

Historical truth is about what happened in the past.

Ethical truth is about what should be preferred.

Figuring out which type of truth we are dealing with is an important step in figuring out how to check the truth.

Logical truth can be checked with just checking that the proof is correct, which can be tricky, but does not require any experiments or trust. As a side note, by Gödel's incompleteness theorem, any formal system powerful enough to do arithmetic is either incomplete or inconsistent. In incomplete systems there exist things that cannot be proved. In inconsistent systems there are things that can be proved both true and false. For example, if the proof system allows dividing by zero, it can be proved that $1 = 0$. We usually prefer incomplete systems rather than inconsistent systems, so there are many things that cannot be proven by logic.

Scientific truth includes facts that can be determined by experiments. This includes many more facts about what the world we are living in is like than logical proofs. Unlike Logical proofs this can have mistakes. The needed experiment might have been done incorrectly or not done at all. So science can never be fully certain, because new experiments can always potentially show that there is some error in existing theories. Of course, when a well established theory like Newtonian gravity was replaced by relativity, the Earth still kept orbiting the sun, we just could calculate the orbit a bit more accurately.

Historical truth are facts that are true or false depending on whether or not they happened, which requires some chain of events and trusting that the evidence has not been distorted. This is different than the previous types of truth because it is possible to for evidence to cease to exist, unlike in scientific truth where the experiment can always be replicated, or in logical truth where the proof can be re-derived.

Ethical truth is even more different, since, so far

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as I can tell, there is no rule that can always be used to determine the correct answer. At best there are some guidelines. First of all, be careful about ethical rules that make you more privileged than others. If the ethical rules are greatly advantageous for you and disadvantageous for others, you may very well have bad ethics. A related test for an ethical system is to consider if you would still want it when you don't know who you will be. For example, slavery sounds a lot worse if you don't know if you will be born slave or free. Another ethical guide is the golden rule: "Do to others as you would have them do to you."[1] which works if you are similar enough to who you are interacting with. Lastly, for groups of equals, social compacts can work. A social compact means get everyone together and choose the ethical rules to follow. Democracy is a form of this.

For logical, scientific and historical truth finding, there are whole developed fields of knowledge about how to properly find truth, with formal methods and other ways to find truth. In these, there is expertise, so if you can figure out who an expert is, often the simplest way to find truth is just listen to the expert. However, figuring out who is an expert can be hard, and gaining the expertise yourself can take years.

Back when I was a kid, we went to Hidden Lake in Glacier National Park, and once I had a scientific instrument with me, called sunglasses. They were polarized and as I looked at the lake with them, I noticed that when I had them on I could see to the bottom of the lake, but when I had them off all I could see was the sun reflecting off of the water. It was over a decade between when I noticed that I could see the bottom of the water with the sunglasses, and my being able to show this with Maxwell's equations and vector calculus. So it took a while before I had the expertise to understand what I had seen. That said, freshman college textbooks are aimed at people with a high school education, so if you have something you really want to learn and a month or two of time, you probably can gain some expertise yourself by reading a textbook. And I have a secret trick for textbooks. They are usually fairly expensive, but if you don't need the newest information, the previous version can usually be found a lot cheaper. I highly recommend reading college textbooks when you want to do your own research.

Like in the expertise problem, a big problem is that many things cannot be found out by yourself. You have to rely on other people. We might have to rely on someone with expertise that we don't have, or on the testimony of someone who saw an event we did not see.

When looking for the truth, note that some beliefs are scientific, even tho' people often think of them politically, such as what is the result of allowing assault rifles, or what is the best method of proceeding when someone says they are a different gender. If you are asking a scientific question, then it has to be answered with evidence. So for questions that are making predictions about what happens in the world, remember to look for the experimental evidence.

There are a lot of rules of thumb for finding truth. One very key one is if some method or process gives two or more opposing answers, it is not a good method for finding truth. For example, just "follow this divine book" is one that has been suggested to me. But the problem is that there are multiple books that people have considered divine, and they have contradictions in what they claim is true.[2]

A second rule of thumb is when someone disagrees with what you believe, try and figure out if you are mistaken. This requires fully understanding what the person who disagrees with you believes, since many things, such as evolution, can sound silly with just a simplified understanding. Also, try and find the best reasons that people believe something.

A third rule of thumb I have been using recently is to try to get closer to the source of information. So for this political season I have been watching full speeches. If you want the truth about a candidate, you should try to get the direct truth. For example, listen to a candidate's speech, not a summary of

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[1]Luke 6:31 NIV/NRSVUE

[2]Two comments. 1. If you are coming up with ethics, I do recommend trying to be better than existing religions including Christianity and Buddhism. 2. A theory that predicts three possibilities can be fine, but a theory that correctly predicts two possibilities is better than one that correctly predicts three possibilities. So if you have a theory that predicts A and a theory that predicts B, then one is wrong, but if you have a theory that predicts A or B and a theory that predicts A or B or C, and what happens in A, then either theory is possible, but the one that predicted A or B currently has more evidence.

the highlights or the low parts of it. You probably would do better choosing one speech and watching the full thing, than watching selected portions of a dozen speeches. Looking at a partial speech puts you at the mercy of whoever is choosing which parts to show. Looking at select facts means you are at the mercy of whoever is choosing which facts to show you.

I wonder if it is possible for someone's ability to find truth to be good enough that that they could figure out the truth even if they watch Fox News or CNN only.

Besides choosing which facts to show another problem, is people can be untruthful. Of course, sometimes this is harder for the liar because lies can require more lies. As Eliezer Yudkowsky writes:

> it does occasionally happen, that someone lies about a fact, and then has to lie about an entangled fact, and then another fact entangled with that one:
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>> "Where were you?"
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>> "Oh, I was on a business trip."
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>> "What was the business trip about?"
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>> "I can't tell you that; it's proprietary negotiations with a major client."
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>> "Oh—they're letting you in on those? Good news! I should call your boss to thank him for adding you."
>>
>> "Sorry—he's not in the office right now . . . "
>
> Human beings, who are not gods, often fail to *imagine* all the facts they would need to distort to tell a truly plausible lie.[3]

So lies are a challenge to finding out the truth, but it can be hard to succeed at them.

If someone started by lying about how popular they were, then they might have to lie about their inauguration crowd size, and then later about who won an election, and about the voting machines, and so on.

Lying can damage society. Hannah Arendt said that "Freedom of opinion is a farce unless factual information is guaranteed and the facts themselves are not in dispute."[4] If there is too much lying, it makes it harder to figure out what the facts are.

Information doesn't have to be a deliberate lie to be a problem. I have found people, books, wikipedia, and plenty of other sources to have mistakes. On the other hand, one lesson that I have learned is that just because someone is wrong about one thing, they still might be right about something else.

Of course, it is a big challenge that both you cannot trust anything completely, but still, we have to have at least some trust to at try and believe anything. My advice is to go with what you have found out so far, but pay attention to things that point you in a different direction. As Charles Darwin wrote:

> I had, also, during many years followed a golden rule, namely, that whenever a published fact, a new observation or thought came across me, which was opposed to my general results, to make a memorandum of it without fail and at once; for I had found by experience that such facts and thoughts were far more apt to escape from the memory than favourable ones. Owing to this habit, very few objections were raised against my views which I had not at least noticed and attempted to answer.[5]

So as Charles Darwin points out, pay attention to things that contradict what you know.

When searching for the truth, you have to want to find it, more than you want to be right, more than you want things to be nice, good or bad, you have to want to find the truth out. This can be emotionally painful, as Carl Sagan pointed out:

> One of the saddest lessons of history is this: If we've been bamboozled long enough, we tend to reject any evidence of the bamboozle. We're no longer interested in finding out the truth. The bamboozle has captured us. It's simply too painful to acknowledge, even

[3]Eliezer Yudkowsky, Rationality: From AI to Zombies, Entangled Truths, Contagious Lies

[4]Hannah Arendt, Truth and Politics

[5]The Autobiography of Charles Darwin

to ourselves, that we've been taken. Once you give a charlatan power over you, you almost never get it back. So the old bamboozles tend to persist as the new one rise.[6]

From my own personal experience, realizing I have been wrong is not fun, but the only way to have a chance of being right and finding the truth, is to realize when I have been wrong and change my mind.

Earlier this year I was judging a high school debate. It was quite hard to figure out which side had better evidence and reasons for their position. On a different debate that happened in September, I had a much easier time figuring out who had better evidence[7], but for some reason, I have been completely unable to convince some other people of who I thought won that debate last month. I seem to be completely unable to convince some people of what seems to me to be well supported facts.

If we get the truth wrong, reality can sometimes come back and bite us. As Richard Feynman said "For a successful technology, reality must take precedence over public relations, for nature cannot be fooled."[8] Feynman said that in the Challenger accident report, and in that case, things literally came crashing down because we got the truth wrong.

As some final thoughts, when seeking truth, figure out if it is logical, scientific, historical, or moral truth you are looking for, and then look for the different types of information needed to support them.

I don't know the perfect way to find truth, but often, we just need to make fewer mistakes, and by that we end up closer to the truth. So pay attention to that small voice inside when it tells you that there are reasons to doubt what you know. It may not be possible to find the perfect truth, but it is possible to get better at searching for truth. Be curious, and seek the truth.

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[6]Carl Sagan, The Demon-Haunted World, pg 241

[7]The September 10, 2024 Presidential debate

[8]Richard Feynman, Report of the PRESIDENTIAL COMMISSION on the Space Shuttle Challenger Accident