A Time Bomb

Imagine that we discover that a nuclear weapon has been hidden somewhere in one of the world's great cities. We don't know which city, or where it is hidden. We know that it is due to be set off by a timer, but we do not know when. It might be today, or it might be ten years from now. But we do know that the timer is already running.

What should be done?

The *value* of a great city is unimaginably large. In terms of human life. In terms of culture. And in raw economic terms. Hence the resources that it would be worth devoting to the task of preventing such a loss would be correspondingly tremendous.

This is not a hypothetical situation. It is the situation that we are actually in. With the minor difference that the weapon of mass destruction has not been planted yet. But it will be. And with the major difference that it is not just one city but all of them, because it not just a matter of nuclear weapons but biological doomsday weapons as well.

That is why one of the smartest people in the world, Britain's Astronomer Royal Sir Martin Rees, thinks that civilisation has only a fifty percent chance of surviving the twenty-first century. See his book **Our Final Century**.

He is dead wrong. Civilisation is going to survive. But only because the United States and its few real allies are going to achieve something that is, at present, almost inconceivable. That's why Professor Rees didn't conceive of it when he was writing his book. And they are going to achieve this in the teeth of the most frenzied opposition from everyone else in the world, including many **American Conservatives**, who are dead wrong too on this issue, as on many others.

For it turns out that to prevent this ultimate catastrophe, the least expensive option – again, in terms of loss of human lives and culture, and economic cost – depends, among other things, on ending certain types of tyranny everywhere in the world, and on doing so soon.

Tue, 02/01/2005 - 16:56 | **digg** | **del.icio.us** | **permalink**

Well said theory.

Say more. Is it testable? Can it be refined or refuted?

Part II?

What Time Frame?

I think Peggy Noonan's (and others') problem with the rhetoric was that it seemed to imply that the US policy was to attempt to end tyranny *immediately*; and that's just not realistic. Setting false expectations causes it's own problems.

I think she agrees with the current strategy.

Gil

What about the Doomsday Argument

I think you are right: civilisation will survive, and that will be in no small part due to the United States and its Allies. But one thing worries me. If civilization survives indefinitely into the future then - unlikely as it may seem - I exist among the first humans. However if civilisation dies off in the near future then in fact I exist among the mainstream of humanity. This seems the more likely of the two hypotheses. How does the World refute the Doomsday Argument?

doomsday arg

uhh, well how do you prove which is more likely for you to be anyway?

also: if civ dies off soon, you lived near the very end. unlikely by your logic? but anyway, living in the very middle, or any other specific spot, would be equally "unlikely" but of course you must live at some (unlikely) time cause you do live.

-- Elliot Temple
http://www.curi.us/

Re: doomsday arg

-> if civ dies off soon, you lived near the very end. unlikely -> by your logic?

No, because you are forgetting that the population of Earth has grown exponentially...if civilisation dies off soonish - say at the end of this century - then of all the people that have ever existed most

of them will have existed in the 20th and 21st centuries. Ergo you

should expect to be born in one of these centuries.

-> but anyway, living in the very middle, or any other
-> specific spot, would be equally "unlikely" but of course
-> you must live at some (unlikely) time cause you do live

Exactly...you do live...and you live now, not in 350BC or in 1 million AD. Suppose I have two barrels, one barrel contains balls numbered 1 thro 10 and the other barrel contains balls numbered 1 thro 100000. I draw a ball from one of these barrels, but I don't tell you which barrel. The ball I drew is number 7. Given that fact, which barrel was the ball most likely to have come from? Obviously 1 thro 10, no? You are something like the 110,506,704,114 person to have existed. Given that fact, are you likely to have been born into a civilisation in which 200 billion people total will ever exist or one in which 200 trillion people will ever exist?

A reader, If you are a rando

A reader,

If you are a random person from history then the doomsday theory will tell you you are living at the end of days whether you are or not. So it cannot tell you whether you are. See?

Prime numbers

British Prime Minister Tony Blair sat alone in his study and worried. With nuclean proliferation, bio-terrorism, natural disasters and a host of other callamities threatening the world, did the human race have much chance or surviving even the next century?

If I am an average human, thinks Blair, then I probably live somewhere in the middle of the distribution of human lives. Afterall, it would be very unlikely for me to be particularly near the beginning or the end. But the world population has more than doubled in the last fifty years! If my life is somewhere near the middle then the human race is unlikely to survive the next centruy! Blair was depressed. The mathematics were flawless, the human race was doomed and there was nothing even a British Prime Minister could do to stop it.

"Wait a minute!" exclaims Blair, "What if I am an average British Prime Minister!"

There have been 50 Prime Ministers before me, lasting in total 283 years, it would be very unlikely for me to be near the beginning or the end of the distribution, so Prime Ministers will probably last nearly 300 more years.

How reasuring, thinks Blair, British Prime Ministers will probably

outlive the human race.

The 'Doomsday Argument' Doesn't Work

I agree with 'the gob' that the argument has no substance.

We are not chosen at random from the set of all humans, and you can prove any conclusion you like if you assume that we were.

Re: Well said theory

Is it testable? Can it be refined or refuted?

Yes: if civilisation is destroyed tomorrow, we are proved wrong. If policies change and civilisation survives, we are proved wrong too. And so on.

Myself as a Random Person in History

David Deutsch: I understand that the explanation for why I am not a random person in history arises from the fact that in the multiverse there are an infinite number of people and an infinite number of versions of me. The problem is how to define what it is to randomly select one person/version from an infinite set. I see this...and yet...and yet it seems like the DA is being hooked on a technicality. Somehow *I* did get to be just one of those infinite people/versions. So my intuition is yelling out that I can consider myself to be a random sample from an infinite set. Is the infinite set problem the only objection to considering myself a random sample or are there other objections?

The Gob: Nice one, though I can see that TB becoming Prime Minister was probably not a random event: he made choices throughout his life that led him to become Prime Minister.

random person

Using your logic about Prime Ministers: you being alive isn't a random event. your parents made choices throughout their lives that led to you being born.

-- Elliot Temple
http://www.curi.us/

Re: Well Said Theory
"For it turns out that to prevent this ultimate catastrophe, the least

expensive option – again, in terms of loss of human lives and culture, and economic cost – depends, among other things, on ending certain types of tyranny everywhere in the world, and on doing so soon."

Testing and refining this would seem to be a noble purpose. I would prefer that the hypothesis that would be refuted again and again would be the doomsday one and not only soon but daily. It seems reasonable to acknowledge that there is no one doomsday to refute. Refutable doomsdays might become cumulative tho.

Replacing tyrannies large and small would be also a cumulative step in the refutative direction. Replacing them with a viable preferred alternative of a virus of useful freedoms would seem almost contagious like a contracted immunity.

The theory to be tested today is that useful freedoms are contagious as well as widely preferred to the virus of tyranny. The appropriate means by which the viruses of useful freedoms are spread from person to person and nation to nation would seem to be both testable and subject to refinement. All this would be cost effective if it is urgently and meticulously conducted as a search for the ultimate anti-doomsday truth serum.

<div align="right">by a reader on Thu, 02/03/2005 - 17:41 | reply</div>

Re: random person

Yes, my parents made choices that led to me being born. But in the multiverse those same choices also led to countless other versions of myself being born. That I experience life as this version and not one of those other versions does not seem to be a result of anything my parents did.

<div align="right">by a reader on Fri, 02/04/2005 - 19:33 | reply</div>

Re: random person

Yes, my parents made choices that led to me being born. But in the multiverse those same choices also led to countless other versions of myself being born. That I experience life as this version and not one of those other versions does not seem to be a result of anything my parents did.

Well there were countless versions of Tony Blair born, right?. That we have this one in particular, by your logic, isn't the result of choices?

-- Elliot Temple
http://www.curi.us/

<div align="right">by Elliot Temple on Fri, 02/04/2005 - 20:19 | reply</div>

Re: Re: random person

Yes, as I said before, TB becoming Prime Minister was a result of

choices he made. He can look back at his life and point to those choices and tell a story about how he became Prime Minister. Some versions of TB did not become Prime Minister, but those versions would not be contemplating the question "What if I am an average British Prime Minister".

Unlike TB as Prime Minister, I cannot tell a story about why I experience the particular version of me that I do (can you?). Certainly I can tell a story about how all the versions of me came to exist - that story involves choices made by my parents. But that is not a story of why I experience the version that is me.

<div align="right">by a reader on Fri, 02/04/2005 - 22:25 | reply</div>

The set of all humans

David commented:

>We are not chosen at random from the set of all humans

If true does this also invalidate John Rawls' "Veil of Ignorance" approach to determining what a just society would look like?

<div align="right">by Tom Robinson on Sat, 02/05/2005 - 13:23 | reply</div>

Veil of Ignorance

i think the point of the veil is you should design a society that is fair to everyone, not that works best for your particular type of life. ie, it just says not to be biased.

this part doesn't depend on the set of humans stuff. even if that metaphor is a good way to explain what he means.

(he also says many other things, but i believe most of the rest is silly)

-- Elliot Temple
http://www.curi.us/

<div align="right">by Elliot Temple on Sat, 02/05/2005 - 16:55 | reply</div>

Why only humans?

I must assume the Doomsday Argument works for other species than human. Why would it not?

The good news from this reasoning then is that we need never worry about endangered species again. After all how likely is it *really* that these two Siberian Purple-Spotted Pandas are the very last of their kind....?

The bad news (and, it's pretty bad):

What if some scientists create a new strain/species of bacteria, or whatever, in a Petri dish? Say that new species is now minutes old.

Ponder the question "will this species continue on forever?"

Supposing the answer were Yes then those members of the species currently living (in the Petri dish at the moment) would be among the first of their kind, which just seems *so unlikely*. It's far more likely they're among the middle cohort. Therefore, we conclude (or perhaps we "induce"?) that the species is going to come to end in a period of time comparable with how long it's existed, that is to say, in mere minutes. Yet the bacteria seem to be thriving in the Petri dish, no problems in sight. So how will this happen?

Well, I can only assume that the universe will implode in order to enforce the Doomsday Argument law of physics.

Unless, of course, the scientists do the right thing and kill off the bacteria strain intentionally.

In other words, we're gonna have to not just shut down all genetic research, but put some clamps on evolution. No more new species! That's just tempting the Doomsday Argument to come back and bite us.

by Blixa on Mon, 02/07/2005 - 20:22 | **reply**

Wow

No wonder they call it the Doomsday Argument.

It sure is powerful!

Gil

by **Gil** on Tue, 02/08/2005 - 00:50 | **reply**

First Person Perspective

Blixa - To apply the DA, you need to consider your existence from a first person perspective. This requires that you are a conscious observer. Last I heard, bacteria are not conscious, so your argument falls flat there. But I acknowledge that at some time in the future conscious bacteria may be possible through a combination of genetic engineering and nano-tech. Suppose that, in most possible futures, zillions of these conscious bacteria exist. Do you not think it surprising that you are born as a human being and not as one of these bacteria? Or that the fact you exist as a human being in these times gives you zero information?

It is easy to make fun of the DA, but the reasons why it is wrong aren't obvious. Just Google on it to see what I mean. You will find many refutations and many refutations of the refutations. Quite likely, the correct refutation of the DA requires a multiple-universes perspective and consideration of the infinite discrete set problem. **This paper** is an example of such an approach. Though I don't vouch for its correctness, the paper does illustrate that you might discover something interesting by taking the DA seriously. The Intro. contains this interesting quotation:

    [Einstein] told us once: "Life is finite. Time is infinite. The

probability that I am alive today is zero. In spite of this, I am now alive. Now, how is that?". None of his students had an answer. After a pause, Einstein said "Well, after the fact, one should not ask for probabilities".

empathy

You seem to be saying I lack empathy. I maintain that I have the ability to put myself in the position of a member of some other species (bacteria was only an example BTW) and ponder a large number of things from their perspective. If I can sensibly wonder how "likely" it was that I was born at such and such time I don't see what prevents me from wondering the exactly analogous thing about a three-toed sloth or any other living thing.

p.s. You're really serious about all this, aren't you?? ;-)

Re: empathy

Blixa - Yes, I do take the DA seriously, but not because it is correct. I firmly believe it is wrong. However most alleged refutations do not hold up to critical scrutiny. Unfortunately that means I often end up defending the DA because I have heard most of these "refutations" before and know why they are wrong. The DA is one of those arguments that are interesting not because they are correct but because they are incorrect in rather interesting ways.

Yes, I believe you can empathize! You can apply the third person view and speculate on what some other person creature would conclude if they applied the DA to themselves. Obviously Adam would have got it all wrong. But that's probabilistic arguments for you: some people will draw the wrong conclusions. The horse that is a "dead-cert" may not in fact win. But irrespective of when the human race ends, most people who apply the DA to themselves will arrive at the "correct" conclusion. (BTW that conclusion is not nec. doom-soon because doom-soon depends on your model of how the humam population is growing - and if that model is inductivist it's probably a load of crap anyway).

Although you can empathize, I doubt you can consider what it is like to be a bacterium because there is no "what is it like" for a bacterium. They simply are not conscious/do not have a sense of existence. You may as well consider rocks and trees. That is to miss the part that consciousness and your sense of existence plays in the DA.

Re: Myself as a Random Person in History

Is the infinite set problem the only objection to

considering myself a random sample or are there other objections?

That wasn't actually my objection. My objection is that it is invalid to go from "most members of a certain set have property X" to "this particular member of that set probably has property X" unless you have an independent reason to believe, at least, that this particular member *was chosen randomly with equal probabilities* from all the members of that set.

That is to say, an actual (i.e. not imaginary) physical process tantamount to choosing must have occurred. And you must have independent (i.e. logically prior to deploying this argument) knowledge (i.e. not ignorance) of what this process was.

I am saying that the 'frequency interpretation of probability', with a finite set of instances, is a fallacy. This is over and above the fact that with a discrete, infinite set of instances, it is impossible.

<p style="text-align:center">by David Deutsch on Wed, 02/09/2005 - 11:45 | reply</p>

Ok so you (DA reader) think i

Ok so you (DA reader) think it's wrong and I think it's wrong. I can apply it to some other living thing of my choosing (or, "imagine being it and applying it to my/itself" although I don't think this 'empathy' step is logically necessary) and see that in 95% of such cases the DA will produce results that are already obviously incorrect. I don't put that forth as sufficient "disproof" but still, it does kinda go along with that whole "wrong" thing that, again, you and I both agree about.

<p style="text-align:center">by Blixa on Wed, 02/09/2005 - 15:56 | reply</p>

Property X

David - In the context of the Doomsday Argument, what is "property X"?

<p style="text-align:center">by a reader on Thu, 02/10/2005 - 00:39 | reply</p>

Re: Property X

In the words of the 'a reader' who introduced this topic, Property X would be 'not existing among the first humans'.

<p style="text-align:center">by David Deutsch on Thu, 02/10/2005 - 00:59 | reply</p>

Re: Re: Myself as a Random Person in History

I am saying that the 'frequency interpretation of probability', with a finite set of instances, is a fallacy.

I agree about the frequency interpretation, but isn't "the probability that my birth rank is R given that we hypothesize that the total number of humans is N" necessarily a subjective probability?

by a reader on Thu, 02/10/2005 - 10:11 | **reply**